PART 2.

About Solution

Blockchain Platform Establishment/Management

Data History Management and Anti-tampering

DID System Establishment/Management

NFT Issue/Management

Digital Wallet Establishment/Management

Blockchain Transaction/Payment

Vulnerability Analysis and Information Security

Blockchain Platform Establishment/ Management

PART 2. **About Solution**

01. GREEVER
02. Corporate data trust-chain
03. NeuralBlock
04. Niktonet
05. DocuChain
06. DATA BLOCK
07. Data chain
08. DXledger
09. LedgerMaster
10. LogiChain
11. Luniverse Nova
12. RootChain
13. recycleledger
14. Retrust Enterprise Private MainNet
15. MediNomi
16. Metadium Enterprise
17. Monachain
18. Mitum
19. ByZone
20. Bowledger
21. blocknova
22. BlueBrick
23. SWCHAIN
24. SIGMA CHAIN
25. C2CC(Chain-to-Chain Communication)
26. Aergo Enterprise v2.0
27. ACCIO
28. AnyBlock
29. EnerChain
30. H-Chain
31. 2Easy
32. MPLedger
33. Orakl Network
34. Open-BMS (secondary battery management system)
35. All That Node
36. WELLDONE Code
37. WizChain
38. InnoBlock Platform
39. eBrother Block Explorer
40. ChainZ
41. KBC(KONA BLOCK CHAIN)
42. PARAMETA
43. Public blockchain
44. FuNet
45. HECATE

01

PRIDGE

Service enabling safe driving point measuring, “GREEVER”

#NFT #Safe Driving #APP #Blockchain

Solution Information

Name of Solution	GREEVER	Developer	PRIDGE (greever.io)
Solution Category	Safe driving solution	Inquiry	ceo@greever.io 010-9733-0421

About Solution

This is an APP service to obtain blockchain big data through a service to measure safe driving points.

Increasing future value

Sustainable campaign

Wide applications

- NFT vehicle purchase and sale through GREEVER network formation
- Campaign based on the four safe driving rules (GPS) in which public transport users can also participate
- GREEVER points used for various contents through blockchain application

Features

- Information obtained from safe driving-based service processed into blockchain big data

Applications

- Driver identification
- Reliability improvement for safe driving data of drivers
- Big data industrialization using safe driving data

Platform realizing corporate data governance using blockchain and AI technologies, “Corporate data trust-chain”

Solution Information

Name of Solution	Corporate data trust-chain	Developer	bigpicture labs (www.bigpicturelabs.io)
Solution Category	Blockchain platform	Inquiry	cskeum@bigpicturelabs.io 042-710-6787
Core Technology	NFT middleware technology, heterogeneous blockchain linking technology, private/public liked hybrid blockchain technology		

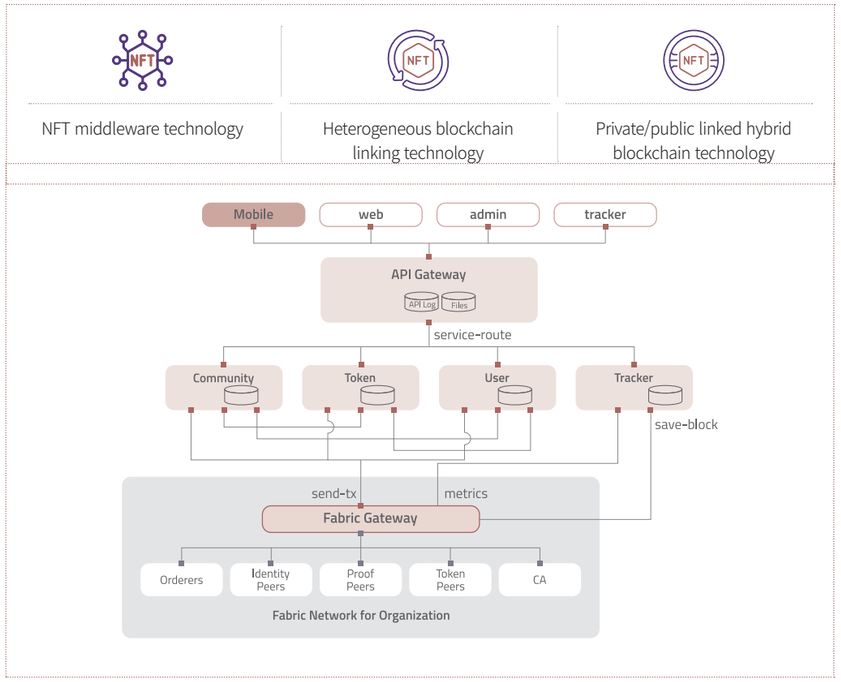
About Solution

As the shift to a society of data-centric economy according to the transition to a contactless society triggered by COVID-19 is accelerated, data security has become an essential element for the establishment of a society of trust.

Blockchain technology activated by the decentralized data processing technologies of coin and NFT is drawing expectations as an essential technology for safe data-centric governance and economic activities in the future.

bigpicture labs has developed a corporate data blockchain platform as a solution by using blochcian and AI technologies to help enterprises realize data-centric governance.

To ensure efficient use of blockchain technology, we completed a corporate data blockchain solution by including the NFT middleware technology, technology to link heterogeneous blockchains, and hybrid blockchain technology. As the solution also links different blockchains that are widely used as of present, such as Ethereum, Polygon and Klaytn, it can be serviced in not only the web, but also mobile environments.



#Blockchain #Data Governance #Data Security #AI

Features

▸ **Enabling enterprises to conveniently establish data-centric governance necessary for new organizational culture**

• A new corporate organizational culture must be established on the basis of free cooperation and communication. This can be achieved through data management for which security and anonymity are guaranteed. As the solution securely protects personal data and ensures data security through blockchain technology and facilitates data analysis and summarization using AI technology, it enables enterprises to conveniently implement data-centric governance.

▸ **Enabling blockchain users to conveniently use NFT blockchain**

• Providing NFT middleware to connect between service application and the target NFT blockchain, the solution enables users to conveniently access NFT blockchain through the middleware.

▸ **Enabling link between heterogeneous blockchains**

• The solution enables interlinking of services using different blockchains as it links the widely used Ethereum, Polygon and Klaytn blockchains.

▸ **Enabling concurrent use of private and public blockchains**

• Private blockchain that guarantees privacy and public blockchain facilitating decentralized service use is adopted depending on the purpose. The solution includes hybrid blockchain technology to link the private and public blockchains for their concurrent use according to the service type.

Applications

Category	Description
Data Governance	• Guaranteeing data anonymity and reliability
Corporate Data Security	• Providing private blockchain-based data security

Implementation Case

Period	Project	Owner
2020	• SH citizen shareholder group mobile app development • Trust data escrow system verification platform development • Advancement of startup support platform based on blockchain	Seoul Housing & Communities Corporation Electronics and Telecommunications Research Institute Electronics and Telecommunications Research Institute
2021	• Identification-based trust data transaction platform development • Onmaeul village community platform development • Blockchain reward platform development	Electronics and Telecommunications Research Institute Daejeon Metropolitan City Hanbat National University
2022	• Heterogeneous blockchain link software solution development • Establishment of trust base for public My Data through blockchain application	Korea Minting and Security Printing Corporation KSIGN
2023	• Advanced heterogeneous blockchain link solution development • Integrated trust data transaction platform and PoC development • Development of decentralized identifier-based digital asset link solution supporting heterogeneous metaverse platforms	Korea Minting and Security Printing Corporation Electronics and Telecommunications Research Institute Electronics and Telecommunications Research Institute

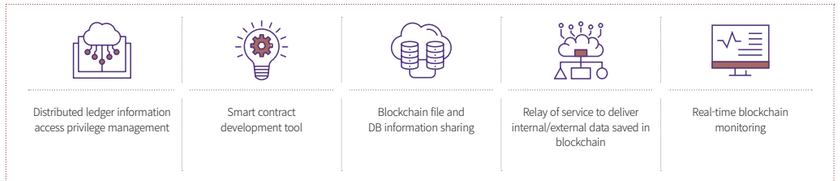
Commercial enterprise blockchain solution applicable to all industrial sectors, “NeuralBlock”

Solution Information

Name of Solution	NeuralBlock	Developer	Leadpoint System (www.leadpoint.co.kr)
Solution Category	Blockchain platform	Inquiry	staff@leadpoint.co.kr 070-4618-0681
Core Technology	Ethereum v1.9.25		

About Solution

NeuralBlock (BaaS) is a blockchain platform developed with the distributed consensus technology.
As a decentralized PoN (proof of nonce) algorithm that guarantees fair opportunities of participation for all nodes, distributed consensus technology guarantees security, scalability and stability.



Features

▶ **Performance of max. 15,000 TPS and scalability of 1,400 nodes or more verified**

▶ **Core technologies of NeuralBlock**

- Technology of multi-signature authentication among nodes
- Intelligent Byzantine ratio control technology
- Intelligent congress control, verification technology
- Nonce chain-type high-performance dissemination technology
- Technology to reduce complexity of consensus message

#Blockchain #NeuralBlock #Distributed Consensus Algorithm #Smart Contract

Applications

Category	Description
Trade	• Shared ledger and automation through smart contract → Efficiency, speed and accuracy increased, and risk alleviated
Financial Transaction	• Fast payment processing and low transaction cost for financial means such as securities, bonds, deposit certificates, commercial papers, etc. → Efficient service provided
Contract Management	• Blockchain providing shared records on contract updated according to process implementation, and immutable records for audit
Public Affairs/ National Defense	• Distributed ledger → Ledger information/document access records • Digital signature and hash function → Security improved
Asset Storage	• A considerable portion of transaction cost removed through blockchain → Loan of a new level based on low-cost assets realized

Implementation Case

Period	Project	Owner
2021	• Personal data encryption algorithm for user face recognition and verification data • IECO World metaverse blockchain development • STO concept verification for Korea Securities Depository • Project to disseminate the Ministry of Health and Welfare blockchain in public sector • Blockchain-based DID mobile user authentication pilot service	Baro BEYOND KOREA BLOCKO Korea Internet & Security Agency INOBLOCK
2022	• SME technology transaction commercialization (blockchain) project • Development of user-friendly query processing interface for blockchain analysis platform link • Project of the Korea Forest Service to establish integrated blockchain system for agricultural business entities targeting forests and fields (stages 1 and 2) • Pilot project for the Ministry of Health and Welfare blockchain dissemination in public sector • Cloud flagship project for key industries • ICBM blockchain smart system establishment	Korea Technology Finance Corporation Electronics and Telecommunications Research Institute Korea Forest Service Korea Internet & Security Agency, Busan Metropolitan City National IT Industry Promotion Agency Incheon Port Authority
2023	• Information system master plan development for Incheon blockchain verification platform establishment in Incheon TP • Project to disseminate the Ministry of Justice blockchain in public sector	Incheon Technopark Korea Internet & Security Agency

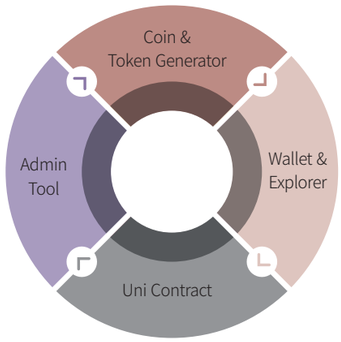
Independently developed high-performance Layer1 blockchain MainNet, “Niktonet”

Solution Information

Name of Solution	Niktonet	Developer	HESSEGG (niktonet.com)
Solution Category	Blockchain MainNet	Inquiry	Jayden@hessegg.com 010-2272-9784
Core Technology	Independently developed technology (Tendermint-based PBFT + consensus algorithm technology)		

About Solution

Niktonet is a third-generation high-performance Layer1 blockchain MainNet with fast processing speed of less than 2 seconds and low transaction cost. Designed and developed on the basis of the PBFT+ consensus algorithm and uni contract, it supplements the weaknesses of Ethereum. This is a fast and powerful permissioned blockchain (private & public) supporting independent web 3.0 ecosystem establishment through the internal MainNet.



#Layer1 #Customized MainNet #Transaction Speed of Less than 2 Sec #Global Node #STO Optimization

Features

▶ **Uni Contract**
- Overcoming weaknesses of smart contract, blockchain applicable to a wide range of businesses

▶ **PBFT + Consensus Algorithm**
- Reducing consensus processing time by 50% or more in comparison to PBFT using direct sending protocol
- Guaranteeing network safety from malicious attacks through randomized algorithm

▶ **App-Specific Blockchain**
- Integrating and customizing only the functions necessary to the DApp ecosystem
- Using the admin tool, developers can access the blockchain core level

Applications

Category	Description
MainNet Establishment	• Customized blockchain MainNet establishment
STO Platform	• Establishment of customized tokenization solution for financial products and other assets
Wallet/Payment	• Blockchain-based simple payment/charging/remittance
DID	• Personal data management, credentials
NFT Marketplace	• Establishment of NFT marketplace with various chains

Implementation Case

Period	Project	Owner
2022	• Niktonet-based EXAIS MainNet establishment Nextor	Nextor
2023	• Niktonet-based KAIROS MainNet establishment FD Group	FD Group

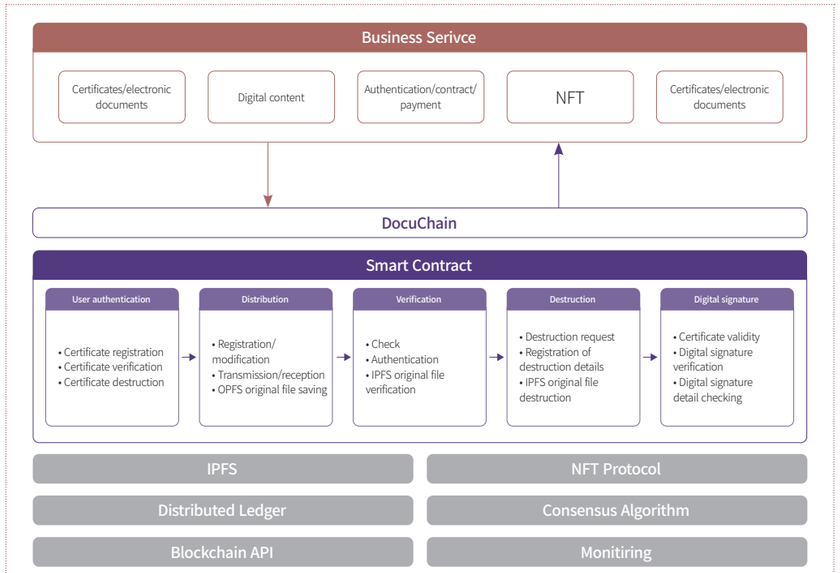
Enterprise blockchain solution, “DocuChain”

Solution Information

Name of Solution	DocuChain	Developer	DIGITAL ZONE (www.digitalzone.co.kr)
Solution Category	Enterprise blockchain solution	Inquiry	doculink@digitalzone.co.kr 02-2132-0542
Core Technology	Hyperledger Fabric v2.3		

About Solution

DocuChain is a Hyperledger Fabric-based blockchain platform that manages the creation and distribution history of all types of digital content including text, image, video and file. It can be applied to electronic document, multimedia and a number of other services in various industrial fields ranging from educational, financial and medical to logistics and public service. Even the users without professional knowledge or experience of blockchain technology can link it in the API format according to their service operating environments.



#Electronic Document #Digital Content #History Management #Authentication #NFT

Features

▶ Professional solution for electronic document and digital content history management

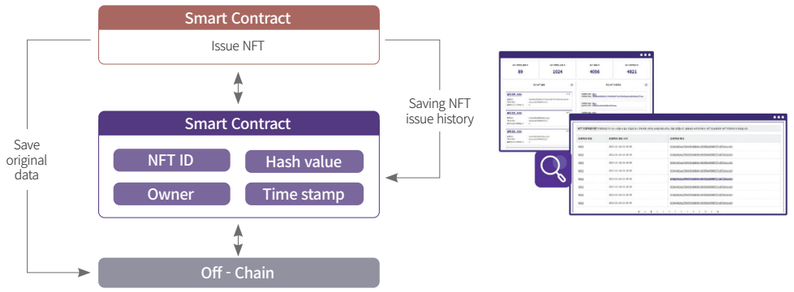
- Authentication through digital content generation, distribution and destruction history recording and management using blockchain
- Large-size original file saving and distribution evidence management using IPFS
- Digital signature function through blockchain-based user certificate issue/renewal management

▶ Blockchain platform for fast and easy link

- Blockchain node installation and distribution through single program execution
- Link to each blockchain function using standard API

▶ Real-time blockchain monitoring

- Real-time monitoring on transactions, blocks, node resources, network status, etc.
- Relationship tracking between business logic data and blockchain data



Applications

Category	Description	
Employment	• Job application through employment portal	• Employment contract
Automobile Contract	• New car purchase/sale • Used car purchase/sale	• Private/corporate car leasing • Application for vehicle de-registration
Insurance Claim	• Disease/accident insurance claim • Traffic accident insurance claim	• Property/liability insurance claim • Online application/registration process
Inheritance/Gift/Assignment	• Acquisition tax report • Inheritance tax/gift tax/capital gains tax report	• Ownership transfer process

Implementation Case

Period	Project	Owner
2019	• Technology verification for link to blockchain-based certificate attachment service	SCOUT
2020	• ICT R&D project - Blockchain convergence technology development (R&D)	Institute of Information & Communications Technology Planning & Evaluation
2023	• National IT Industry Promotion Agency blockchain report NFT experience website	National IT Industry Promotion Agency

Web 3.0 decentralized data transaction platform, “DATA BLOCK”

Solution Information

Name of Solution	DATA BLOCK	Developer	ATAD (www.atad.ai)
Solution Category	Data-related platform and infrastructure development	Inquiry	atad@atad.ai 1600-8424
Core Technology	Merkle tree-based OTP system, NFT-based data transaction solution		

About Solution

This is a web 3.0 platform that provides continuous data ecosystem by enabling service access and data (re) sale without the user ID and password to keep the use of personal data to a minimum through DID/SBT system.

P2P data hash transaction	Merkle tree-based OTP authentication system	NFT-based data (re)sale system

▶ **DATA BLOCK**

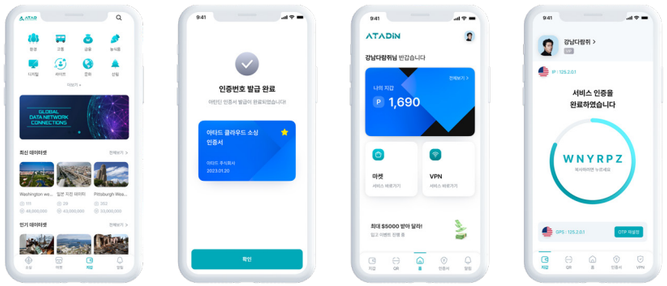
- Web 3.0 decentralized data transaction platform

▶ **DATA FUND**

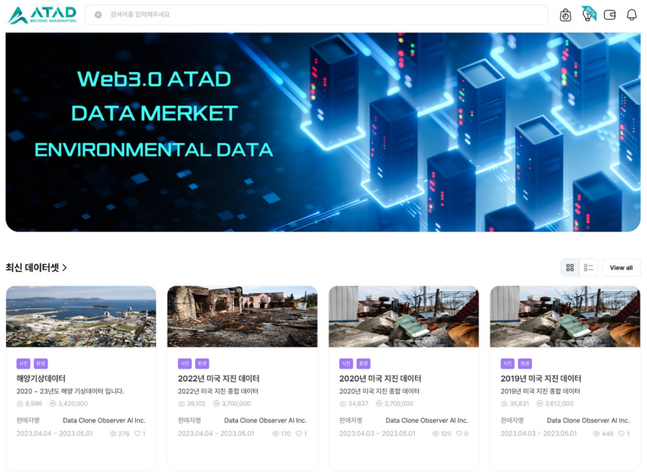
- MyDaya distribution platform

▶ **ATADiN**

- DID/SBT system for access to ATAD DATA ecosystem
  - B2B: Corporate data transaction platform, “DATA BLOCK”
  - B2C: Platform for data distribution among individuals, “DATA FUND”
  - Security: Authentication system for access to all ATAD services and platforms



#Data #Web3.0 #Platform #Decentralization #NFT



Features

- **Secure data management and transaction (hash trade)**
- **Sustainable profit model (NFT) through (re)sale function**
- **Real-time data distribution history management and data quality guarantee through data evaluation by user**

Applications

Category	Description
Personal Data Security	• Merkle tree-based OTP authentication, DID/SBT-based MFA authentication system
Data Usability	• NFT-based sustainable data circulation system

Marketing DB solution providing analysis data applicable to target marketing, “Data chain”

Solution Information

Name of Solution	Data chain	Developer	data labs (www.data-labs.co.kr)
Solution Category	DID solution, DID infrastructure development, history management service	Inquiry	girasong@naver.com 010-9365-8287
Core Technology	Hyperledger BESU 2.7		

About Solution

Data chain, a blockchain MainNet independently developed by data labs, is the only blockchain with zero transaction fee.
It enables blockchain-based business development without the financial burden for cost.

- By providing their personal data and information on the products they are interested in, individuals receive customized product recommendations and, concurrently, cash reward
- Enterprises can legally secure personal data necessary for product marketing, which is not possible under the existing MyData law
- Micro enterprises can secure a platform to provide discount coupons and mileage service to individuals

특장점

▶ Enhancing individuals’ awareness of the MyData value through web 3.0 technology

- Providing legal data collection infrastructure according to the purpose of financial companies and establishing a fair data sharing environment through improvement on the platform-dependent data management culture
- Estimating value of the indiscreetly provided personal data and strengthening personal data protection by establishing a data ecosystem of virtuous cycle

▶ Creating culture where individuals are fairly rewarded for the sale of their personal data

- Improving on the current market situation of inequality and imbalance in data resources with only some companies monopolizing data by encouraging participation in information sharing by individuals who hold the data sovereignty
- Establishing a data ecosystem of virtuous cycle by creating MyData culture where the value of MyData is properly evaluated and compensated for
- Securing a market where enterprises requiring data can legally obtain information by providing compensation
- Preventing data monopoly and inequality, and establishing a data ecosystem of virtuous cycle

#Blockchain #DID #NFT #STO #Travel

where proper compensation is provided to the citizens who hold data sovereignty
- Eliminating imbalance and eradicating polarization in the existing data market with vicious circle where the benefits generated from information are enjoyed exclusively by some companies like on an uneven playing field

▶ Creating ecosystem of virtuous cycle where enterprises can secure the necessary target marketing data

- Realizing target marketing for enterprises through compensation-based personal data acquisition
- Preventing indiscreet consent to third-party personal data provision and personal data leakage
- Activating and creating jobs in data industry through data markets such as daangn

Applications

Category	Description
Data History Management	• Data history management and anti-tampering
DID Management	• DID management
Digital Wallet	• Digital asset management
Data Wallet	• Direct management by owner holding data sovereignty
Data Sale	• Compensation-based personal data purchase and sale

Implementation Case

Period	Project	Owner
2022	• Academic affairs history management • TaaS platform establishment • Volunteer service history management	Dain Leaders LG CNS Silla University
2023	• MyData wallet establishment • Blockchain simulator establishment	Hana Insurance Blockchain Labs

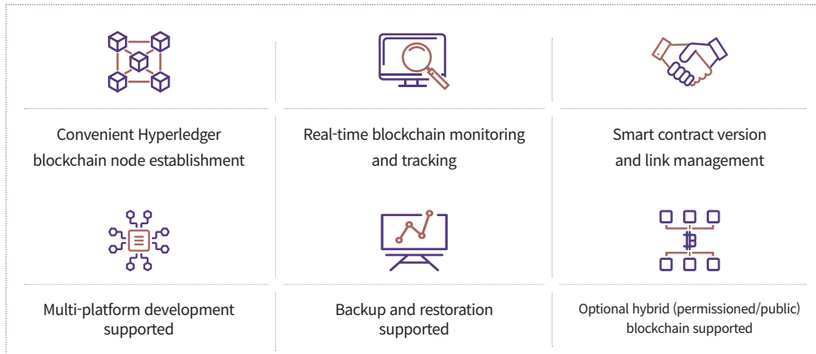
Hyperledger fabric-based permissioned enterprise blockchain platform, “DXledger”

Solution Information

Name of Solution	DXledger	Developer	DX WORKS (www.dxworks.kr)
Solution Category	Permissioned enterprise blockchain platform	Inquiry	daniel.lee@dxworks 070-8656-0670
Core Technology	Hyperledger Fabric v2.3, Hyperledger Fabric v2.5		

About Solution

This is a Hyperledger Fabric V2.3 or V2.5-based permissioned enterprise blockchain platform.



- **Convenient Hyperledger blockchain node establishment**
  - One-step blockchain network establishment
  - One-click blockchain node expansion
  - Distributed ledger link, membership (user) management
- **Real-time blockchain monitoring and tracking**
  - Real-time transaction monitoring and tracking
  - Network and infrastructure monitoring
- **Smart contract version and link management**
  - Convenient smart contract distribution
  - SDK supporting various development languages
- **Multi-platform development supported**
  - Service in web, app (iOS, Android), Windows/Linux/Mac environments supported
- **Backup and restoration supported**
- **Optional hybrid (permissioned/public) blockchain supported**

#Blockchain Platform #Hyperledger Fabric #Scalability/Flexibility #Security/Reliability #Recency/Velocity

Features

- **Establishing blockchain infrastructure with scalability and flexibility to not be limited to on-premise (cloud-based) or cloud environment, supporting user service environments, providing excellent effect in reducing establishment cost, preventing platform dependency**
- **Supporting standardized API and SKD and providing interoperability for link/integration of heterogeneous blockchain technologies, platforms and services**
- **Developing multi-platform (web/app, Windows/Linux/Mac, etc.), providing diverse operating environments**
- **Supporting expansion of various blockchain services based on security/reliability**
- **Providing blockchain technology-based function for service expansion in various industrial fields (public/educational, distribution/logistics/manufacturing, financial, etc.)**

Applications

Category	Description
Employment	• Blockchain-based services such as university enrollment/graduation certificates and qualification/training certificates
Access Control	• Saving/use in the form of electronic pass and digital certificate
Financial Transaction	• Reduction of risk in user identification, handling of certificate applications, data storage, etc.
Logistics and Distribution	• Reduction of document/administrative processing cost, etc. (tracking and management, visibility verification)
Energy	• Direct power transaction between households, digital currency, power exchange payment base

Implementation Case

Period	Project	Owner
2022	• Pilot blockchain project for private sector in 2022 (development of management platform for the records of award winning in blockchain “Career Bank” competitions)	Korea Internet & Security Agency
2023	• Illegal benefit prevention system establishment (blockchain/DID, biometrics technology applied)	Teachers Pension

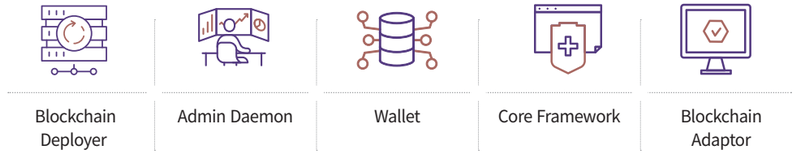
Universal blockchain middleware solution for convenient blockchain technology application to various fields, “LedgerMaster”

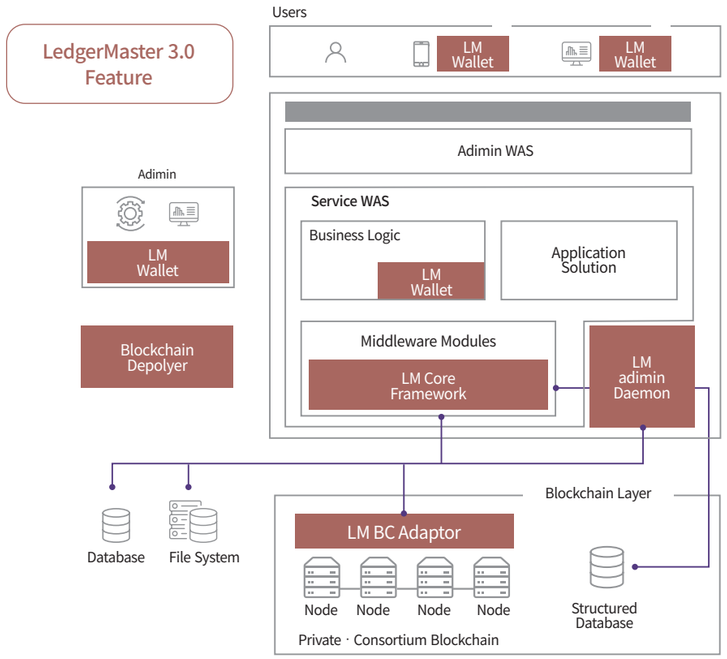
Solution Information

Name of Solution	LedgerMaster	Developer	OPUS M
Solution Category	Middleware solution connecting between blockchain platform and ICT system	Inquiry	bankie@opusm.io 010-9397-3125
Core Technology	Ethereum Quorum 22.7.1, Hyperledger Fabric v2.5, Metadium Enterprise 1.0		

About Solution

LedgerMaster is a middleware solution helping enterprises conveniently introduce blockchain for productivity improvement and benefit from the blockchain system by connecting it to the existing enterprise ICT system. This solution ensures cost-effective blockchain system introduction, and lowers the entry barrier of general developers for blockchain handling.





#Middleware #Blockchain #Data #B2B #Trust

Blockchain Deployer
- Conveniently installing, distributing and driving blockchain operating system without being limited to the system environments of other customers
- Supporting compatibility between blockchain platforms with different settings and installation methods internalized for each blockchain product

Admin Daemon
- Automatically controlling and managing blockchain system and middleware module
- Ensuring stable system management through real-time monitoring on the status of blockchain network components

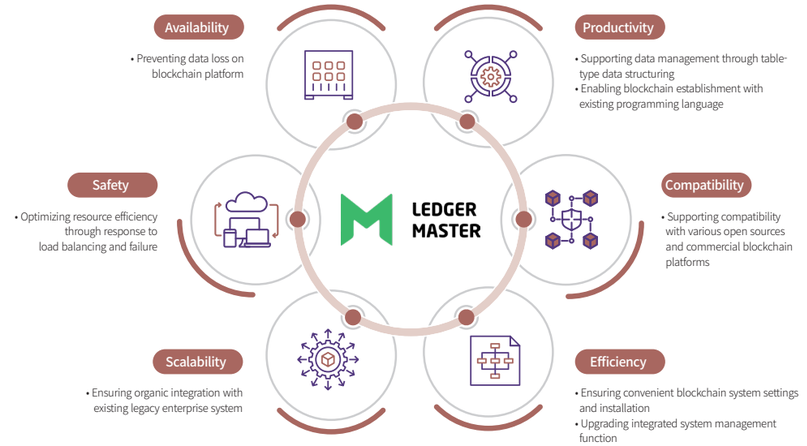
Wallet
- Providing differentiated wallet module that executes data input → transaction creation → secret key signature process at the same point
- Providing data tracking system for reliability through transparent transaction signature verification

Core Framework
- Improving blockchain network stability through smart load balancing and transaction buffering
- Improving development productivity through organic integration with development languages, frameworks, etc. widely used in the existing development environments

Blockchain Adaptor
- Guaranteeing blockchain network availability in response to various failures that occur in the network layer such as data loss
- Improving blockchain platform performance by supporting a seamless integration environment between legacy system and blockchain

Features

LedgerMaster with all necessary elements internalized for blockchain introduction into enterprise environment

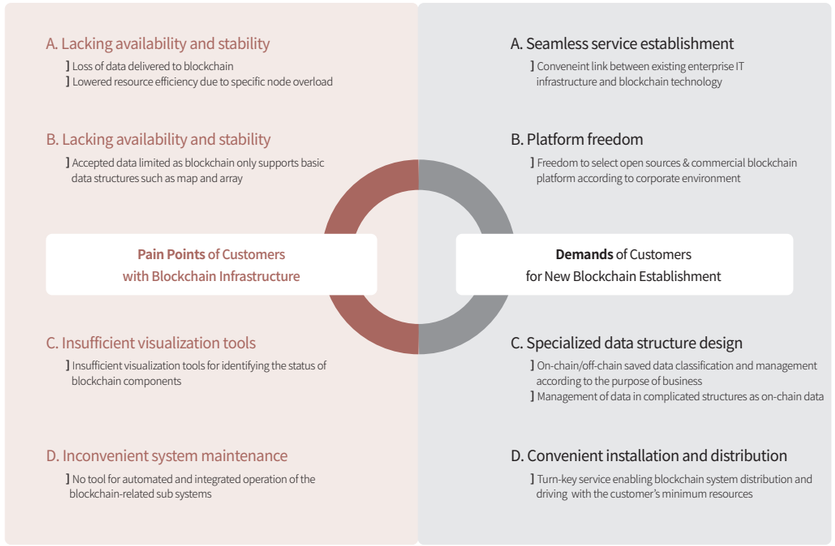


Applications

Category	Description
Blockchain System Establishment for OK Financial Group	• Integrating OK Financial Group's infrastructure and financial services for customers with blockchain • Securing compatibility between heterogeneous blockchain networks using LedgerMaster • Implementing scalable infrastructure considering CBDC service provision in the future
Donghaeng Lottery Blockchain Infrastructure Upgrade	• Improving network availability by addressing node overload issue of the existing blockchain systems • Eliminating risk of data tampering by strengthening transaction signature logic
Medical Narcotics Management Platform	• Implementing complicated data structure complying with the FHIR standard in blockchain • Preparing system to guarantee data compatibility between hospital EMR and NIMS of the Ministry of Food and Drug Safety
Blockchain-based Oriental Medicine Life-cycle Management Platform	• Improving operation reliability by managing the key history of oriental medicine distribution process from manufacturing facilities to consumers using blockchain • Improving tracking process by structuring and indexing oriental medicine distribution data
DID-based Mobile Crew Credentials Platform	• Implementing mobile crew credentials service to prevent data forgery and tampering and internalize self-sovereign identity (SSI) using decentralized identifier (DID) technology

▶ Blockchain for reliable data infrastructure establishment, is it being properly used in the enterprise environment?

Convergence between complicated corporate business environment and blockchain technology



Implementation Case

Period	Project	Owner
2020	• Donghaeng Lottery blockchain infrastructure upgrade	Donghaeng Lottery
2021	• Medical narcotics management platform	Korea Internet & Security Agency, SMG-SNU Boramae Medical Center
2022	• Blockchain-based oriental medicine life-cycle management platform • DID-based mobile crew credentials platform	Korea Internet & Security Agency, National Institute for Korean Medicine Development Korea Internet & Security Agency, Ministry of Oceans and Fisheries
2023	• Blockchain system establishment for OK Financial Group	OK Financial Group

Port logistics and transportation information sharing solution, “LogiChain”

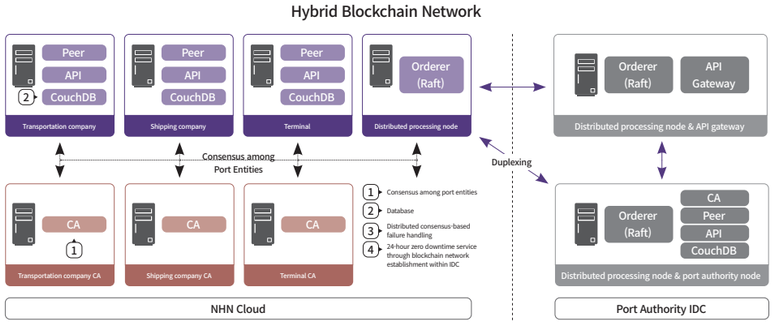
Solution Information

Name of Solution	LogiChain	Developer	SmartM2M (www.smartm2m.co.kr)
Solution Category	Blockchain network establishment platform and smart contract development	Inquiry	blockchain@smartm2m.co.kr 051-518-2143
Core Technology	Hyperledger Fabric		

About Solution

This is a solution to protect confidential data by controlling port logistics information in the Hyperledger Fabric-based blockchain system, and visualize and share the data only with key suppliers. The key functions include swift blockchain network establishment and expansion according to an increase in the number of suppliers, blockchain-based logistics information history management, secure protection of confidential data, and blockchain-based transportation information visualization through web dashboard.

Automated blockchain network establishment to enable swift new technology introduction	Convenient identification of logistics flow through visualization of transportation information obtained	Improved efficiency of transportation and logistics through minimization of unnecessary manual operations



- Securing trust-based sharing system with suppliers through blockchain-based anti-tampering and history management
- Securing data sovereignty and reliability through blockchain-based anti-tampering and history management
- Conveniently and swiftly establishing and expanding blockchain network according to an increase in the number of suppliers

#Transparent Sharing #Confidential Data #Process Visualization #Data Sovereignty

Applications

- Minimizing unnecessary manual operations, such as for email, phone, messaging, through blockchain-based transportation and logistics logic improvement and automation
- International transportation data history management for import/export, customs clearance, etc. of raw materials and finished products
- Overseas fresh food import history management service
- Diamond trading history management service
- Establishing environment for process sharing among forwarding companies, container/truck transportation companies, shipping companies, etc.

Implementation Case

Period	Project	Owner
2018	• Information strategy planing (ISP) for integrated cloud-based global maritime transport logistics platform establishment	Busan Port Authority
2019	• Blockchain development for blockchain-based ITT transport system diffusion project	BLOCKO
2020	• Vehicle carry-in/out booking system establishment and ChainPortal upgrade	Busan Port Authority
2021	• Project to expand and apply vehicle carry-in/out booking system to Busan Port	Busan Port Authority
2022	• Blockchain-based logistics platform call center upgrade and system operation	Busan Port Authority
2023	• Port operation process improvement and integrated platform establishment for efficient blockchain-based digital logistics	Busan Port Authority

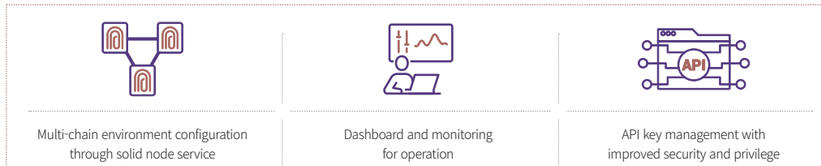
Full-stack blockchain platform for web 3.0 service development, “Luniverse Nova”

Solution Information

Name of Solution	Luniverse Nova	Developer	Lambda256 (luniverse.io)
Solution Category	Web 3.0 full-stack solution for blockchain network creation, token creation, Dapp development environment, etc.	Inquiry	support@lambda256.io 010-6313-3297
Core Technology	LPoA (Luniverse Proof of Authority)-based chain, Tx-pipeline		

About Solution

Luniverse Nova of Lambda256 is the best cloud development environment for blockchain service development. It supports blockchain service development/operation of enterprises by ensuring high productivity at low cost based on the simple network setting and convenient operating tools.



Node Service
- Supporting various multi-chain environments (nodes) for web 3.0 developers
- Applicable to multiple blockchain networks through the convenient multi-chain, web 3.0 API

Web 3.0 Infrastructure
- Node infrastructure with high security
- Wallet and key management function
- Decentralized storage (IPFS) function

Diverse Applications
- NFT KIT / DID / Trace / Loyalty Point

Features

Low Infrastructure Cost
- Blockchain node setting and maintenance incurs large cost and requires many resources
- With Luniverse service, DApp developers pay cost only for the necessary resources

Scalability
- Scalable infrastructure capable of processing large traffic is provided
- For DApp operation, the increased user demand can be handled simply without having to worry about internal infrastructure expansion

Improved Reliability
- Reliability and security of infrastructure are guaranteed
- Service DApp can provide seamless access to blockchain network

#Blockchain Platform #BaaS #NFT #Simple Blockchain Use

Convenient Use
- With Luniverse’ various APIs, DApp developers can simply develop an app even with insufficient understanding on technological details of the interaction with blockchain

Time-saving
- Blockchain node setting and maintenance can require a large amount of time
- With Luniverse service, DApp developers can save time, and focus on developing the most important functions for users

Applications

Category	Description
NFT Issue Management	• Establishing NFT issue and transaction system for customer management, community activation, etc.
Payment System + Integrated Payment Service	• Ensuring fast transaction processing, securing transparency, lowering transaction cost, etc. for application to local currency system, etc.
Distribution and Logistics Tracking Management	• Generating history that cannot be tampered with as various items requiring tracking are recorded to the chain real-time
Personal Authentication	• Improving personal data security and convenience through decentralized authentication

Implementation Case

Period	Project	Owner
2020	• Integrated payment service development • DID visit management system • Blockchain-based event data tracing system • Virtual asset wallet structure clustering and VASP identification service • Luniverse-linked system establishment • Professional publishing service for main chain development • Blockchain API development for non-uniform stock trading platform • Milk system establishment • Blockchain-based identification technology • Cyber crime information tracking, such as for illegal transaction of virtual assets	payletter Signal Nine Seoul Business Agency Korea Internet & Security Agency streami Balancer Dunamu milkpartners yanolja Institute of Information & Communications Technology Planning & Evaluation
2021	• Blockchain platform introduction and consulting service • Blockchain system establishment project	milkpartners SK
2022	• Supply network data chain system establishment • Blockchain upgrade project • NFT Universe platform establishment • NFT Shop platform establishment • Professional blockchain consulting project	KB Kookmin Bank SK Hyundai Department Store Lotte Home Shopping National IT Industry Promotion Agency
2023	• Won Banking NFT digital wallet system and NFT manufacturing/issue system establishment	Woori Bank

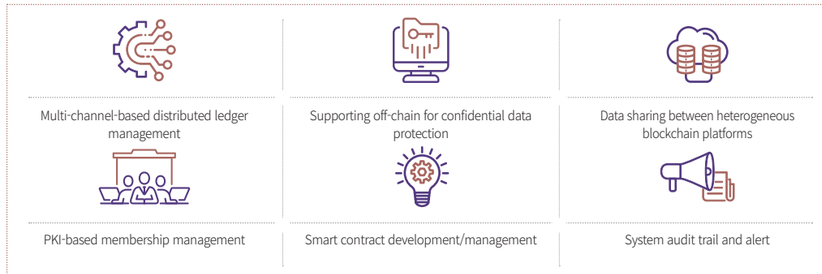
Next-generation enterprise blockchain platform solution, “RootChain”

Solution Information

Name of Solution	RootChaint	Developer	SGA Solutions (www.sgasol.kr)
Solution Category	Enterprise blockchain platform solution	Inquiry	sales@sgacorp.kr 02-574-6856
Core Technology	Hyperledger Fabric v2.2		

About Solution

This solution is used to develop a digital signature method to replace the accredited certificate system, and respond to security compliance requirements, etc.
This is an enterprise blockchain solution suitable for businesses that seek for base technologies applicable to a wide range of business areas such as approval, electronic contract, financial transactions and electronic document management.



▶ **Multi-channel-based Distributed Ledger Management**
- Guaranteeing high scalability through multi-channel function for new service or data augmentation

▶ **Supporting Off-chain for Confidential Data Protection**
- Providing confidentiality and access control function for personal data or sensitive information through the application of off-chain and secure data encryption access control technologies for data protection

▶ **Data Sharing between Heterogeneous Blockchain Platforms**
- Providing data sharing function even in an environment where a multiple number of independent blockchain platforms exist through the application of enterprise-specialized functions to ensure interoperability between heterogeneous blockchain platform

▶ **PKI-based Membership Management**
- Strengthening system reliability and security by providing functions for management of users who are permitted of blockchain access as well as authentication and access control through the application of PKI-based certificate technology using authentication and privilege management technologies for permissioned blockchain configuration

▶ **Smart Contract Development/Management**
- Supporting various development languages for smart contract establishment, and conducting life-cycle management on smart contract distribution using management tools

▶ **System Audit Trail and Alert**
- Providing structured system log management, and suggesting issue recovery and handling plans through the application of system status alarm function

#Blockchain #DID #Enterprise Blockchain #Hyperledger_Fabric #Consortium/Private Blockchain Platform

Features

▶ **Business-wise Features**
- Convenient to apply requirements as standardized API for fast and stable integration is supported
- Systematically providing standard technical training and API guidelines to customers
- Ensuring fast, convenient and efficiency on-premise/cloud-based blockchain infrastructure development
- Enabling expansion of various blockchain services based on security for confidential information including personal data
- Establishing digital signature system to replace accredited (joint) certificate system, and ensuring effective response to security compliance
- Introducing operating system not dependent on the third-party mediation (trusted central agency)
- Expanding services in various industrial fields (financial, public, logistics, distribution, medical, etc.) based on blockchain

▶ **Technological Features**
- Convenient application according to various requirements as standardized service templates are provided to ensure fast and stable integration by operating system
- Providing API and SDK for blockchain service integration and interoperability
- Blockchain platform solution verified for compliance with the blockchain encryption technology guidelines of the National Intelligence Service that has a competitive edge on other products in accredited performance testing
- Establishing interoperable blockchain-based platform with characteristics of heterogeneous blockchain systems reflected
- Bridge technology and patents for secure integration between permissioned blockchain networks
- Supporting convenient audit function to secure system stability and availabliity in case of blockchain system failure and expansion

Applications

Category	Description
Employment	Certificate of university enrollment/graduation submitted through smartphone
Employee Card	Electronic card saved in smartphone
Financial Transaction	Application for account certificates, user identification, etc. processed through smartphone
Communication Service	Application for payment account certificates, user identification, etc. processed through smartphone
Golf Club Membership	Admission using smartphone membership
Student Discount	Various discount benefits enjoyed with smartphone student card
Online Login	Simple login to various websites through user authentication

Implementation Case

Period	Project	Owner
2018	• Establishment of blockchain-based apostille/legalization system - Developing authentication service for authorization letters for financial transaction (notarized) issued by foreign diplomatic missions	Korea Internet & Security Agency (Ministry of Foreign Affairs, Korea Financial Telecommunications and Clearings Institute)
2019	• Establishment of certified emission reduction (external emission reduction) history management system based on blockchain - Guaranteeing transparency of carbon emission trading history through management with blockchain (preventing double trading)	Korea Internet & Security Agency (Ministry of Environment)
2020	• Blockchain-based medical consultation system - Reading and transmitting images using AI for remote medical consultation - Encrypting and sharing images using blockchain off-chain • Establishment of semipublic accounting sharing system (blockchain) for inter-city buses in Busan Metropolitan City -Establishing blockchain-based semipublic accounting sharing system (ERP) for inter-city buses -Guaranteeing reliability and transparency of accounting data • Establishment of DID-based mobile ID card issuance and access card systems -Mobile ID (employee ID) card issuance/verification based on decentralized identifier (DID) technology -User authentication without personal data exposure • Blockchain platform and service development for KEPCO	Intel (PRTI, Pandemic Response Technology Initiative) Busan Metropolitan City ADT Caps Korea Electric Power Corporation
2021	• Blockchain-based REC management system diffusion	Ministry of Trade, Industry and Energy (Korea Southern Power)
2022	• Blockchain pilot project for public sector in 2022 -Establishing DID-based identification and contactless civil application handling service platform • Blockchain platform security verification and performance evaluation	Korea Internet & Security Agency (Government Employees Pension Service) Korea Electric Power Corporation
2023	• Project for blockchain dissemination in public sector in 2023 -Establishment of pensionable right identification system for government employees using blockchain and biometric technologies	Korea Internet & Security Agency (Government Employees Pension Service)

Handbook of Blockchain Solutions & Companies 2023

Waste vegetable oil tracking platform, “recycleledger”

Solution Information

Name of Solution	recycleledger	Developer	recycleledger (www.recycleledger.com)
Solution Category	Blockchain-based data tracking system, resource circulation and tracking platform solution	Inquiry	matthew@recycleledger.com 010-6327-9394
Core Technology	Hyperledger BESU v21.10.9		

About Solution

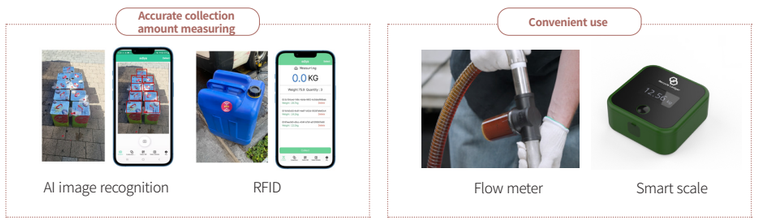
recycleledger is a blockchain-based data tracking service which is necessary for elevated certification of waste vegetable oil discharging and supplying businesses.
This is a data solution for the U.S. and European certifications required for the export and import of biofuel created using waste vegetable oil.

▶ Strengths of recycleledger

• End-to-end service

Scope of Service

• Various solutions covering global market



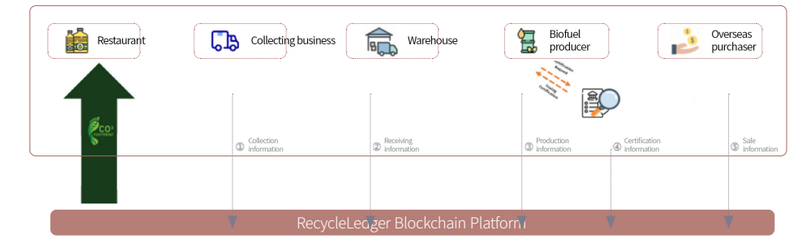
#Blockchain #Data Tracking #Circular Resource #Recycling #Waste Vegetable Oil

Features

- recycleledger is a solution tracking overall data of the waste vegetable oil supply chain
- Being a blockchain-based data solution, it prevents data replication and reuse in the field of certification
- As actual data are collected for biofuel certification, IoT hardware devices necessary in the data collection process are internally developed

Applications

Category	Description
Overseas Biofuel Export/Import Certification	• Building certification data by giving blockchain-based data traceability for overseas export certification of biofuel to the U.S. and Europe



- From restaurants to overseas purchasers, life cycle data on the waste vegetable oil (circular resource) to resource process can be tracked. These data are used in the certification of biofuel created using waste vegetable oil as a resource.
- Across the world, biofuel created using waste vegetable oil produces a carbon emission reduction effect by approximately 80%. In the U.S. and Europe, incentives are paid for recycling of circular resources.
- The business model of recycleledger is to solidify a basis for sustainable energy source manufacturing that contributes to achieving the Net Zero and to help domestic biofuel companies grow to exporting powers. At the same time, this is a representative Fourth Industrial Revolution business to enable export and import by generating data that serve as a growth foundation for domestic enterprises.

Implementation Case

Period	Project	Owner
2022	• recycleledger v1 (pilot version launched)	recycleledger
2023	• recycleledger v2 (official service launched)	recycleledger

EVM-compatible enterprise private MainNet, “Retrust Enterprise Private MainNet”

#EVM #Private #MainNet #Leased Solution

Solution Information

Name of Solution	Retrust Enterprise Private MainNet	Developer	RE Trust (www.retrust.world)
Solution Category	Private corporate MainNet	Inquiry	ceo.retrust@gmail.com 010-2740-8802
Core Technology	EVM-compatible private blockchain		

About Solution

RE Trust provides customized solutions to enterprises intending to use blockchain network.
This is a solution to establish or lease EVM-compatible private MainNets of high performance with prices ranging from the low-end (200TPS) to the top-end (1,000TPS or more) depending on the circumstances of each enterprise.

Excellent scalability

Customized prices and performances

▶ **Excellent Scalability**
- EVM-compatible MainNet anchoring and asset exchange
- Non-EVM-linked anchoring and asset exchange
- Simple bridge and anchoring CCIP-based MainNet integration

▶ **Customized Private Solution for Enterprises**
- Guaranteeing 200TPS for high-performance solution in the low price range
- Guaranteeing 700TPS for high-performance solution in the medium price range
- Guaranteeing 1,000TPS or more for high-performance solution

Features

▶ **Operation at low cost possible**

▶ **Access to RE Trust private network to eliminate the need for direct network establishment**

Implementation Case

Period	Project	Owner
2023	• High-performance MainNet in low price range for the non-R&D offshore ICT project of Busan Technopark • Developing high-performance private MainNet as an R&D project of the Ministry of SMEs and Startups • Contract for MainNet lease model (basic) with overseas partners	Busan Technopark Ministry of SMEs and Startups

Total medical service platform, “MediNomi”

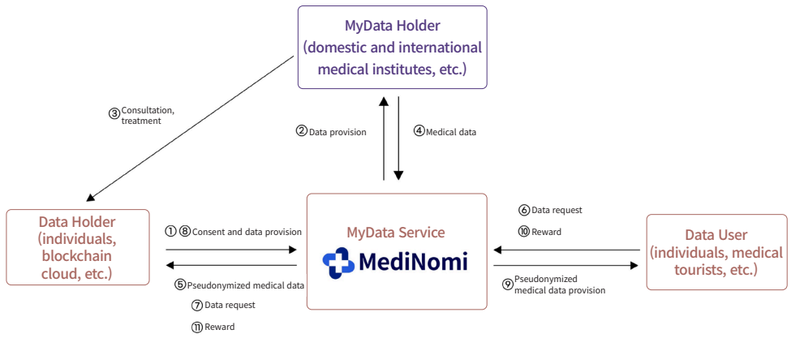
Solution Information

Name of Solution	MediNomi	Developer	MEDIFUN (www.medifun.co.kr)
Solution Category	Blockchain-based total medical service platform	Inquiry	hello@medifun.co.kr 0507-1390-9493

About Solution

This is a blockchain-based total medical service platform applicable to all areas of the medical industry ranging from medical information service to medical cost payment. Starting with a system to provide medical information of hospitals and clinics and medical cost payment service to medical tourists (including foreign patients residing in Korea), this solution was designed to help all stakeholders including those engaged in medical business enjoy comprehensive benefits.

Blockchain-based total medical service platform, MediNomi	Blockchain-based medical MyData system for foreign medical tourists	Private blockchain for hospital alliance and app subscribers
Off-chain data storage for management of patients’ medical data	Credentials for medical institutes and patients to grant medical data access permission for contactless consultation	MyData platform for management of medical tourist data



#MyData #DecentralizedIdentity #MedicalDID #MedicalBlockchain #Blockchain

Features

▶ **Global Market Expansion**
- Expanding MyData market to medical field through blockchain-based smart treatment service
- Operating efficient treatment process for multinational medical service consumers

▶ **Increase in Patient Satisfaction**
- Improving treatment service operation and activating medical MyData through electronic health record system (HER)
- Improving patient satisfaction by securing medical data subjectivity, mobility and security

▶ **Medical Service Improvement**
- Saving and activating MyData through medical trigger system
- Responding to post care by securing convenience in medical information use by multinational medical consumers

▶ **Introduction of Innovative Medical Technologies**
- Providing innovative service for patients’ health conditions and MyData operation using AI technologies
- Realizing blockchain technology specialization for information use and management

Applications

Category	Description
Blockchain Storage	• Providing high security based on patient-centric medical information access permission, transaction data encryption, etc.
Smart Contract	• Processing medical information according to programming conditions • Implementing contract according to the conditions of medical information access conditions
Access Permission	• Ensuring initiative medical information access permission control and granting patients with access permission to their own information • Granting information access permission according to the need of medical institutes, etc.
Medical Information Sharing	• Sharing information with medical institutes, doctors, etc. according to need ⇨ Post-care system • Identifying information access permission and guaranteeing integrity of information
Reward System	• Reward according to medical information provided by patients • Automatic rewarding system for information use
Medical Tourism Ecosystem	• One-pass ecosystem according to domestic residence and tourism service use by foreign medical tourists • Operating system based on convenience, stability and transparency

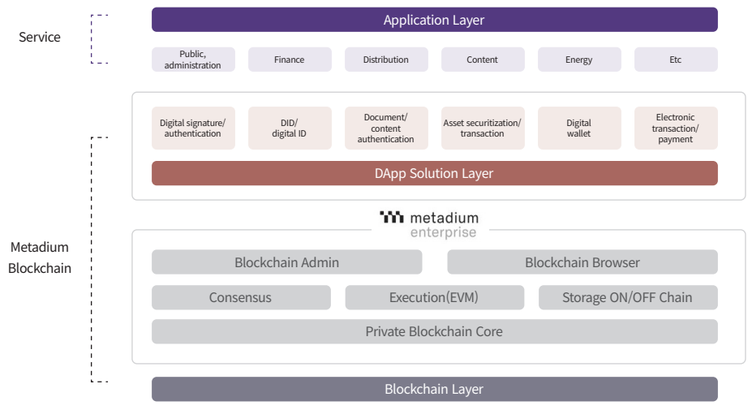
Private blockchain platform for enterprises optimized to corporate environment, “Metadium Enterprise”

Solution Information

Name of Solution	Metadium Enterprise	Developer	CPLABS (www.cplabs.io)
Solution Category	Enterprise blockchain platform optimized to corporate environment	Inquiry	contact@cplabs.io 1899-9942
Core Technology	Metadium 2.0 (hard-forked MainNet of Ethereum)		

About Solution

Capable of flexible response to the operations and requirements of various enterprises and organizations, this solution can be established as a public or private blockchain depending on the service environment. In addition, it supports privilege management and encryption functions to meet the corporate compliance requirements, and provides operation and management tools for convenient blockchain data inquiry and visualization of network configuration.



Features

▶ **Flexible System Configuration**
- Supporting establishment in various forms including physical server and cloud
- Enabling service i mplementation through not only private blockchain, but also public blockchain

▶ **High-speed Data Processing Optimization**
- Providing consensus algorithm suitable for corporate environment and application
- Supporting high-performance blockchain of 3,000 TPS or more of which performance has been verified by TTA

#Blockchain #Identification #Private Blockchain #Smart Contract #DID

▶ **Security and Stability**
- Supporting functions suitable for corporate compliance including node privilege setting, data encryption for personal data protection, etc

▶ **Blockchain Service Optimization Environment**
- Supporting highly productive service development operation such through fast installation, simple network setting, provision of various operating tools, etc

Applications

Category	Description
Digital Signature/ Authentication	• Digital signature creation/authentication • Private certificate issue and management
Document/Content Authentication	• Authenticity verification for various certification documents • Document (information) verification
Asset Securitization/ Transaction	• Asset tokenization • NFT issue • Token and NFT transaction
DID/Digital ID	• Personal data management • Personal data submission (selective information only) • Identification • Credentials
Wallet/Payment	• Blockchain (token)-based simple payment/charging/remittance • Mobile wallet
Electronic Contract	• Contactless electronic contract signature/management • PKI signature-based non-repudiation, contract notarization

Implementation Case

Category	Description	Owner
2017	• Blockchain-based integrated SSO authentication system for Hyundai Card	Hyundai Card
2018	• KB Kookmin Card private blockchain-based authentication service	KB Kookmin Card
2019	• KOREA POST decentralized Id-based simple payment service, Center Pay	KOREA POST Information Center
2020	• KISA mobile employee ID card system • Establishment of blockchain-based REC transaction platform for Korea Southern Power	Korea Internet & Security Agency
2021	• Establishment of blockchain-based donation platform, giveO’clock • Mobile crew credentials service of the Ministry of Oceans and Fisheries	Korea Internet & Security Agency
2022	• Busan Convention Center testbed establishment • Establishment of automated platform for Korea Southern Power distributors • Establishment of NEW REC management system for Korea Southern Power	Busan Technopark Korea Southern Power Korea Southern Power
2023	• Enterprise blockchain platform supply to OK Savings Bank	OK Investment Partners

Enterprise blockchain platform applicable to various industrial fields, “Monachain”

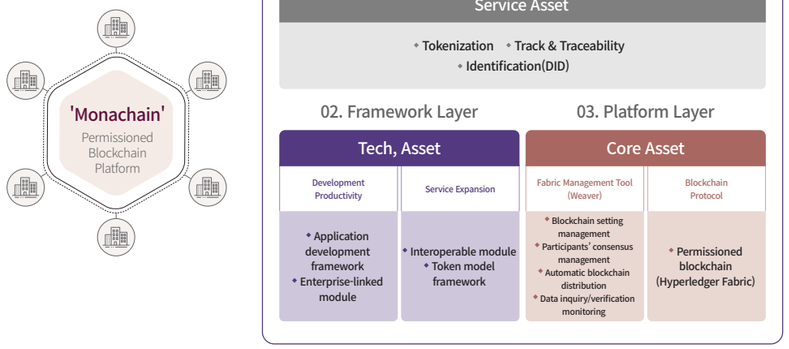
Solution Information

Name of Solution	Monachain	Developer	LG CNS(www.lgcns.com)
Solution Category	Hyperledger Fabric-based enterprise blockchain platform	Inquiry	ytlim@lgcns.com 02-2099-5166
Core Technology	Hyperledger Fabric		

About Solution

Enterprise blockchain platform ensuing flexible service expansion, Monachain

Monachain is an enterprise blockchain platform applicable to various industrial fields including financial, logistics, manufacturing and energy. Developed on the basis of Hyperledger Fabric of the Linux Foundation, Monochain is equipped with a service portfolio covering all areas from service planning and development to distribution, expansion and management.



▶ Service Asset

- With the commonly and frequently used service assets, new services can be conveniently developed. In particular, the solution ensures business expansion for local currency, distribution/logistics tracking, digital asset management, DID-based identification, etc.

▶ Framework and Platform

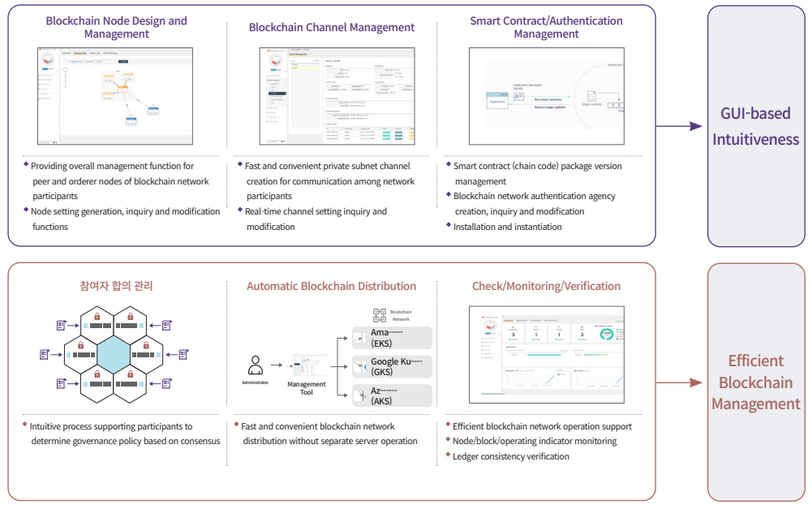
- In addition to development standard and productivity through framework, the solution enables users to conveniently develop new services with its interoperability and token model. It also provides a variety of platform functions including automatic blockchain distribution and monitoring.

#Enterprise Blockchain Platform #Consortium Blockchain #Digital Identifier (DID) #Digital Asset Transaction (Local Currency, CBDC) #Token Service Platform (NFT, STO, Fractional Investment)

Features

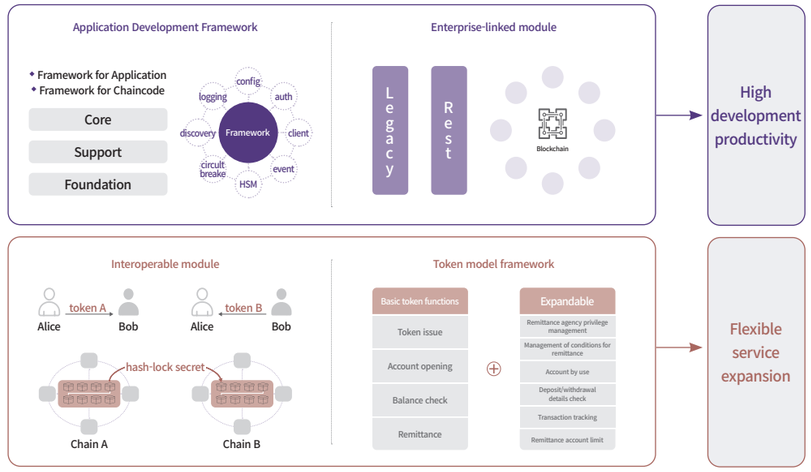
▶ Blockchain Management (Fabric Weaver)

- Equipped with a variety of blockchain core platform functions including automatic blockchain distribution and chain code management, it provides intuitive GUI-based blockchain management tools to assist in convenient blockchain network configuration and management.



▶ Blockchain Development (middle layer)

- Developed on the basis of the experiences and expertise of Korea’s No. 1 SI business operator, the solution provides functions to improve application development productivity in the course of blockchain service development and facilitate business service expansion, and also interoperability and token model for blockchain ecosystem expansion.



Applications

Category	Description
Payment	• Preventing illegal transactions of and ensuring transparency for subsidies of the central and local governments in addition to local currency service of which trust-based data sharing is the key
Track & Traceability	• Innovating operation process, and preventing forgery/tampering of and providing tracking management for logistics/distribution history based on data visibility and transparency
Tokenization	• Providing token ecosystem service including technological review and verification for preemptive response to changes in the domestic and international payment environments in addition to digital sharing economy activation
Identification	• Ensuring more accurate identification while keeping personal data exposure and abuse to a minimum by helping individuals hold the right to control their own information based on the self sovereign identity-based decentralized ID

Implementation Case

Period	Project	Owner
2017	• Blockchain-based remittance mock test for Bank of Korea	Bank of Korea
2018	• Establishment of blockchain-based local gift certificate platform for Korea Minting and Security Printing Corporation	Korea Minting and Security Printing Corporation
2019	• Bank of Korea blockchain-based heterogeneous platform asset transaction and concurrent payment PoC • Establishment of eco-friendly agricultural product distribution platform for Jeollanam-do • Establishment of simple mobile phone loss/damage insurance claim system for LG U+ • Blockchain technology consulting and support project for National IT Industry Promotion Agency • Pilot project of waste battery distribution history management system establishment for Jeju-do • Blockchain-based digital asset trading platform PoC • Pantos - LG Group logistics blockchain consulting and PoC	Bank of Korea Korea Internet & Security Agency National IT Industry Promotion Agency Korea Internet & Security Agency KB Kookmin Bank Pantos
2020	• P2P decentralized transaction distribution platform establishment for the Ministry of Trade, Industry and Energy (stage 1 project) • Establishment of DID-based mobile ID (government employee ID) platform for the Ministry of the Interior and Safety • Establishment of blockchain-based self-driving vehicle trust platform for Sejong City • Imported food safety data platform establishment • Blockchain-based smart digital waybill platform establishment • Trust-based history management - Electric vehicle battery life-cycle management system establishment	KTNET Ministry of the Interior and Safety Korea Internet & Security Agency Korea Internet & Security Agency Korea Internet & Security Agency Korea Internet & Security Agency
2021	• Woori Bank blockchain platform introduction and CBDC pilot system establishment • P2P decentralized transaction distribution platform establishment for the Ministry of Trade, Industry and Energy (stage 2 project) • Shinhan Bank local currency platform establishment • Land freight transportation project of the Ministry of Land, Infrastructure and Transport (blockchain solution supply and technological support) • CBDC pilot system consulting for Bank of Korea • Blockchain-based mobile driver's license service system establishment (DID) • Nonghyup Mutual Finance multi-wallet/NFT PoC • Shinhan Card MyData system (PoC with blockchain applied)	Woori Bank Shinhan Card Medium Bank of Korea Ministry of the Interior and Safety Nonghyup Mutual Finance
2022	• KB Kookmin Card NFT metaverse-linked platform PoC • LG U+ NFT platform pilot system • PoC for response to Nonghyup Mutual Finance CBDC • Establishment of bithumb META NFT exchange platform • PoC in preparation for CBDC issue by Shinhan Bank • Establishment of platform in reaponse to NH Nonghyup Bank and Bank of Korea CBDC • Establishment of bithumb META NFT exchange platform (issue/distribution) • KB Kookmin Bank Star Mobile student ID system establishment (NFT, metaverse) • Launch of Tidit (DID-based mobile employee ID system subscription service)	KB Kookmin Card LG U+ Nonghyup Mutual Finance bithumb META Shinhan Bank NH Nonghyup Bank bithumb META KB Kookmin Bank LG CNS
2023	• Launch of Monachain TaaS (token-as-a-service) • On-boarding by 8 companies of Tidit • Joint STO platform establishment with Koscom • LG U+ DID-based mobile employee ID system establishment	LG CNS 3 companies of LG Group 5 companies of Dong Ah Group Koscom LG U+

Universal blockchain optimized to enterprise environment, “Mitum”

#MainNet #Layer1blockchain #Web3.0 #BlockchainPlatform #BaaS

Solution Information

Name of Solution	Mitum	Developer	Social Infra Tech (socialinfratech.com, minic.im)
Solution Category	MainNet, blockchain as a service	Inquiry	contact@socialinfratech.com 070-8098-9196
Core Technology	Mitum v2.0, PBFT-based Mitum-BFT consensus algorithms		

About Solution

Mitum to which the independently developed source proprietary technology for core engine was applied is a blockchain platform optimized to various enterprise environments.
This is a powerful network equipped with safety and interoperability. Using Mitum, business continuity can be secured through an independent blockchain system establishment. Network expansion is also possible based on interoperability between blockchains.

- Providing all functions necessary for management, such as token (FT) issue and transmission, inquiry, etc.
- Providing management system for NFT minting and transmission, metadata, etc.
- Issuing credentials for issuers and providing management tools for authentication through verifier, etc.
- Providing tracking management system to security token issuing companies for token generation and distribution by asset, and total amount management
- Providing transparent voting system for vote registration/delegation, duplicate voting prevention, etc.

Features

- **The PBFT-based Mitum-BFT consensus algorithm, which was independently developed with source proprietary technology, is a high-performance consensus algorithm with data transmission load drastically reduced through broadcasting optimization by stage and active proposal. Consensus stability and scalability are being secured through continuous optimization. It is suitable for application to payment systems in the financial field as it provides instant finality**
- **The contract model, which is a native model not a VM-based blockchain, provides an excellent performance by making the maximum use of hardware performance**
- **Mitum Fact Hash, a hash value anyone can calculate when the fact is known, is saved in the network in the form of binary hash tree. The blockchain designed to establish exclusive trust of and enable mutual verification between independent MainNets can be expanded into a safer multi-chain structure**
- **Applicable through transformation for universal use in various industrial fields**
  - Mitum-i: Blockchain with ultralight engine and functions applicable to the operating systems of Android, iOS, Windows, etc. and small-scale equipment, such as Raspberry Pi, that solves data security issues of mobile and IoT equipment
  - Mitum-x: Blockchain used to maintain a high security level, such as for medical, communication and financial institutes, that effectively blocks external attacks while maintaining technological completeness of core engine
- **This permissioned blockchain of PoA (proof of authority) type is specialized to high transaction information protection and regulatory systems requiring fast transaction processing and system disturbance prevention. In addition, developed with an independent technology, it facilitates network failure handling, maintenance and performance improvement.**

Applications

Category	Description
Security Token (ST)	• Distributed ledger for various fractional investments in real estates, artworks, sound sources, etc.
NFT	• Certification, purchase and exchange of ownerships for creative digital contents such as artworks and games
DID	• Applicable to financial service, communication, authentication, supply chain, etc. through identification, credentials, etc.
DAO	• Autonomous organization centering around voting rate, applicable to financial service, investment in collection, musical composition, etc.
IoT and Mobile Security	• Applicable to data security of small devices, such as mobile and IoT devices

Implementation Case

Period	Project	Owner
2021	• Contract for blockchain MainNet establishment	Crypworld
2023	• Establishment of blockchain DID-based digital luxury product certification system • Establishment of blockchain DID-based authenticity certification system for oriental medical products • Daegu-type blockchain MainNet platform establishment	TIPA & PINOKIO LAB Daegu Digital Innovation Promotion Agency Daegu Technopark

Providing SaaS cloud service for L2 blockchain MainNet establishment and blockchain service development, “ByZone”

Solution Information

Name of Solution	ByZone	Developer	Biyard(Biyard.co)
Solution Category	Cloud service	Inquiry	miner@biyard.com 010-4460-4709
Core Technology	EVM-type blockchain API		

About Solution

Problem Set

- The hurdle for general users to access and manage DOA, wallet, etc. is high.
- As for DAO, a variety of solutions such as Snapshot are being released. However, these solutions only provide proposal and simple voting-level functions rather than serving as a decision-making platform.

Solution

- This SaaS enables simple blockchain application even by users who are not technology-based service providers.
- It offers a solution to conveniently establish MainNets that are suitable for various governance policies of local governments, STOs, etc.
- For various MainNets, SaaS and bridging technology for seamless integration are provided.

L2 MainNet establishment	Convenient wallet SaaS	DAO SaaS	Other blockchain APIs

Providing L2 and internal MainNet development solution for simple governance configuration and policy management along with blockchain APIs, such as NFT, SBT and token, as well as SaaS to use simple wallet, DAO, etc. that can be integrated with the internal MainNet

Features

One-click establishment of L2 MainNet and blockchain developer platform according to internal governance policy

SaaS for simple social wallet introduction to blockchain service

SaaS for DAO configuration and operation

#Internal MainNet #Blockchain API #Blockchain SaaS

Applications

Category	Description
Blockchain Service	• Applicable to blockchain and web 3.0 services using wallet
Local MainNet	• Used for MainNet establishment with policies of each local government reflected
STO MainNet PoC	• Used for MainNet and platform establishment with STO governance policy reflected
Community Decision-making System	• Used for community decision-making system through DAO

Implementation Case

Period	Project	Owner
2022	• ByFactory(byfactory.io)	Internal development
2022	• PRENET	Busan Technopark

Web-based blockchain network establishment and operating solution, “Bowledger”

Solution Information

Name of Solution	Bowledger	Developer	BIGSTER (www.bigster.co.kr)
Solution Category	Blockchain management solution	Inquiry	lee.hj@bigster.co.kr 02-6274-6661
Core Technology	Hyperledger Fabric		

About Solution

Based on IBM’s Hyperledger Fabric, this solution enables consortium blockchain service development and operation.
With functions including management of multiple BPs (block producers), general member management, block search, monitoring and coin issue, this solution is optimized to the data sharing/distribution platforms and services.

Web-based management and monitoring function
Compatible with Korean/English language packs

Convenient blockchain node addition and removal
Individual access permission granted by participating consortium

What's Bowledger?

Bowledger is a new blockchain platform.
Using Bowledger, various blockchain services can be developed.

Bowledger Features

- Bowledger enables blockchain network establishment through BP (block provider)
- Bowledger enables integration with existing cryptocurrency through DApp
- Blockchain network can be efficiently managed using the management system of Bowledger

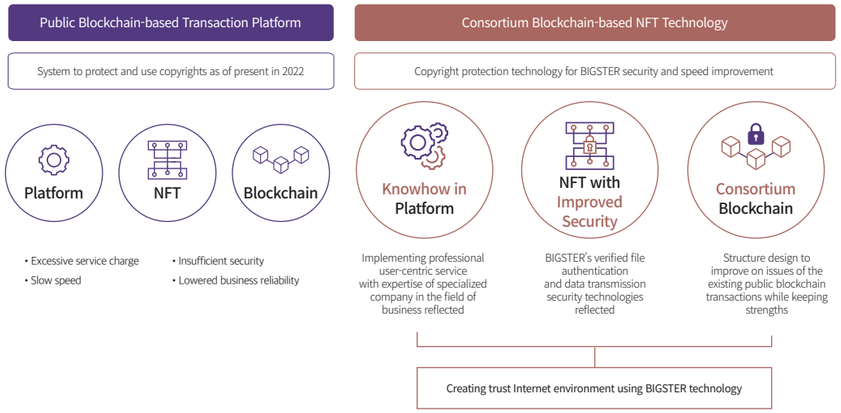
#Blockchain Solution #Blockchain Network #Consortium Blockchain #Web-based #Blockchain Monitoring #Block Scan #Node Management #Chain Code Editing

Features

- Convenient to monitor and add/remove nodes through web-based UI
- Convenient to write/edit chain codes for smart contract
- Enabling identification of detailed information on transactions and individual blocks with block scan function
- Strengthening data security by granting access permission by data subject participating in consortium

Applications

- **Network configuration for NFT marketplace development**
  - Establishing NFT marketplace of various fields through integration with BowlNFT solution
- **History tracking service**
  - Tracking history of used car trade, day worker wage payment, food production and distribution, etc.
- **Management and supervision system for public and private sectors**
  - Managing food HACCP, controlling fake news distribution by the press, recording details of financial loan brokerage, etc.
- **Operation sharing and data distribution system**
  - Sharing customs clearance operation for export, preventing false information sharing among financial institutes, implementing data product distribution system, etc.



Implementation Case

Period	Project	Owner
2019	• Research project for blockchain-based bio healthcare big data distribution platform development	Korea Industrial Complex Corporation
2020	• Research project for safe food distribution blockchain platform development	Korea Food Research Institute
2021	• Blockchain-based digital art marketplace development	National IT Industry Promotion Agency

Standardized SaaS blockchain solution, “blocknova”

Solution Information

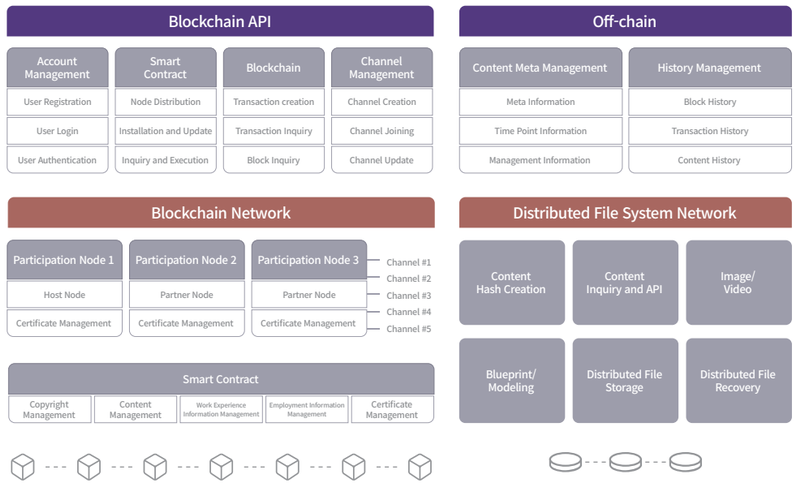
Name of Solution	blocknova	Developer	MOBLDI (www.mobldi.com)
Solution Category	Standardized SaaS blockchain solution (Baas)	Inquiry	contact@mobldi.com 02-562-9074
Core Technology	Hyperledger Fabric		

About Solution

Comprising service, interface and distributed engine layers, this optimal SaaS blockchain solution helps users conveniently establish a decentralized, high-speed blockchain-based business. Users can select a business model using the high-performance blockchain-based MainNet, and is provided with and a modularized service suitable for the business model.

The standardized solution of blocknova enables users to establish a blockchain-based service (business) platform that can be commercialized immediately without help from a blockchain developer. MOBLDI is leading the blockchain market by providing this solution for convenient use by public organizations and SMEs.

- Blockchain technology for convenient use by anyone with blocknova OPEN API
- Supporting enterprise blockchain system establishment
- Maximizing technological completeness of service
- Friendly consulting service and additional API support



#Blockchain #SaaS Blockchain #NFT #Electronic Document #Baas

Features

Strengths of blocknova

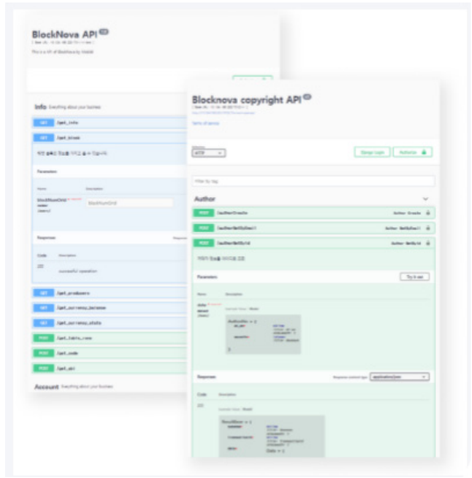
- Direct development of transaction creation and inquiry functions for the complicated blockchain use not necessary
- Convenient use through data loading only as the standardized Restful-type API is provided
- Available for use through API link only even on mobile apps and legacy systems in addition to web
- Enabling decentralized data management through the use of distributed ledger
- Enabling management of large decentralized files (documents, agreements, blueprints, etc.) by providing distributed filed network
- Convenient document synchronization and recovery between participating nodes as original files are managed in the distributed file network
- Ensuring security through application of hash algorithm and encryption algorithm in addition to distributed network
- Enabling separate blockchain ledger configuration by participating organization using blockchain channeling function

Scalability

- Reducing additional cost that incurs when new participating organizations, such as channels and operation networks, are added
- Reducing cost for data migration, document file transfer, system development, etc. as the existing data and files can be synchronized just by adding the nodes of participating organizations to blockchain and distributed file network
- Simple system expansion at front web or app introduction and integration

Providing Key Technologies as API

- Electronic Document Contract Service API: Electronic document registration, history check, bulk mail sending, original file verification
- Hotel Booking & Management Service API: Hotel booking information registration, update, check and deletion
- Webcomics Content Service API: Electronic contract with creators, original content verification, transaction detail check, integrated management of multiple contents
- Copyright Management Service API: Copyright holder information registration and history check, content information registration and history check, original content verification
- EOS MainNet API: Blockchain suitable for high-speed public blockchain
- Hyperledger MainNet API: Blockchain suitable for high-speed permissioned blockchain
- Enterprise Service Wallet API: User account registration and management, wallet, token order transaction
- Smart Contract API: Participating node distributino and registration, node certificate management, transaction detail check and implementation
- Encryption Algorithm Standard API: Hash, Secret Sharings



Applications

Category	Description
Management Service	• Ticket management service through token • Service matching platform contract management • Consent to personal data use, handling policy management service • Attendance management Service • Inventory management Service • Property management service for rental business operators
Certificate Issue Service	• Public organization certificate issue • Insurance claim through digital authentication • Academic affairs management NFT certificate issue
Others	• Digital warranty for safe trade of used items • Blockchain NFT textbook integration • Blockchain-based digital trade • Electronic document wallet • Blockchain-based electronic general shareholders' meeting • Logistics and distribution service for food industry • Blockchain-based local currency • Community token ecosystem development

Implementation Case

Period	Project	Owner
2021	• Selection as tenant company of the Seoul Blockchain Center, blockchain research project for the Seoul Metropolitan City • Pilot project for shared parking lot in Michuhol-gu, Incheon through blockchain integration • Joint R&D for blockchain-based hotel/travel service platform	Seoul Blockchain Center Incheon Metropolitan City ROONET
2022	• Blockchain platform for production and distribution of webcomics and digital contents • Blockchain proposal evaluation and digital verification system	Hanyang Institute for Entrepreneurship Korea Western Power

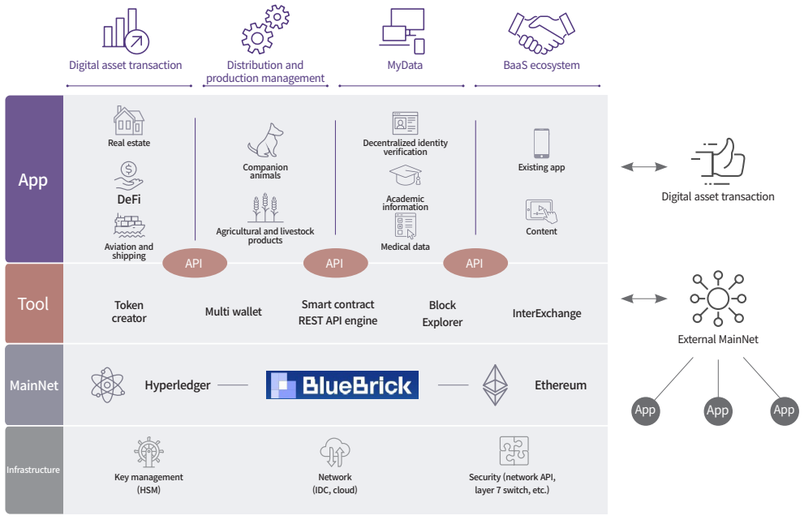
Integrated blockchain platform, “BlueBrick”

Solution Information

Name of Solution	BlueBrick	Developer	SEJONG TELECOM (www.sejongtelecom.net)
Solution Category	Integrated blockchain solution 문의처		hyoji@sejongtelecom.net 070-7997-6084
Core Technology	Hyperledger Fabric v1.4.12, Hyperledger Fabric v2.2.12, Ethereum v1.5, Kubernetes v1.27		

About Solution

Implemented on the basis of the major open source tools such as Ethereum and Hyperledger Fabric, this solution provides infrastructure necessary for the enterprise solution development, operation and governance. To this end, development, review and commercialization of platforms and DApps with BlueBrick application are being carried out for financial, industrial and regulatory process innovation and reform.
BlueBrick aims to become a blockchain platform for commercialization. Enterprises experiencing difficulties in blockchain introduction can apply blockchain technology to their businesses simply and conveniently at reasonable cost in a short period of time. In addition, this solution facilitates verification of various business projects such as for document management and true copy certification in the public sector as well as financial and distribution industries. SEJONG TELECOM is committed to applying blockchain to various fields, and thereby creating new value and leading changes together with all participants including customers.

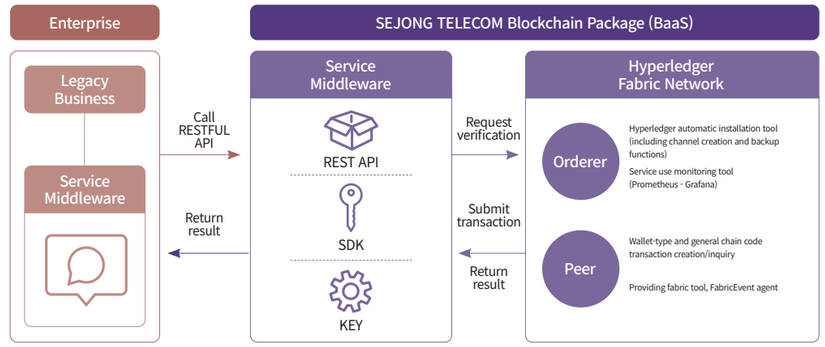


#Blockchain #STO #NFT #Digital Asset Transaction #MyData

Features

▶ **Providing Ethereum MainNet or Hyperledger Fabric-based Solution**

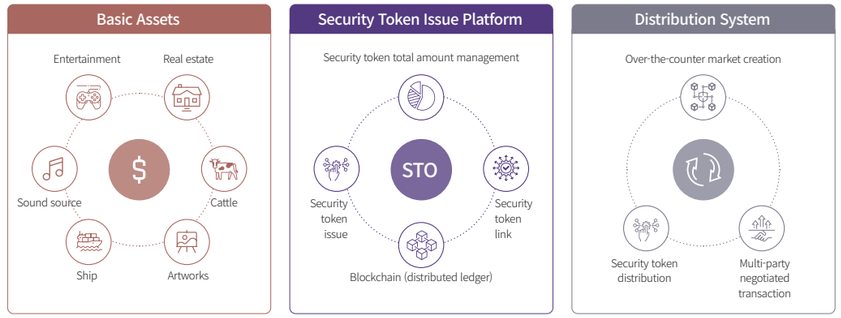
- Enabling enterprises experiencing difficulties in blockchain introduction to conveniently install and use blockchain system by providing them with a package of enterprise middleware, fabric tool, monitoring tool, etc.



Applications

▶ **Establishing Security Token Issue Platform and Linking it with Distribution System (Technology verification project of NIPA in 2022)**

- Establishing blockchain-based security token issue platform where security tokens are issued for various basic assets, and providing an ecosystem for secure transaction of security tokens through integration with the distributor’s transaction system

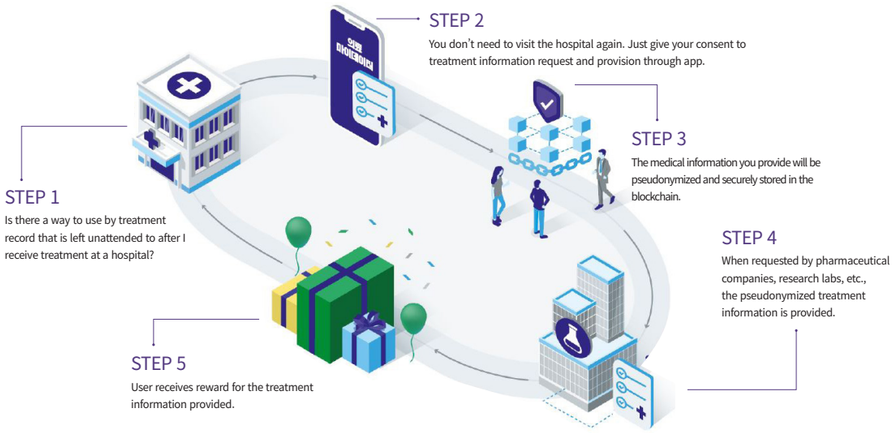


▶ **Collective Real Estate Investment and Profit Distribution Service (Busan Blockchain City, Ministry of SMEs and Startups)**

• Service to issue/distribute collective real estate investment securities (public offering fund) to investors by using distributed ledger of blockchain

▶ **Blockchain-based contactless medical MyData platform (Busan Blockchain City, Ministry of SMEs and Startups)**

• Blockchain-based service to collect/use pseudonymized medical data with individuals' consent, and provide the benefits



◇ Implementation Case

Period	Project	Owner
2019	• Technology verification project for smart academic information exchange platform	National IT Industry Promotion Agency
2020	• Blockchain-based content tracking and handling of the right-to-be-forgotten issue	Institute of Information & Communications Technology Planning & Evaluation
2021	• Verification of collective real estate investment and profit distribution service • Verification of medical MyData transaction platform	Busan Blockchain City
2022	• Blockchain-based cloud PACS platform establishment and medical image data NFT issue technology verification project • NFT-based gamification learning content distribution platform development	National IT Industry Promotion Agency Korea Internet & Security Agency
2023	• Security token issue platform establishment and distribution system-linked technology verification	National IT Industry Promotion Agency

Blockchain service platform with the world's top-tier management and monitoring functions and speed of 10,000 TPS or more, "SWCHAIN"

#Blockchain #Blockchain Service Platform #Management and Monitoring #Speed Accelerator #Smart Contract Editor

Solution Information

Name of Solution | SWCHAIN

Solution Category | Blockchain service platform

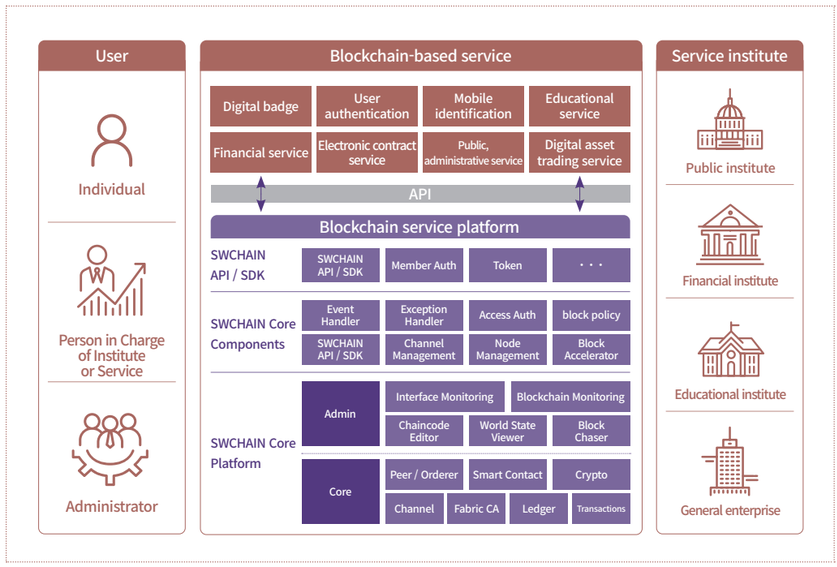
Core Technology | Hyperledger Fabric

Developer | SW Empire (www.swempire.co.kr)

Inquiry | cmsjjang@swempire.co.kr
031-972-0409

About Solution

This is a blockchain service platform specialized to large-scale data processing with anti-tampering function through distributed data storage that guarantees stable performance, information reliability and excellent processing speed.



Features

- Providing eclipse-type editor to assist in simple smart contract development by developers and administrators
- Improving operation convenience by providing powerful and convenient admin. and monitoring functions
- Enabling service development and provision without speed issue as blockchain transaction processing speed of 10,000 TPS or higher is applied
- Guaranteeing stable performance in large-scale data processing

Applications

- Providing load balancing and fail-over functions through clustering in various levels on the platform
- Guaranteeing data reliability by disabling record forgery/tampering through distributed record/data storage
- Guaranteeing data integrity with time stamp function for the time of action
- Applying saving and search technologies to protect information saved in blockchain
- Guaranteeing service continuity through flexible node expansion and node multiplexing
- Applicable to various modulated services such as integrated authentication/digital badge/electronic document and content distribution service

Category	Description
Electronic Document and Content Verification	• Authenticity identification service for certificates of various fields including certificates of public organizations, administrative documents, qualification certificates, evidences for investigatory organizations, certificates of financial institutes, claims, application forms, etc. of educational institutes, certificates, contracts for private transactions, etc.
DID/Digital Wallet	• Personal data management, identification, storage and submission of credentials and certificates, FIDO-based user authentication
Electronic Contract Management	• Used in digital contract signature and management, PIK-based digital signature and denial prevention, contract anti-tampering and verification, audit, etc.
Logistics and Distribution Management	• Tracking origin certification, distribution process, delivery, raw material and manufacturing history information

Implementation Case

Period	Project	Owner
2018	• Life Plus system establishment for Hanwha Life • Blockchain platform establishment for Hanwha Group • New electronic document distribution system establishment for Korea Internet & Security Agency	Hanwha Life Hanwha Systems Korea Internet & Security Agency
2019	• Blockchain-based logistics POC for LX Pantos • Blockchain-based integrated authentication service	LX Pantos Ministry of SEMs and Startups
2020	• Blockchain-based browser security PIN authentication system development • Blockchain service platform development with improved management and monitoring functions	National IT Industry Promotion Agency Ministry of SEMs and Startups
2021	• Project 1 of next-generation electronic document distribution system establishment for the Ministry of the Interior and Safety	Ministry of the Interior and Safety
2022	• Project 2 of next-generation electronic document distribution system establishment for the Ministry of the Interior and Safety • The fourth-generation intelligent NEIS system establishment for the Ministry of Education • Blockchain-based public job support project of the Seoul Metropolitan City • Blockchain identification-based access control system establishment • Project 1 of blockchain-based integrated identification management system development for the Korean National Police Agency • Blockchain DID-based learning experience certification system establishment for Dankook University • Blockchain identification-based certificate issue system establishment	Ministry of the Interior and Safety Ministry of Education Seoul Metropolitan City TAMTUS Korean National Police Agency Dankook University STA Testing Consulting
2023	• Project 1 of blockchain-based integrated identification management system development for the Korean National Police Agency	Korean National Police Agency

Independently developed blockchain MainNet with overwhelming speed, performance and flexible scalability, “SIGMA CHAIN”

Solution Information

Name of Solution | SIGMA CHAIN
Solution Category | Blockchain MainNet supply
Core Technology | Graphene engine MainNet XTRION v1.4
Developer | SIGMA CHAIN (www.sigmachain.net)
Inquiry | help@sigmachain.net, 070-4789-4987

About Solution

This independently developed blockchain MainNet offers fast speed, excellent security and flexible scalability.

Patented consensus algorithm, DRPoS	XTO23 token rules	NFT standard protocol, XTO602

DID	Patented technology for blockchain-based one-time authentication password NFP	Blockchain asset management platform wallet	Providing blockchain exploring service, Explorer

- Delegated random proof of stake (DRPoS) consensus algorithm to generate blocks in a random order together with 17 master notes and six random nodes to resolve security and centralization issues
- Creating convenient development environment by providing standard protocol optimized to DApp development
- Enabling NFT generation and transaction of real assets by providing XTO602, a standard protocol for NFT on the MainNet
- With DID solution, the decentralized identification technology, middle node checks user identity at login, and delivers only pass/fail (O, X) status to the service provider
- Patented blockchain technology-based one-time password NFP for identification ensures secure identification by escaping from the inefficient centralized method
- Blockchain asset management platform for convenient asset management anytime, anywhere on both web and app
- With fast and convenient Explorer, block information and transaction details transparently disclosed to everyone is provided, and the search engine ensures convenient search

#Independently Developed MainNet #Fast Network Speed #DID #Security #Scalability

Features

- **Network Processing Speed of 300,000**
  - Enabling users to develop various services stably by overcoming the speed limit of blockchain processing based on the transaction processing speed of 300,000/sec. Certified by KOLAS
- **Supporting Simple DApp Development**
  - Supporting approx. 150 API nodes to enable convenient development without the need for a separate system or development language
- **Strengthened Security**
  - Resolving security and centralization issues with the patented DRPoS consensus algorithm
- **Excellent Identification Security**
  - Providing excellent security as ID-related information is held by the respective user only and not disclosed to a third party
- **Key Technological Solutions for Metaverse**
  - Providing NFT market, DID, cryptocurrency, smart wallet and blockchain solution which are the core technologies for metaverse

Applications

Category	Description
Blockchain	• Providing exclusive MainNet to customer • Developing and providing customized MainNet • Providing blockchain middleware platform connecting the existing service with blockchain
NFT	• Providing NFT trade market technology • Creating and distributing profits through NFT market operation • Establishing market portal for heterogeneous NFT connection
Digital Asset	• Supplying digital asset exchange platform • Reviewing digital asset appraisal

Implementation Case

Period	Project	Owner
2020	• Real Research platform	TNC group
2021	• SNAC, blockchain-based delivery app	ZERA
2022	• STRM NFT market • Terran NFT market • KAMP manufacturing data AI analysis service portal upgrade • Koong, blockchain sound source service	TNC group Terran Korea Advanced Institute of Science and Technology Koong World
2023	• Plastichero, blockchain-based recycling platform • Piki series, blockchain-based service	Plastichero SIGMA CHAIN

Interoperable solution supporting blockchain on-chain - on-chain and off-chain - off-chain asset and data integration, “C2CC”

Solution Information

Name of Solution I C2CC(Chain-to-Chain Communication)

Solution Category I Bridge for asset transfer and message delivery between heterogeneous blockchains

Developer I SOOHO.IO (www.sooho.io)

Inquiry I conan@sooho.io
010-2923-5696

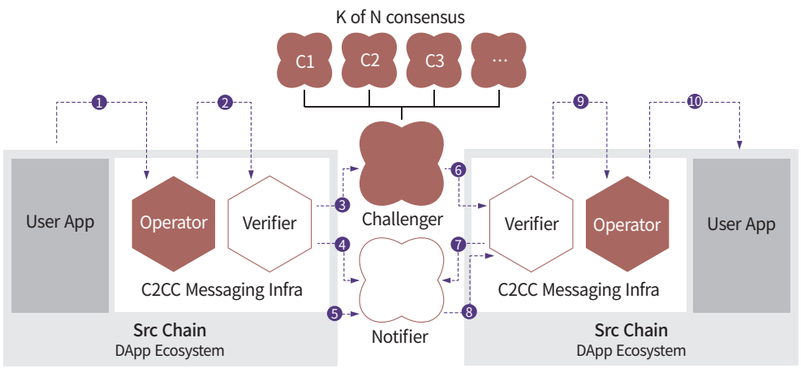
About Solution

This is an integration protocol to secure interoperability between chains. Data are delivered between heterogeneous chains based on omni-chain messaging protocol to secure interoperability.

Supporting asset and data link between public chains	Supporting asset and data link between public and private chains	Supporting asset and data link between private chains	Supporting asset and data link between off-chain and on-chain

▶ **On-chain/Off-chain Data Integration Protocol**

- Data protocol to secure interoperability between chains
- Oracle-based solution securing trust necessary for interoperability without being limited to chain and message types
- Core foundation of RWA/real asset service through connection to not only on-chain, but also off-chain data
- Smart contract audit completed, patent application completed



#Blockchain Finance #RWA #STO #NFT #Stable Coin

Features

▶ **Guaranteeing structural security and reliability through multi-channel and blockchain application to address the fundamental issue of SPOF-type bridge that is vulnerable to hacking**

Applications

Category	Description
RWA	• Real asset and financial service
STO	• Asset and financial service for security tokens or securitized tokens
NFT	• NFT asset and financial service
Stablecoin	• Stable coin issue and asset-related services

Implementation Case

Period	Project	Owner
2023	• Kleva: Technology platform establishment for Klaytn decentralized financial service	Kakao Games

The best blockchain platform optimized to enterprises, “Aergo Enterprise v2.0”

Solution Information

Name of Solution | Aergo Enterprise v2.0
Solution Category | Enterprise blockchain solution
Core Technology | Independently developed by BLOCKO

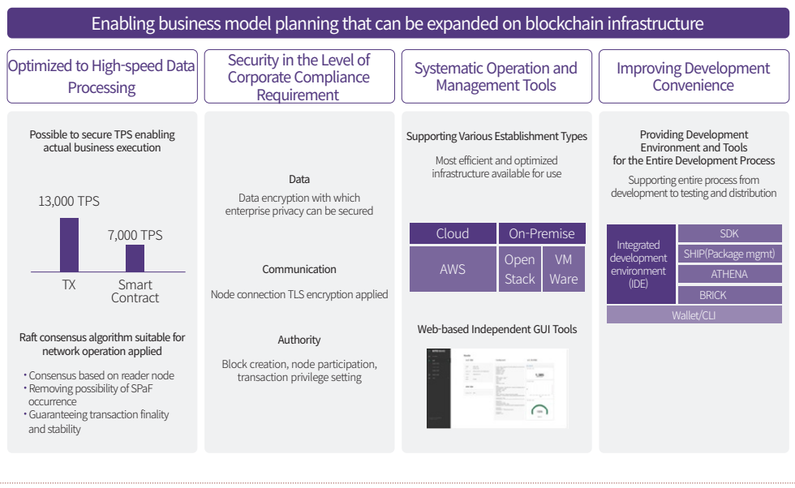
Developer | BLOCKO (www.blocko.io)
Inquiry | sales@blocko.io
031-8022-6253

About Solution

This is a blockchain platform optimized to enterprises. Beyond a basic framework, it suggests substantial blockchain establishment plans and effective management tools with a goal to prioritize enterprise business management ranging from blockchain introduction to data processing, operation and management with consideration given to business continuity and scalability.

Scalable business model

Supporting establishment of both cloud with maximized resource usability and on-premise systems



#Enterprise Optimization #High-speed Processing #Efficiency #Transparency #Security #Integrity #Reliability #Stability

Features

Optimizing Infrastructure Use through BaaS
- Using cloud infrastructure for private blockchain network configuration
- Flexible resources available for use based on AWS, VM Ware and Openstack

Providing IDE Applicable to Entire Blockchain Development Process
- Development environment and tools applicable to the entire process of blockchain network and DApp development
- Universal Development Language-based SDK: Java, JavaScript, Python
- IDE: Athena (ATOM Editor plug-in type smart contract development/test), Brick (VM for smart contract test)
- SHIP: Smart contract source package (source code life cycle management)

Simple and Efficient Operation and Management with Optimized UX/UI
- Efficient operation and management with web-based GUI tools
- Blockchain status monitoring and privilege setting by account/customer

Applications

Category	Description
Bank	• Simple login system establishment without the need for accredited certificate as authentication using blockchain is applied
into internal	• Realizing trustless access control in IoT connected car environment by strengthening communication security between devices through blockchain application to edge computing
Transaction Service	• Reducing security cost as contactless transaction is possible as a result of blockchain-based authentication and denial prevention for startup over-the-counter trading • Reducing cost of offline voting and counting procedures for public offering projects proposed by residents through blockchain-based electronic voting system

Implementation Case

Period	Project	Owner
2017	• Promotion of blockchain-based technology verification • Affiliation agreement for blockchain-based coupon service • Blockchain-based standardized integrated authentication system establishment in Shinhan Financial Group	Korea Financial Telecommunications & Clearings Institute Shinhan Card Shinhan Financial Holdings
2018	• Development (SI) through a link to blockchain system establishment project for banks • Blockchain platform establishment and pilot application • Distributed ledger technology-based micro-payment mock test • Blockchain concept verification software development and supply	Kbank Nonghyup Information System Bank of Korea Financial Security Institute
2021	• Establishment of Pickcl, a blockchain-based electronic voting service with viewer participation • STO concept verification • MainNet development and delivery for Bithumb Korea • Second project of information system infrastructure reinforcement (DID authentication system)	Korea Broadcasters Association Korea Securities Depository Bithumb Korea National Health Insurance Service
2022	• Blockchain-based electronic contract system establishment • Electronic evidence preservation system establishment • Blockchain-based advertising platform establishment and user digital wallet and integrated reward verification	eNtoB Corruption Investigation Office for high-ranking Officials National IT Industry Promotion Agency

Blockchain network establishment solution, “ACCIO”

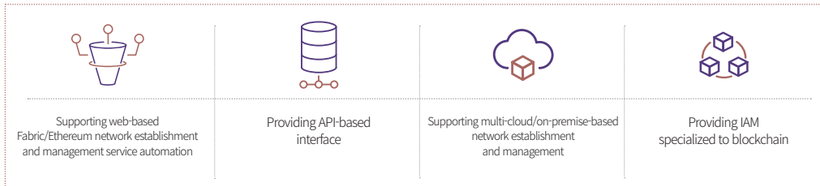
#Blockchain Network #Blockchain Network Automation #Hyperledger Fabric #High-speed Blockchain System #Blockchain System #Smart Contract

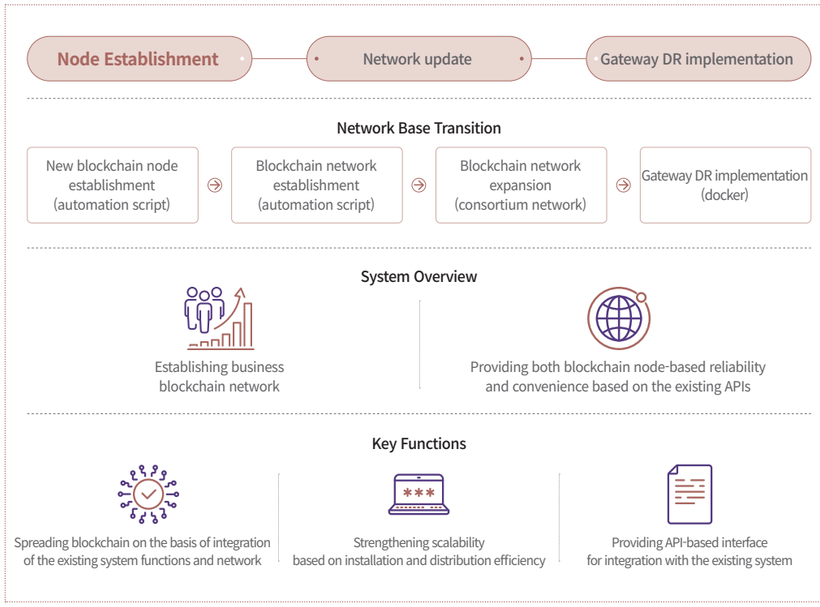
Solution Information

Name of Solution I ACCIO
Developer I SmartM2M (www.smartm2m.co.kr)
Solution Category I Blockchain system establishment, etc.
Inquiry I contact@smartm2m.co.kr 051-518-2143
Core Technology I Hyperledger Fabric, Multi-cloud orchestration, Blockchain-specific IAM

About Solution

ACCIO, a solution that can be used even without blockchain-related domain knowledge: This is a solution for blockchain network establishment. It helps enterprises in need of testing and development in a blockchain network environment or those intending to apply blockchain network technology to their services establish the key blockchain system with the minimum development resources. ACCIO: The blockchain network establishment solution with speed faster than that of Hyperledger provides a range of core-level functions according to requirements by using distribution/management tools and high-speed framework with a goal to facilitate not only blockchain network establishment, but also development.





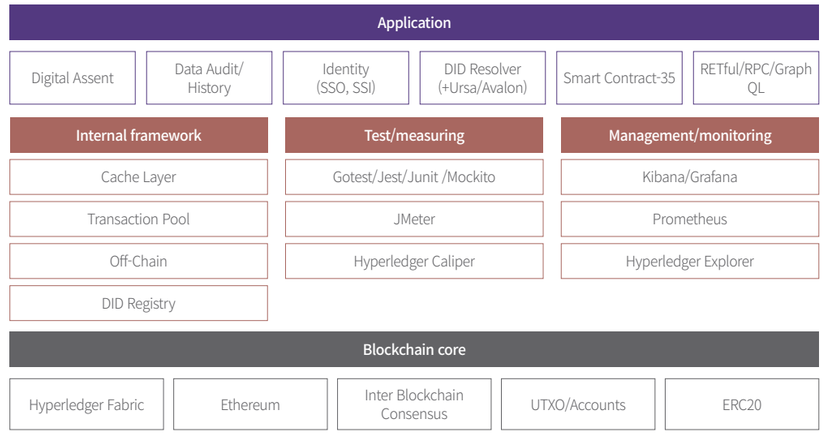
Features

Simple Blockchain Network Establishment
- Automation system enabling blockchain network establishment without domain knowledge
- Blockchain network design and establishment automation

Supporting Distribution/Management Tools
- Establishment automation with distribution/management tools
- Smart contract development
- High portability to the existing system

High-speed Framework Applied
- Supporting speed up to 20 times that of Hyperledger Fabric
- Processing speed of 5,000/1,000 (read/write)

Providing Various Functions in Blockchain Core Level
- Token (UTXO, accounts) function
- ERC20-based heterogeneous blockchain (digital asset) integration
- Customized functional expansion according to requirements



Applications

Category	Description
Game and DApp Service	• Establishment of blockchain network linked to service
Blockchain Education	• Education of key blockchain technologies with reference to blockchain development process
Development Education	• Smart contract development education
Test Environment Establishment	• Establishment of blockchain system testing environment

Implementation Case

Period	Project	Owner
2021	• Establishment of blockchain venture convention test bed (establishment of blockchain network for education/development/test and facility management platform blockchain system)	Busan Technopark
2022	• Testbed establishment for Busan Blockchain Innovation Technology Center	Busan Technopark
2023	• Port operation process improvement and integrated platform establishment to strengthen safety of Busan Port	Busan Port Authority

Platform supporting convenient Hyperledger blockchain establishment, management and operation, "AnyBlock"

Solution Information

Name of Solution | AnyBlock
Solution Category | Enterprise permissioned blockchain
Core Technology | Hyperledger Fabric v2.2, Hyperledger BESU

Developer | MarkAny (www.markany.com)
Inquiry | ktkim@markany.com
010-2715-4814

About Solution

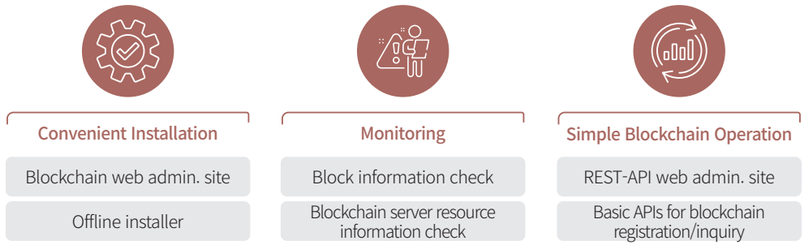
Introduction

- AnyBlock is an enterprise blockchain solution that can be applied to all industrial fields ranging from public to logistics, manufacturing, financial and education. This platform helps enterprises conveniently and swiftly introduce blockchain technologies they need. It is a permissioned blockchain designed on the basis of Hyperledger Fabric in which only the permitted users can participate.

Effect

- Through the solution introduction, forgery and tampering of electronic certificates and paper certificates (linked to solution) can be prevented. Based on DID integration, it enables users to secure a reliable electronic certificate distribution system for certificates, identification history, etc. In addition, the fragmented history management can be unified.

Features



Convenient Installation

- Automated modules for convenient installation, functions for blockchain installation and management in web environment provided for convenient blockchain application
- Offline installer for convenient installation (installation program)

#Private Blockchain #Enterprise Blockchain #DID #Smart Contract #Hyperledger Fabric

Convenient Management (Monitoring)

- Providing web-based dashboard for convenient blockchain management and control
- Enabling users to check block information using the web-based dashboard and conveniently monitor system resources

Simple Blockchain Operation

- Providing REST-API that can be applied to various services
- Standardized APIs (certificate management API, smart contract API, channel management API, etc.) provided to facilitate system integration along with management functions for basic components, such as nodes, blocks and transactions, to ensure efficient blockchain service

Multi-layered Structure Design for Convenient Maintenance

- Using multi-layered structure with blockchain and service fields divided in order to prevent difficulties caused by blockchain system integration in service development
- After defining the details of data saving and management on blockchain, the enterprise can proceed with service development in the usual method

Standard API

- Providing standard APIs for simple blockchain system application to various businesses

API Linked to Ledger Data Generation, Inquiry and Update

- Providing customizing function based on the history of API development for application to various businesses

Electronic document anti-tampering verification, data anti-tampering verification, history management, forgery/tampering identification, etc.

Applications

Category	Description
Electronic certificate management - Issue, authentication, verification	• When an individual requests certificate issue, the details are recorded in the blockchain-based system • When the issued certificate is submitted to an enterprise, the enterprise checks if the certificate is an original copy using the dedicated verification service
Educational history certification, management and certificate issue	• Managing information on educational curricula provided by educational institutes and details of training completion on blockchain • Certificate issue and educational history management services for trainees, transparent employee education history information for enterprises
Large-scale data (IoT data, medical, music, film, etc.) distribution management	• Blockchain-based multimedia content sharing portal for free content registration and transaction
Anti-tampering verification of existing documents, such as origin certificates and digital receipts	• When a consumer purchases an item, the receipt is automatically recorded in the blockchain network and the consumer can check the details of purchase through mobile app. When evidence submission is needed, the consumer can conveniently send the receipt using the app.
IoT device security verification solution	• Solution enabling communication only between certified secure devices

Implementation Case

Period	Project	Owner
2018	• Pilot project of blockchain-based e-C/O (electronic origin certificate) issue and exchange service • Blockchain-based certificate establishment service (Certi24 service)	Korea Customs Service Internal solution
2019	• Development of blockchain technology for IoT device security in limited user interface environment • Development of on-off hybrid blockchain technology for real-time, large-scale data distribution • Blockchain-based digital receipt distribution service technology verification • Development of customs clearance system for e-Commerce based on new blockchain IT • Establishment of blockchain-based certificate (performance, employment, career) issue and management system	Institute of Information & Communications Technology Planning & Evaluation Institute of Information & Communications Technology Planning & Evaluation National IT Industry Promotion Agency Korea Customs Service KEPCO KDN
2020	• Automated modules for convenient installation, functions for blockchain installation and management in web environment provided for convenient blockchain application • Offline installer for convenient installation (installation program)	Korea Internet & Security Agency Korea Internet & Security Agency
2021	• Blockchain-based learning history management system development • Development of electronic contract application platform using blockchain-based zero knowledge proofing • Blockchain-based online voting system establishment	Korea Planning & Evaluation Institute of Industrial Technology Institute of Information & Communications Technology Planning & Evaluation National Election Commission
2022	• Mobile citizen card system establishment for Gangneung City • Development of DID-based credentials delegation and certification technology to support real estate transactions in contactless environment • Blockchain-based drone credentials service system establishment • Strengthening of the basis for blockchain online voting system	Gangneung-si Institute of Information & Communications Technology Planning & Evaluation Korea Internet & Security Agency, Korea Transportation Safety Authority Korea Internet & Security Agency, National Election Commission
2023	• Mobile completion certificate • Blockchain-based athlete record and performance management platform establishment • Blockchain-based drone operation safety information service development • Development of technology for copyright protection in metaverse and activation of use • Blockchain DID-based smart student ID application development • DID establishment for externally released data security platform of HD HYUNDAI	Korea Occupational Safety and Health Agency Korean Sport & Olympic Committee Korea Transportation Safety Authority Korea Creative Content Agency Seoul Metropolitan Office of Education HD HYUNDAI

Handbook of Blockchain Solutions & Companies 2023

Blockchain ESG solution, “EnerChain”

Solution Information

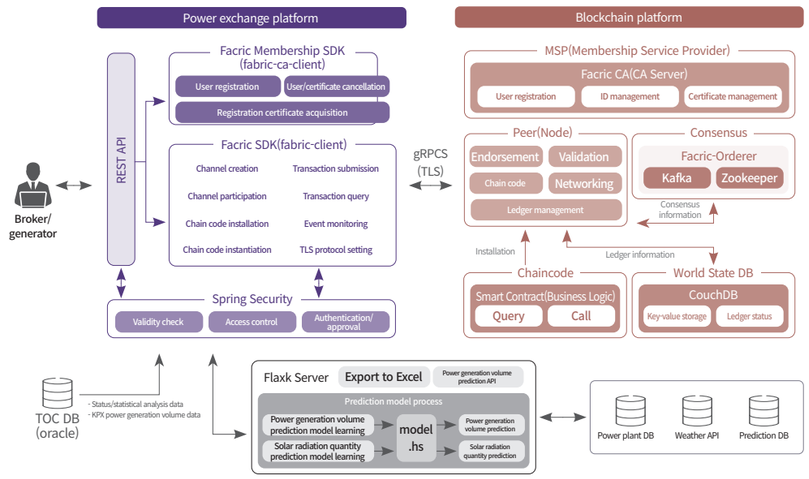
Name of Solution | EnerChain
Developer | SmartM2M (www.smartm2m.co.kr)
Solution Category | Blockchain network establishment platform and smart contract development
Inquiry | blockchain@smartm2m.co.kr, 051-518-2143
Core Technology | Hyperledger Fabric v2.2

About Solution

This solution automates unnecessary operations that occur in power plants on the basis of Hyperledger Fabric to visualize power generation amount and equipment status, and enable efficient use of reserve power. The key functions include a function to manage SMP, power generation information and power resources of a virtual power plant based on smart contract, a smart contract-based P2P power exchange solution function, and an API function for machine learning-based photovoltaic power generation volume prediction. Based on the functions, this solution verifies ESG management and creates ESG reports in order to guarantee transparency in the certified emission reduction management and business administration information.

Providing API for future profitability prediction through power generation volume prediction after 1 - 72 hours

Differentiated blockchain-based virtual power plant, brokerage transaction and P2P transaction technological power → providing solutions according to enterprise needs



#ESG #Automation #Smart Contract #Transaction Stability #Power Generation Volume Prediction

Features

- Minimizing unnecessary operations in power plants based on smart contract and reducing unnecessary work load through automation
- Securing transaction stability by providing P2P power exchange function based on smart contract
- Ensuring efficient reserve power use through visualization of power generation volume and equipment status information using Hyperledger Fabric and dashboard app
- Enabling monthly power generation volume and profitability analysis by analyzing and predicting data accumulated through machine learning

Applications

- Power exchange service between buildings of a research lab
- System supporting small-scale power generation and transaction between individuals
- Electric vehicle charging transaction service
- P2P power exchange between apartment houses
- Direct P2P power exchange between households
- Clean energy exchange within and between university campuses

Implementation Case

Period	Project	Owner
2019	• Blockchain-based virtual power plant system development • Power exchange blockchain platform delivery	Nuri Flex ENITT
2020	• Blockchain-based power exchange simulator development	Electronics and Telecommunications Research Institute
2021	• Smart contract blockchain platform main app development • Power data sharing/security decentralized application visualization module	Electronics and Telecommunications Research Institute Electronics and Telecommunications Research Institute
2022	• Power exchange platform blockchain system design and establishment	Nuri Flex
2023	• ESG blockchain network design consulting for LG Electronics • Study on plans for blockchain integration with specialized industries of Daegu	LG Electronics Daegu Digital Innovation Promotion Agency

Enterprise blockchain solution meeting all corporate requirements, “H-Chain”

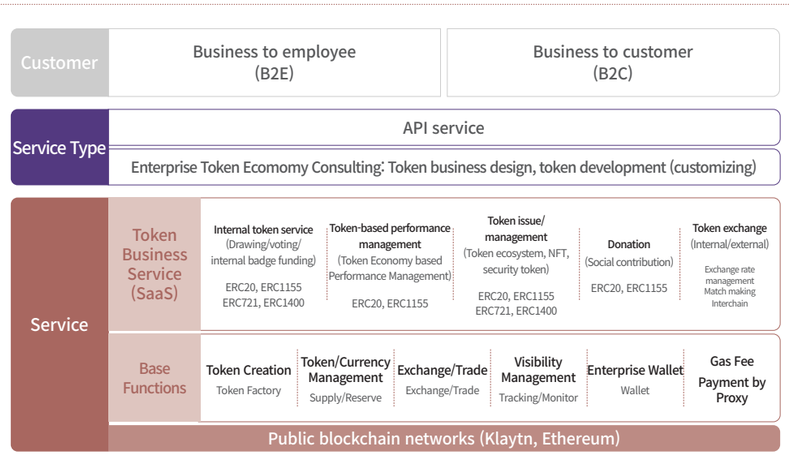
Solution Information

Name of Solution	H-Chain	Developer	Hanwha Systems (www.hanwhasystems.com)
Solution Category	Blockchain SaaS	Inquiry	Customer center on website 02-6313-3114
Core Technology	Providing open API by wrapping blockchain node RPC to issue/manage various tokens		

About Solution

Various blockchain SaaS services are provided based on public blockchains (Klaytn, Ethereum). As a multi-tenant solution providing management pages to each user, it enables customizing according to the users’ needs through open API. Designing internal token economy and issuing/managing tokens, H-Chain can be used for drawing, voting, NFT badge, reward token, donation, etc. It can be expanded so that users can apply the solution to various activities through the exchange. The patented token-based performance management technology enables OKR introduction. A variety of other linked services are being additionally developed.

Providing blockchain reliability through link to public blockchains	Enabling integration with and use of various services for token economy	Providing open API for basic dashboard and management page access and expansion	Reducing blockchain service development time through convenient API application



#Drawing #NFT Badge #Reward Token #Performance Management #Enterprise Solution

Features

▶ **Enabling Economic Blockchain Service Development**
- Enabling fast blockchain development using open API without the burden of various costs required for blockchain-based system introduction or service development (fees for blockchain network use, node-linked server development, smart contract development. etc)
- A wide range of H-Chain service fees available for selection according to the corporate status and by request/number of personnel

▶ **Applicable to Various Platforms and Securing Maximum User Accessibility**
- Convenient service expansion through integration with external blockchain services based on public blockchain networks (Klaytn, Ethereum)
- Available for link to domestic and global markets (global No. 1 NFT market, OpenSea, etc.)
- Scheduled to support Solana, Polkadot, etc.

▶ **Convenient Management Using Web-based Dashboard**
- Checking and managing block information through web-based dashboard, providing system resource monitoring function

▶ **Customized Consulting Service**
- Customers’ needs and ideas met and implemented through token economy based on token economy application design and token development consulting by Hanwha Systems’ blockchain experts

▶ **Fast Transaction**
- Providing service speed suitable to the business field through distributed consensus algorithm improvement

Applications

Category	Description
Token-based Internal Business Operation Service	• (Drawing) Maximizing participation effect by strengthening fairness of internal welfare benefit drawing and introducing gamification system using tokens (Reward) Paying reward tokens in relation to business operation-related performances, various internal activities, etc. for performance management and organizational activation, and linking it to welfare benefit drawing
Services Using NFT	• Providing NFT badge containing reward benefits for achievements, training completion, etc. to strengthen employees’ career development management, and giving exchange value to the badge by supporting the internal NFT exchange listing
Token-based Transaction Service	• Providing donation system, point system and internal token exchange service to activate the use of tokens provided
Security Token (ST) Management Service	• Enabling security token issue and management service establishment through a link to real assets using ERC1155 and ERC1400

Implementation Case

Period	Project	Owner
2018	• Life Plus app ID integration • PoC for securities short-term bond tokenization	Hanwha Life Hanwha Investment & Securities
2019	• ABT PoC for financial products • Artwork data platform development	Hanwha Investment & Securities Seoul Auction Blue
2021	• Token-based performance management system establishment	Hanwha Systems
2022	• Blockchain-based internal business operation system (internal drawing, reward, NFT badge)	Hanwha Systems

Simple and easy blockchain development, “X2Easy”

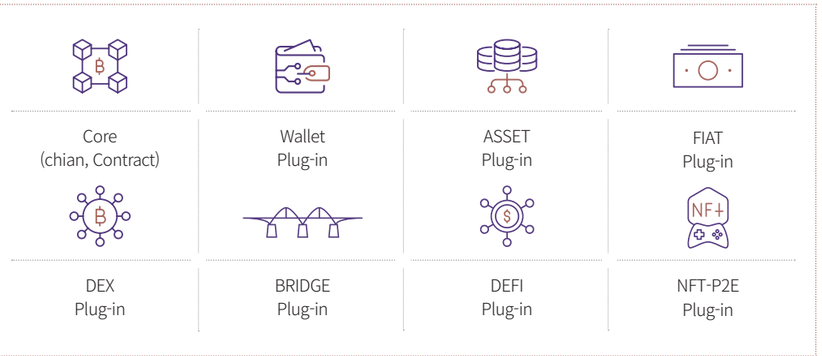
Solution Information

Name of Solution I X2Easy
Solution Category I SDK
Core Technology I Plug-in-based SDK

Developer I NAMULABS
Inquiry I Todd.heo@namu-labs.com
010-4751-9711

About Solution

This SDK to add on plug-ins necessary for the core system service enhances service quality through the addition of Defi, NFI, NFT <-> P2E linked plug-ins as well as basic chain settings.
After setting the basic functions for blockchain service implementation, such as chain, contract and network, in core, set the plug-ins for various functions necessary for the service. The service can be conveniently implemented through integration of the Defi, X2E system and NFT functions.



Features

▸ **Using the kit, even developers who have no experience of blockchain development can conveniently develop blockchain services**

Applications

Category	Description
TNT (break out) P2E	• Applicable to P2E service development for the globally popular break out game
DApp implementation (NFT, Defi, etc.)	• Enabling NFT service implementation using NFT Mint plug-in, convenient to implement NFT, Defi, etc. through customization according to plan

Implementation Case

Period	Project	Owner
2023	• Global TNT P2E service	TNT

Parallel-processing blockchain technology solution guaranteeing the minimum required processing performance, “MPLedger”

Solution Information

Name of Solution | MPLedger

Developer | LSware (www.lsware.co.kr)

Solution Category | Blockchain parallel processing

Inquiry | roland@lsware.com
02-6919-0321

Core Technology | Hyperledger Fabric v2.5, TPA(Transaction Proposal Assignor)

About Solution

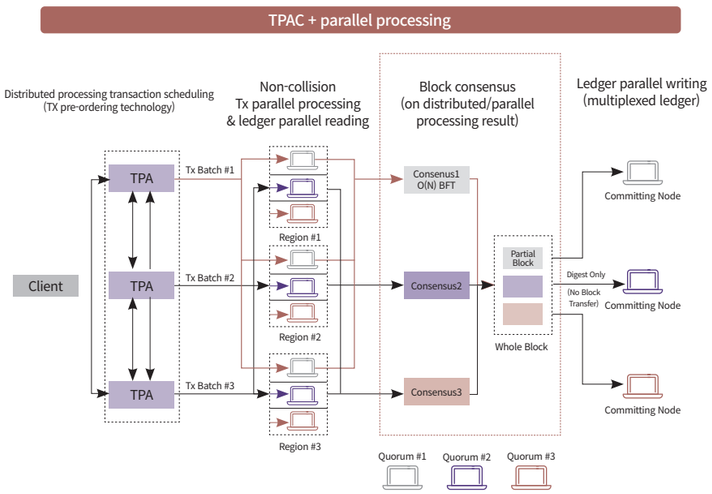
This is a blockchain source proprietary technology to add parallel processing method to an existing blockchain framework (BitCoin, Ethereum 2.0, etc.) that is limited in performance improvement through continuous increase of the number of nodes.
Classifying transactions for which parallel processing is possible based on the RWKS (read/write key set) information of the transactions, this blockchain add-on technology adopting parallel processing method to partially generate a single block in several node groups within a network improves the processing performance according to an increase in the number of nodes, and guarantees the minimum required TPS performance of 3,000.

TRA transaction request classification

One-Pass Prefetching

Implementing distributed transaction based on transaction batch

- Processing transaction in one block as opposed to several blocks, and accelerating the implementing of dependent transactions
- Technology to load all necessary values approached by all transactions within a transaction batch in global cache by using the RWKS (read/write key set) information generated in the course of transaction classification
- Resolving the issue of key conflict (within-block conflict, cross-block conflict) to improve on the weakness of blockchain with performance lowered in distributed node structure



#Blockchain #Hyperledger #Minimum Required Performance #Parallel Processing #Distributed Processing

Features

- Improving number of transactions executed per unit time
- Reducing critical path of overall transaction execution time (removing delay in reading)
- No performance deterioration caused by conflict (fork)
- Enabling distributed parallel processing through heterogeneous configuration with different performance levels

Applications

Category	Description
Applicable to Time-critical Operations	• Unlike the existing blockchain frameworks of which it cannot be identified which transaction will be processed when no matter how high the maximum TPS is, this solution provides a blockchain framework that guarantees the transaction processing time and overall system performance
Ensuring Efficient Use of Nodes on Network	• Unlike the existing blockchains where a block can be generated only in one node no matter how many network-participating nodes there are, this solution provides a technology to improve the efficiency of node use when the number of nodes increases, and enables even the nodes with low performance levels to participate directly in the block generation

Implementation Case

Period	Project	Owner
2020	• Multi-channel-based blockchain technology development for performance maximization in small-scale node environment	Institute of Information & Communications Technology Planning & Evaluation

The first blockchain oracle using native token of universal blockchain network as utility token, “Orakl Network”

Solution Information

Name of Solution | Orakl Network
Developer | BISONAI (www.orakl.network)
Solution Category | Blockchain oracle
Inquiry | business@bisonai.com, 010-6462-0181
Core Technology | Node.js 18.12, PostgreSQL 14, Redis 17.7.0, BullMQ 3.2.2, Graphnode, Klaytn 1.11.1, NestJS 9.0.0, Prisma 4.11.0

About Solution

Unlike other Oracle solutions (Chainlink, Pyth Network, RedStone, etc.), Orakl Network uses native token of universal blockchain network as the utility token, which ensures greater accessibility for the users. Currently, four services have been released and are in operation through Klaytn chain, one of Korea’s representative blockchain networks.
The services are described in the summary of solution functions below.

Datafeed	VRF(Verifiable Randomness Function)	RR (Request-Response)	PoR (Proof of Reserve)

- Providing price information for Data Feed, virtual currencies and overseas currencies on-chain
- Providing more reliable random number generation function through the application of VRF (verifiable randomness function) and decentralization
- Providing function to assist in the delivery of responses to RR (request-response) and API requests on-chain
- Providing function to improve reliability by verifying the existence and amount of assets through PoR (proof of reserve) and in a transparent and verifiable method

Features

- **Providing greater accessibility to users by using native token of universal blockchain network as utility token**
- **Helping users pay for service cost according to their circumstances by offering various payment methods (on-chain, off-chain)**

#Blockchain Oracle #Blockchain Data #Information Security #DeFi #GameFi

Applications

Category	Description
Financial Service	• Used in smart contract implementation as external financial data, such as price information and exchange rates, are brought to blockchain real-time
Medical Record Management	• Supporting effective medical service provision and information exchange by securely saving patients’ medical records in blockchain
Real Estate Transactions	• Recording ownership information, transaction records, etc. in blockchain to increase transparency of real estate transactions
Game and Digital Assets	• Recording and securely managing game item and digital asset ownership and transaction records in blockchain
Energy Trade	• Activating transparent and sustainable energy trade by recording renewable energy generation amount, transaction details, etc. in blockchain
Voting System	• Preventing fraudulent voting by safely recording election results and voting information in blockchain
Logistics and Transportation	• Guaranteeing logistics management and secure transportation by recording product transfer and transportation information in blockchain

Implementation Case

Period	Project	Owner
2023	• Reliable and highly secure random number generation • GoldStation, PoR service used to issue tokenized virtual assets on blockchain based on the amount of gold asset holdings	Landtorn Creder

BaaS-based blockchain battery post quality management system, “Open-BMS”

Solution Information

Name of Solution | Open-BMS (rechargeable battery management system)

Developer | Techcode (www.techcode. co.kr)

Solution Category | Blockchain-based rechargeable battery life-cycle management

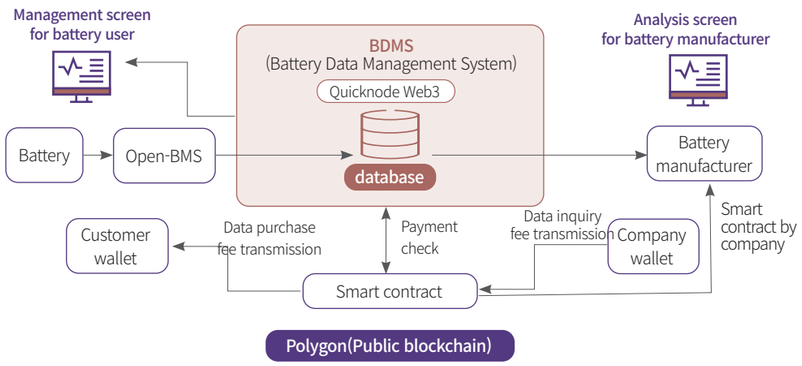
Inquiry | khkim@techcode.co.kr, 010-2731-6182

About Solution

For BaaS, this solution securely saves battery data using blockchain and web 3.0 technologies, and allows only the battery manufacturer to manage the data.

Data provision status | User wallet management | Data inquiry Service fee charging | Battery re-purchase request | Data transaction smart contract

- **Details of service fee payment for data purchase by battery manufacturer**
- **Data inquiry key management between specific battery manufacturer and user only**
  - Battery user, battery manufacturer
- **Battery manufacturer purchasing tokens for battery data inquiry**
- **User paying battery cost to manufacturer with tokens received as the reward for data provision**
- **Smart contract for battery manufacturer to provide tokens to users for data inquiry and grant data access permission**



#Blockchain #Rechargeable Battery #Battery Management System #NFT #Information Security

Features

- **Blockchain Service Convergence**
  - Battery life cycle management (replacement time, safety status (temperature, humidity, voltage))
  - Battery data anti-tampering, access by permitted users only
  - Battery operation data accessed by manufacturer only
  - Energy distribution with blockchain-based reliability guaranteed
  - Development to platform for battery charging and sale (individuals, enterprises) planned

Applications

Category	Description
Korea Forest Service	• Scheduled to propose emergency mobile phone charging service (including monitoring) using solar power and batteries • for the summits of national parks and remote areas under jurisdiction of the Korea Forest Service
Local Government	• For CCTV and solar street lighting battery status monitoring by local governments • Additional establishment scheduled based on the case of solution application to the Han River Park • Centering around local governments such as Cheongju-si, Anyang-si, Gyeonggi-do and Chungcheongbuk-do
Battery Manufacturer	• Consultation in progress with battery packaging company for use as battery quality control solution
KORAIL	• Consultation in progress for transition to automatic power measuring with a goal to prevent accidents caused by manual battery measuring at the bottom of railroad
UPS User	• Consultation in progress with Gwanak-gu Office, etc. for use as battery charging status monitoring solution for emergency power in case of failure occurrence in the UPS within buildings

Implementation Case

Period	Project	Owner
2023	• Support for blockchain convergence service development through link to local specialty industry	Chungbuk Innovation Institute of Science & Technology

NaaS (node-as-a-service) providing blockchain infrastructure to web 3.0 developers, “All That Node”

Solution Information

Name of Solution | All That Node
Developer | DSRV LABS(www.dsrvlabs.com)
Solution Category | Blockchain (node) infrastructure service
Inquiry | allthatnode@dsrvlabs.com, 010-5754-9733
Core Technology | Blockchain node RPC development and operation, large-scale data processing, stable network maintenance

About Solution

All That Node is the most inclusive blockchain infrastructure service designed to support multi-chain development.
It provides everything related to blockchain node development and operation so that the teams intending to develop services based on blockchain can focus on the service development.
In addition to infrastructure enabling convenient acquisition of information recorded in the block through blockchain network access, this solution provides a wide range of information including data from the past, data of all relevant transactions connected to a single transaction, and debugging information with which issues in the transaction can be identified.
Currently, All That Node supports approximately 50 blockchain networks. As an infrastructure integrating the nodes that comprise these networks, All That Node was developed by DSRV, an industry-leading infrastructure company.
The ultimate goal of All That Node is to help more people enjoy the benefits of blockchain by lowering financial and technological barrier through the application of blockchain technologies.
Having been granted by Osmosis, one of the app chains in the Cosmos ecosystem, All That Node recently succeeded in completing the Grants Program of dYdX, a network for decentralized exchange.

Request data saved in blockchain network

Transmit transaction in blockchain network

Provide auto scaling function according to usage

Provide detailed API log and analyze patterns of use

Provide API security setting function such as JWT

Provide flexible joint operation environment

#Blockchain #API #Node #Web3 #Infrastructure

Features

- Providing API interface for over 100 networks
- Provide multiplexed backup node based on global region and support latency only 1/10 that of competitors for the Asian region
- Provide archive data and debug/trace API
- Ensure seamless uptime by 99.99%+
- Provide flexible connectivity and customizing for response to rapid traffic increase which can occur in enterprise-level services
- Provide 24-hour technological support

Applications

Category	Description
Blockchain-based Services of Exchange, etc.	• Supporting inquiry on user assets saved in blockchain and token deposit/ withdrawal processing
Blockchain Wallet	• Developing blockchain data inquiry and transaction handling functions
DApp Services such as Game	• Enabling implementation of transaction processing and data inquiry functions for game operations
On-chain Data Analysis	• Deriving insight based on data from the past to the present recorded on blockchain
NFT Marketplace Development	• Enabling marketplace development to exchange NFTs implemented on various blockchains

Implementation Case

Period	Project	Owner
2022	• Provision of blockchain data for blockchain data analysis tools	Flipside Crypto
2023	• Establishment of dedicated blockchain with minimized latency that is customized according to the characteristics of exchange • Provision of node API for wallet operation • Provision of blockchain data necessary for the web 3.0 gaming implementation • Establishment of flexible node API for decentralized exchange network	Coinone Haechi Labs ISKRA dYdX

Development tool to distribute and test smart contract in various blockchains, “WELLDONE Code”

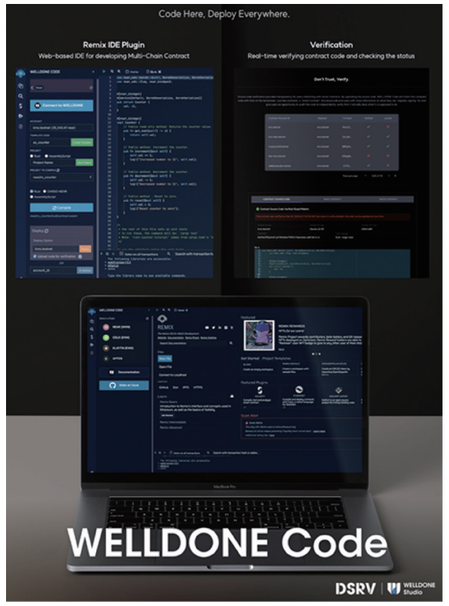
Solution Information

Name of Solution | WELLDONE Code
Developer | DSRV LABS(www.dsrvlabs.com)
Solution Category | Multi-chain development and verification tool
Inquiry | welldone_cs@dsrvlabs.com 070-4267-3108
Core Technology | Enabling multi-chain support in RemixIDE, a representative tool for Ethereum smart contract development on the web

About Solution

WELLDONE Code is a RemixIDE plug-in. Remix is a web-based integrated development environment (IDE) for Solidity programming language that is used to write smart contracts for Ethereum blockchain. Using Remix, developers can write, test and debug EVM-based smart contracts in the convenient and user-friendly interface. WELLDONE Code helps developers conveniently develop and test smart contracts in RemixIDE for non-EVM networks, such as NEAR and Cosmos, in addition to the EVM-compatible networks.

Supporting multi-chain development environment	Distributing and executing multi-chain smart contracts	Verifying the distributed contracts by comparing their binaries with the disclosed original codes



#Multi-chain #web3 #dev #web3dev #Development

Features

▶ **As development environments vary by blockchain network, developers need to establish a development environment each time the development target chain changes. This is a considerable burden on web 3.0 developers intending to develop new chains.**

▶ **Therefore, WELLDONE Studio provides WELLDONE Code to help multi-chain developers focus soely on contract development and testing without having to worry about the complicated development environments by network.**

- WELLDONE Code is a RemixIDE plug-in. Remix, which is a web-based IDE for Solidity language, is mainly used to write smart contracts for Ethereum blockchain. Remix enables developers to write, test and debug EVM-based smart contracts by using the convenient and user-friendly interface.
- Using WELLDONE Code, developers can conveniently develop and test smart contracts in RemixIDE for not only EVM-based networks, but also non-EVM-based networks (NEAR, Cosmos).
- WELLDONE Code is an excellent tool for developer on-bording in each chain ecosystem as it supports developers to write smart contracts without having to establish development environments by network.

Applications

Category	내용
Game and DApp	• Distributing and testing contracts for use in games and DApps
Development Education	• Development on-boarding education on the web for web 2.0 developers

Implementation Case

Period	Project	Owner
2022	• Remix plug-in multi-chain development environment creation • JUNO development environment creation • NEAR development environment creation	DSRV LABS JUNO Foundation NEAR Foundation
2023	• APTOS development environment creation • SUI development environment creation	APTOS Foundation SUI Foundation

Blockchain solution optimized to corporate environment, “WizChain”

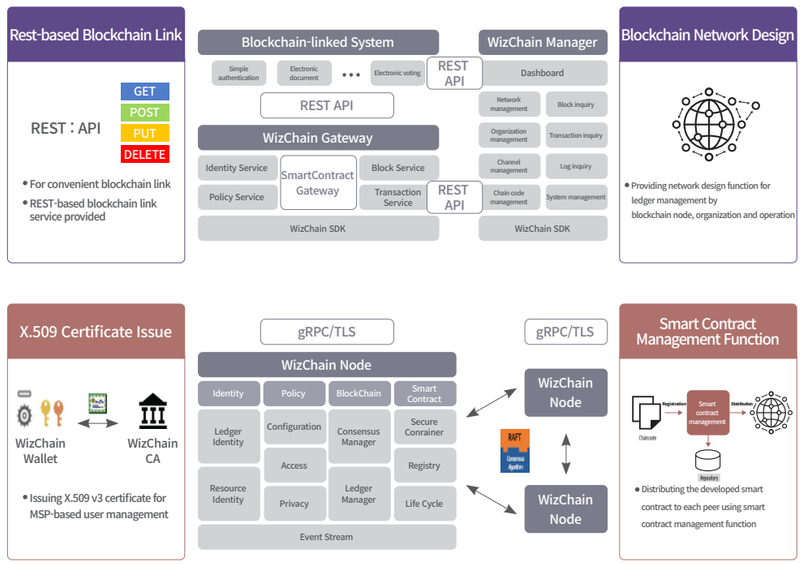
Solution Information

Name of Solution | WizChain
Developer | KSIGN (www.ksign.com)
Solution Category | Blockchain infrastructure establishment solution
Inquiry | hyungjun.seo@ksign.com, 070-7090-7819
Core Technology | Hyperledger Fabric v2.2-based

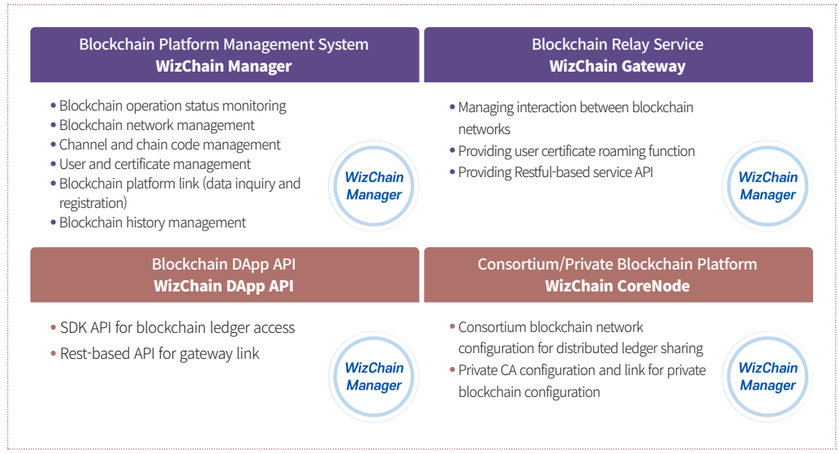
About Solution

WizChain safely manages customers’ digital assets with management function by the Hyperledger Fabric-based permissioned/private blockchain infrastructure software channel and for private ledger. It also supports high scalability and security of gateway based on the integrated link to application systems.

Authenticating servers of linked organizations and encrypting the connected data	Improving processing performance and security through independent ledgers by linked service	Applying RAFT algorithm to secure blockchain service availability and performance	Securing development efficiency and convenience in maintenance by using development language for administrative information sharing



#Permissioned Blockchain #Security #Scalability #Integration Flexibility #Verified Reliability



Features

Blockchain Platform Management

- Blockchain node (registration/distribution/execution) management
- Blockchain node security setting (authentication, security, etc.) management
- Organization node management (creation/inquiry/modification/deletion)
- Channel management (channel creation/inquiry/modification/deletion)
- Smart contract (registration/distribution) management
- User and certificate management

Block Inquiry and Node

- Block creation, consensus and transaction status check
- Certificate issue and inquiry in relation to participants
- Consortium/permissioned blockchain node configuration
- Providing private CA for permissioned blockchain configuration

Access Control and Audit Record Management

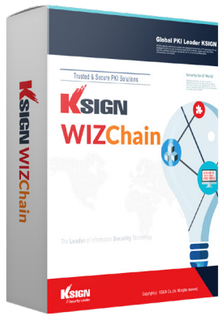
- Managing all audit records for blockchain management service
- Guaranteeing integrity of audit records generated
- Managing system history through audit record check

Application System Integration

- Direct chain code link on blockchain node through SDK-based DApp API
- Blockchain service link through gateway that provides Rest API
- Key value-based data management
- Improving inquiry performance through composite key-based transaction link

Solution Information

WizChain



GS인증 K-CMVP

Verified Reliability

Providing distributed ledger technology verified through Hyperledger Fabric-based technology and GS certification

Confidentiality

Securing confidentiality for information not available for sharing to all through ledger management by channel

Environmental Flexibility

Supporting flexible application to diverse environments based on blockchain technology and expertise of KSIGN

Applications

Category	Description
Smart Home Performance Management	• Providing management function for smart device performance information based on information of the device installed in smart home and information collected from the device
Electronic Document Distribution Management	• Providing life cycle management of electronic documents from creation to distribution, storage, use, transfer and destruction through blockchain
Certificate Information Management	• Securing reliability of certificates and certificate destruction information by managing the information through blockchain
Reward Token Issue and Distribution Management	• Providing technology for ERC20-based token and reward token issue, and transaction of the issued tokens within a community targeting users participating in the community activities for community activation
Authenticity Verification	• Providing technology to verify authenticity and forgery/tampering status of electronic documents
NFT Issue for Donations	• Providing function to issue profile NFT including donation details so that donors can use it in social network, etc.

Implementation Case

Period	Project	Owner
2021	• Establishment of the foundation for future administrative information joint use system (1st)	SolideoSystems
2022	• Establishment of trust base for public MyData distribution system with blockchain application • Blockchain platform introduction in stage 2 of the next-generation local tax revenue information system establishment project • Blockchain solution introduction to national defense acquisition system • Establishment of blockchain solution and functional development for donation fund-linked blockchain platform establishment	Ministry of the Interior and Safety Korea Local Information Research & Development Institute Defense Computing Information Agency ITNOMADS

Enterprise information trading platform, “InnoBlock Platform”

Solution Information

Name of Solution | InnoBlock Platform
Solution Category | Blockchain platform, information transaction service
Core Technology | BTC-based engine

Developer | InnoBlock (www.ibpartners.io)
Inquiry | dohyoung.kim@ibpartners.ior
02-539-0551

About Solution

This is a large-capacity and high-performance enterprise information trading platform developed on the basis of Ethereum.
It was developed to swiftly create, operate and manage a blockchain environment optimized to the business of an enterprise.

Features

BTC-based Enterprise Information Trading Platform
- Saving authentication/authorization information in a transaction format to guarantee integrity

Commercialized Product with PoW Consensus Algorithm Technology Applied

Platform that Can be Expanded to Various Services
- Enabling users to add nodes, which are network components, and expand capacity

Simple Business Network Establishment
- Conveniently providing blockchain platform instances and the related resources in a built-in format
- Enabling simple participant registration and management regardless of delay, infrastructure characteristics, etc.
- Ensuring link with external blockchain networks through smart oracle

Independent Transaction of Participants Only
- Guaranteeing security of transactions generated between network participants
- Enabling various access privilege setting by participant

Automation Using Smart Contract
- Executing automation for transaction creation, verification, access permission, etc. through smart contract
- Enabling event response through external disclosure/notice after event creation

Efficient Management and Monitoring
- Enabling management and identification of abnormal signs using intuitive and simple status dashboard
- Enabling preemptive response system establishment through resource management

#InnoBlock #InnoVoting #Identification and Authentication #Digital Wallet #Real-time Voting Monitoring #Smart Contract #Anti-tampering #Secret Voting #Double Voting Prevention

Applications

Category	Description
Trade	• Shared ledger and automation through smart contract to increase efficiency, speed and accuracy and alleviate risk
Financial Transaction	• Improving service by increasing transaction transparency, speed and predictability • Providing fast payment processing, low transaction cost and efficient service for financial means such as securities, bonds, deposit certificates, commercial papers, etc.
IoT	• Ensuring industrial match-up and IoT convergence, and increasing usability of expensive industrial assets owned by enterprises using blockchain technology • Ensuring trade of idle equipment between enterprises by connecting transportation containers, MRI equipment, construction equipment, etc. to digital marketplace real-time
Contract Management	• Blockchain providing shared records on contract updated according to process implementation, and immutable records for audit • Implementing payment agreement according to performance using smart contract (i.e. Free or discount if delivery pizza does not arrive within 30 minutes)
Public Affairs/ National Defense	• Applicable to various fields requiring service authentication and confidential document transaction security, reliability and accuracy • Distributed ledger/ledger information and document access history information • Improving digital signature and hash function security • Conducting user authentication (DID), certification and identification management
Logistics Data Tracking Management	• Complicated supply chain transactions can be recorded on blockchain to secure visibility of end-to-end processes for provenance record
Asset Storage	• Stakeholders of each asset type commencing transactions, acquiring asset information and directly accessing their assets without intermediaries • Protecting digital copyright (NFT) • Substantial lower limits set for assets that can be used as a loan collateral for transaction cost • A considerable portion of transaction cost removed through blockchain, loan of a new level based on low-cost assets realized

Implementation Case

Period	Project	Owner
2019	• Electronic voting system establishment (electronic voting solution delivery)	Incheon City Hall
2021	• Establishment of integrated information system based on agricultural business entities targeting forests and fields (blockchain platform procurement) • Establishment of smart transportation system using ICBM technology (blockchain platform procurement) • Establishment of blockchain-based redundant welfare benefit receipt management platform (blockchain platform procurement)	Korea Forest Service Incheon Port Authority Ministry of Health and Welfare
2022	• Blockchain-based redundant childcare subsidy receipt management platform (blockchain platform delivery)	Ministry of Health and Welfare

Real-time blockchain network activity status monitoring platform, “eBrother Block Explorer”

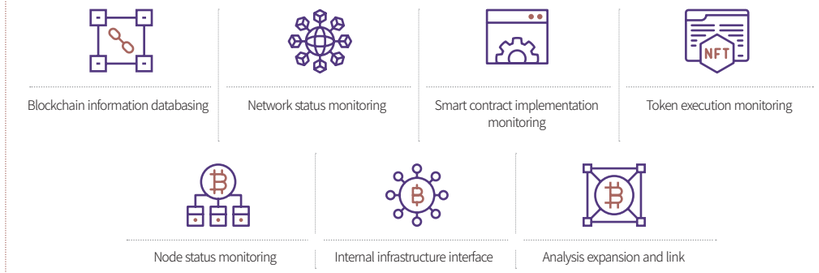
Solution Information

Name of Solution | eBrother Block Explorer
Solution Category | Blockchain management, network monitoring and analysis

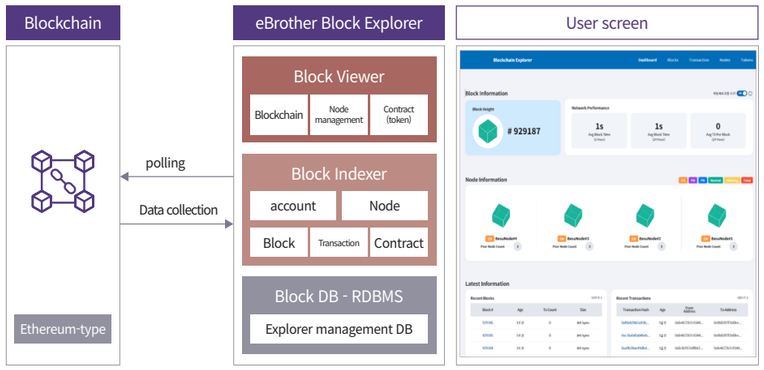
Developer | CCmediaService (www.ccmedia.co.kr)
Inquiry | service@ccmedia.co.kr
02-501-6371

About Solution

As the introduction of blockchain service is increasing in the public sector and by enterprises, issues concerning real-time network monitoring and management have been raised. In most cases, management is conducted using open source-based blockchain monitoring tools. However, there are cases where flexible operation is difficult due to the issue of internal infrastructure link. eBrother Block Explorer provides enterprise infrastructure and interoperability in the RDBMS or JAVA environment, databases blockchain information including abnormal transaction tracking and smart contract verification, and offers an expansion function for detailed analysis. Extracting, providing and saving information necessary in blockchain operation real-time through the web-based application consule, it supports effective blockchain monitoring and operation management.



System Configuration



#Blockchain #Monitoring #Operation #Analysis #Transaction

Module	Details	Details	Notes
Block Indexer	• Collecting blockchain information through blockchain RPC	• JDK 11 or higher	
Block Viewer	• Providing collected information to user on screen	• Backend: JDK 11 or higher • Spring Boot, Front end : React	
Block DB	• Supporting collected information archive and relational DB	• MySQL (including Maria), Postres, Oracle	

※ It is recommended to provide all modules in container

▶ Blockchain information databasing

• Structuring blockchain storage information and saving it real-time on relational DB

▶ Network status monitoring

• Monitoring on network status such as number of blockchain nodes and current block height

▶ Smart contract implementation monitoring

• Providing monitoring function for smart contract execution result

▶ Token execution monitoring

• Providing monitoring function for token information disclosed from smart contract
• Monitoring on the execution of ERC-20, ERC-721, ERC-1155 and ERC-1400 (mint, transfer, burn, etc.)

▶ Node status monitoring

• Providing monitoring function for the status of blockchain configuration nodes
• Providing status information about execution of specific nodes at private network configuration

Applications

Category	Description
Blockchain Operation Management	• Real-time network status monitoring and operation data collection and processing

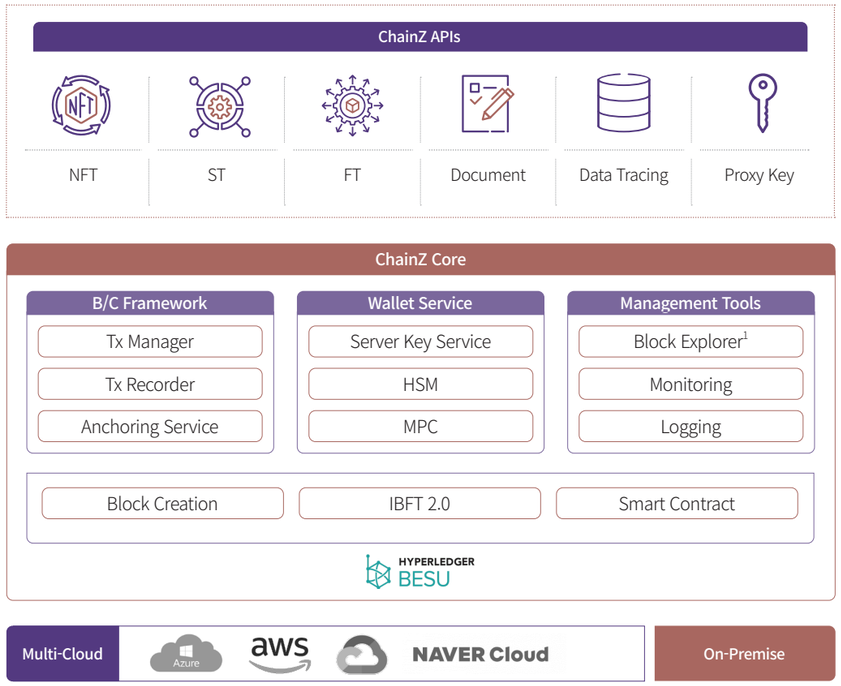
Enterprise blockchain platform optimized to web 3.0 digital asset market, “ChainZ”

Solution Information

Name of Solution	ChainZ	Developer	SK Inc. C&C (www.skcc.co.kr)
Solution Category	Blockchain platform	Inquiry	foxez@sk.com 010-3504-8029
Core Technology	Hyperledger Besu 23.1.3		

About Solution

Based on Ethereum MainNet, which is most suitable to the digital asset market, this solution provides various API services including the ready-made FT, NFT and ST. SK Inc. C&C is demonstrating its expertise through the solution application to BaaS (blockchain as a service), financial and large-scale public projects in Korea.



#Blockchain #Security Token #NFT #Ethereum

▶ **Ethereum-based Private Blockchain Platform for Enterprises**
- Composed of MainNet with Hyperledger Besu as the core and utility APIs
- Providing key functions mainly used in service as APIs

▶ **Certified High-performance Enterprise Blockchain Technology**
- Token transaction by 4,480 TPS, smart contract token (ERC20) transaction by 1,850 TPS or higher
- Automatically adjusting load amount through transaction queuing and providing monitoring function for events generated in distributed ledger

▶ **Providing User-centric Key Security Service**
- Creating private key upon user key loss or leakage (mobile phone loss, hacking, etc.), and restoring it through mapping in asset account

Applications

Category	Description
Credentials	• Used in credentials such as for membership program, ticketing, mobile employee card and token gating
Tokenization	• Applicable to digital assets such as FT, NFT, ST and CBDC, and also used as local currency/gift voucher, mileage/point
Track & Trace	• Used in logistics/data tracking, document sharing system, product anti-tampering and carbon emission trading

Implementation Case

Period	Project	Owner
2021	• JDP pilot service	SK hynix
2022	• ChainZ for KOREAPOST separate blockchain ordering project • PoC application to POPCONN service • Social network service for NFT content supply to micro enterprises • Establishment of next-generation national electronic procurement system (Korea ON-LIne E-Procurement System)	uracle A STATION Razen Public Procurement Service
2023	• ESG platform for waste vegetable oil recycling • Establishment of STO platform for KB Securities • ChainZ MainNet NFT API contract with CLESON	recycleledger KB Securities CLESON

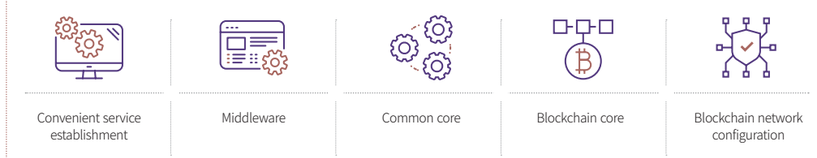
Hyperledger Fabric-based Platform Enabling Customers to Swiftly and Simply Apply Blockchain Functions, “KBC”

Solution Information

Name of Solution	KBC(KONA BLOCK CHAIN)	Developer	KONA CHAIN (www.konachain.co.kr)
Solution Category	Kona BaaS	Inquiry	shhan@konachain.co.kr 02-3440-9142
Core Technology	Hyperledger Fabric v1.4, Hyperledger Fabric v2.2		

About Solution

KONA CHAIN BaaS service provides a platform helping customers swiftly and conveniently apply the necessary blockchain functions based on Hyperledger Fabric of the Linux Foundation.
This cloud-based SaaS blockchain platform assists enterprises handle the issues of initial blockchain node establishment costing a lot, smart contract development requiring a large amount of time, or the developed platform lacking external reliability. These issues can be resolved through introduction of the KONA CHAIN platform (BaaS) service.



- Providing the independently developed KONA CHAIN API service with functions including electronic contract, evaluation, survey, etc.
- Providing convenience functions for blockchain core use
- Supplementing on insufficiencies of blockchain core (security and key management)
- Supporting Hyperledger Fabric v1.4 and v2.2
- Supporting convenient node and channel configuration

#Transaction Certification #BaaS #Blockchain #Voting/Survey #Hyperledger Fabric

Features

- Enabling automatic blockchain network establishment without professional knowledge, ensuring swift establishment and efficient resource management based on cloud, using Hyperledger Fabric blockchain engine
- Providing KONA CHAIN customized to business for fast blockchain service development (electronic contract, voting, evaluation), providing integrated development environment for automatic distribution and service of the smart contracts developed
- Recording reward details, and conveniently using the rewards as cash through payment platform of KONA I (KONA card platform)

Applications

Category	Description
Voting and Survey	• Preventing forgery/tampering of voting and survey, and ensuring transparent results
Environmental Point	• Environmental point management platform enabling point issue, use, transmission and exchange
NCP	• Transaction authentication platform (token issue and sale based on real asset)

Implementation Case

Period	Project	Owner
2022	• Incheon Metropolitan City research platform	KONA I
	• Cheongju-si research platform	KONA I
	• Cheongju-si environmental application platform, BEORILSIGAN	Cheongju-si
	• Gyeonggi-do local currency research platform	KONA I
	• Gangneung-si local currency research platform	KONA I
2023	• NCP blockchain network establishment	KONA I

Blockchain framework, “PARAMETA”

Solution Information

Name of Solution	PARAMETA	Developer	PARAMETA (www.parametacorp.com)
Solution Category	Public/private blockchain solution	Inquiry	info@parametacorp.com 02-2138-7026
Core Technology	loopchain		

About Solution

This is a blockchain framework enabling convenient blockchain MainNet establishment according to various business requirements. Based on loopchain, an independently developed engine of PARAMETA that contains the company’s core and source proprietary blockchain technologies, this framework supports implementation of customized blockchain establishment optimized to any business through the verified modules, various tools for MainNet establishment and interoperability solution for connection between blockchains.

Blockchain Core
- p2p, SCORE, PBFT, block, digital signature,
- multi-channel, performance improvement
- SCORE supporting Java and Python
- SCORE supporting Solidity (scheduled)
- API compatible with Ethereum (scheduled)

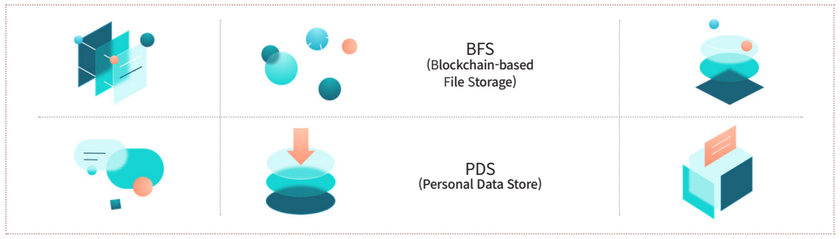
BFS (Blockchain File Storage)
- Providing distributed storage for data that need to be managed off-chain
- Guaranteeing data availability through blockchain link using a function similar to IPFS

Sidechain Governance and Token Economy
- Supporting side-chain token economy (staking, reward, service charge system, etc.) configuration
- Supporting System Score (Chain SCORE, Governance SCORE) development

BTP Relay & Contracts
- Providing method for connection with ICON network
- Supporting anchoring

PDS(Personal Data Store)
- Providing methods for safe storage and exchange of personal data for DApp
- Privatel key backup/storage (vault)

Developer, Operational Support
- Providing SDK
- Providing compatibility with Ethereum tools
- Providing light node and simulation node
- Providing block explorer and API



#Platform #Interchain #NFT #FT #DID #Blockchain Bridge

Features

Supporting Various Functions for Web 3.0 Business
- A variety of supporting functions are mounted on PARAMETA to provide technology optimized to business. For more efficient blockchain operation, a wide range of functions and operation supports are provided.
  - Supporting smart contract according to various business requirements such as FT, NFT, DEX and AMM
  - Providing a variety of additional technological supports necessary in actual service development such as BFS, PDS and VAULT
  - Ensuring fast processing speed and block scalability based on verified consensus algorithm
  - Performing node management and operation by proxy
  - Supporting response to network crash and other issues
  - Customizable token economy and service charge system

Optimal Development Tool for Developers
- PARAMETA provides the latest developer-friendly technologies to help developers conveniently and simply develop blockchains.
  - Supporting various development languages (JAVA, Python, Solidity (scheduled))
  - High compatibility with Ethereum tools (scheduled)
  - Node and blockchain management tools
  - Providing nodes of various types (full node, light node, proxy node, simulation node, etc.)

Interoperability for Blockchain Connection
- With Interchain and blockchain transmission protocol (BTP) developed by PARAMETA to ensure communication and interaction between blockchains, cross-chain interoperability solution is provided that enables expansion regardless of the chain type.
  - Providing BTP relay and contract
  - Providing methods for connection with ICON and various blockchain networks
  - Supporting token and NFT transmission between heterogeneous blockchains
  - Supporting anchoring

Implementation Case

Period	Project	Owner
2018	• Introduction of standard blockchain platform (loopchain) for Seoul Metropolitan City • Establishment of LINE’s internal blockchain platform, Linkchain	Seoul Metropolitan City LINE
2019	• Real asset tokenization to digital asset (CENGold) and implementation of transaction	Korea Gold Exchange
2020	• Establishment of blockchain-based integrated chronic disease management platform customized to Gangwon-do	Gangwon-do
2021	• Blockchain ship inspection and management platform establishment • Establishment of blockchain DID-based integrated identification system	Korea Communications Agency POSCO
2022	• Establishment of digital identification MyData platform for Gyeongsangbuk-do • Application of DID technology to NAYANA, the integrated digital service platform of Gangwon-do	Gyeongsangbuk-do Gangwon-do

EVM-based solution to configure blockchain ecosystems like P2E and NFT, “Public blockchain”

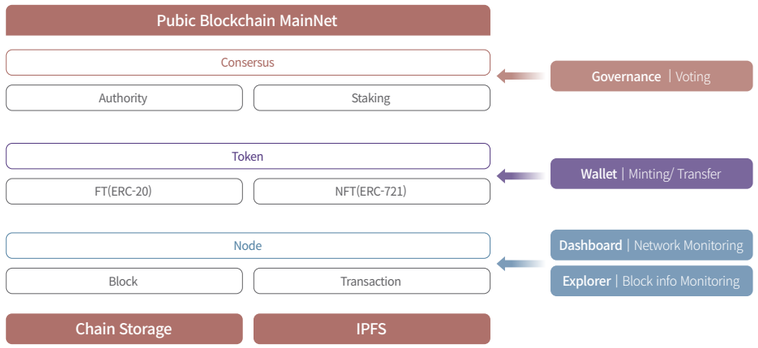
Solution Information

Name of Solution	Public blockchain	Developer	CPLABS (www.cplabs.io)
Solution Category	Digital signature/authentication, DID/digital ID, document/content certification, asset securitization/transaction, digital wallet, electronic transaction/payment	Inquiry	contact@cplabs.io 1899-9942
Core Technology	Metadium 2.0 (hard-forked MainNet of Ethereum)		

About Solution

CPLABS’ public blockchain MainNet was created through hard-forking of Ethereum. While complying with the EVM standard, this platform supports various services through the application of high-performance consensus algorithm (SPoA).
It enables ecosystem establishment in various fields by supporting the necessary DApps such as DID, FT & NFT and wallet.

Blockchain node	Governance	Explorer
Wallet	Technical Paper	Dashboard



#Blockchain #Public Blockchain #MainNet #Smart Contract #DID

Features

▶ **Blockchain Configuration and Provision**
- All-in-one structure equipped with blockchain operation tools and various applications (public & private blockchains, block explorer, wallet, NFT market, Defi service, dashboard) rather than a simple blockchain platform

▶ **Compliance with EVM Standard and Originality**
- Created through hard-forking of Ethereum to ensure perfect compatibility with Ethereum standard
- Optimizing block generation time through application of independent inter-transaction time for overhead & traffic optimization at block generation to improve Ethereum scalability

▶ **High-performance Consensus Algorithm (SPoA)**
- SPoA (stake base proof of authority) consensus algorithm offering strengths of delegated proof of stake (DPoS) and proof of authority (PoA)
- Structure guaranteeing high performance and immediate finality based on consensus between nodes with privilege

Applications

Category	Description
Asset Securitization/ Transaction	• Asset tokenization, decentralized token transaction between wallets
NFT issue	• Digital IP transaction through NFT platform
Wallet/Payment	• Blockchain (token)-based simple payment/charging/remittance, mobile wallet
Smart Contract	• Decentralized application design through smart contract

Implementation Case

Category	Description	Owner
2018	• Metadium blockchain MainNet platform development and supply	Metadium Ltd.
2022	• Establishment of public blockchain Wemix3.0 platform for Wemade	Wemade
2022	• Blockchain MainNet platform development and supply	vidente

MainNet platform optimized to security tokens with non-competitive consensus algorithm technology applied, “FuNet”

Solution Information

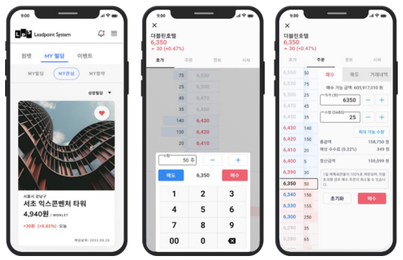
Name of Solution	FuNet	Developer	Leadpoint System (www.leadpoint.co.kr)
Solution Category	Security token, MainNet	Inquiry	staff@leadpoint.co.kr 070-4618-0681
Core Technology	Ethereum v1.9.25		

About Solution

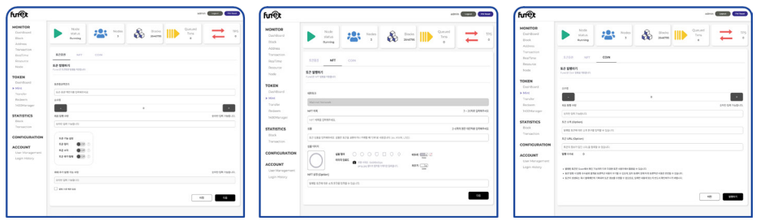
FuNet (Future Network, TaaS) is a public + private hybrid model MainNet. With non-competitive consensus algorithm technology applied, it guarantees mining, reward and fork-less block generation with zero downtime.
In addition, as a MainNet specialized to security and failure response and, therefore, optimized to security tokens, it provides infinite market scalability in a range of real asset fields related to real estate, artworks, sound sources, films and copyright.

MainNet (node, DID management, NFT/ token, smart contract, etc.)	Security token issue and distribution management	Blockchain BaaS
Blockchain application technology (token management, random non-competitive consensus algorithm, personal data de-identification, etc.)	DID service (issue/verification, DID app management, authentication management, etc.)	Monitoring (block/transaction management, resource management, blockchain status management, listing management, etc.)

Dashboard



Real estate fractional investment (DApp)



Minting management (security token issue, distribution, trading, destruction)

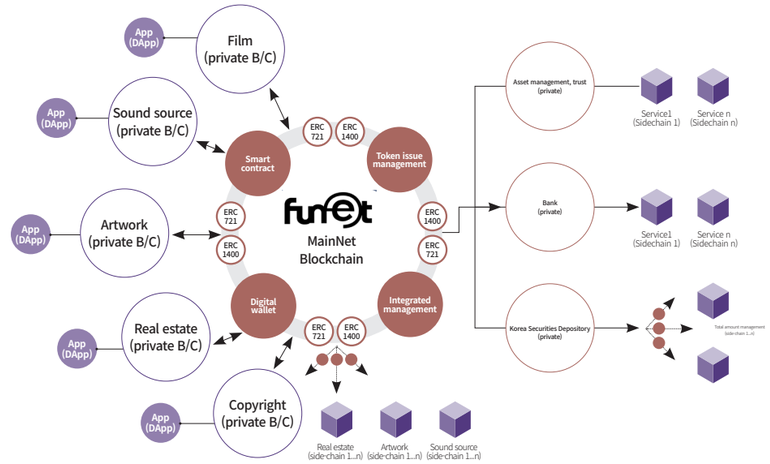
#Security Token #MainNet #MainNet Platform #NFT #ST

Features

- Public + private hybrid model MainNet
- PoN non-competitive consensus algorithm technology applied
- Active control technology of Byzantine node
- Mining, reward and fork-less MainNet generation with zero downtime
- Technologies for token issue, distribution and destruction, and permissioned distributed ledger management
- Powerful de-identification and security (privilege, proof, user management) technologies

Applications

FuNet is a security token MainNet platform applicable to all real assets that can be digitalized such as real estate, copyright, film, sound source and artwork



Fast and easy blockchain implementation platform, “HECATE”

Solution Information

Name of Solution	HECATE	Developer	uracle (www.uracle.co.kr)
Solution Category	Blockchain middleware, authentication, DID	Inquiry	sales@uracle.co.kr 02-3479-4400

About Solution

An intermediary connecting between legacy and blockchain engine, HECATE enables implementation of various blockchain functions and services. Without the need to use separate IDE (integrated development environment) for each language, developers can conveniently develop blockchains by standardizing the blockchain development environment with HECATE

- Korea’s only blockchain middleware platform
- Solution enabling simple and convenient blockchain development
- Solution reducing development period and operation cost for blockchain introduction

Features

Excellent Compatibility
- Providing standard package, APIs and connectors to create a flexible environment that helps customers focus on business without being affected by blockchain environment

Diverse Devices
- Providing various interfaces to create an environment where various devices can be used without limitation

Efficient Infrastructure Investment
- Enabling environment creation linked to the existing legacy based on reuse or addition of the infrastructure developed through internal and external integrations

Considerable TCO Reduction
- Reducing software and hardware investment cost, cost incurring in development and establishment stages, and TCO for integrated environmental configuration

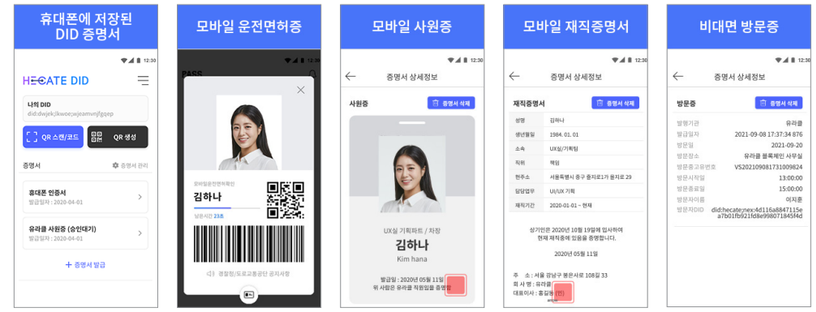
Applications

Private Authentication System
- Enabling simple and fast private authentication system establishment with blockchain authentication package

Simple number authentication | Pattern authentication | Fingerprint authentication | Iris authentication | FACE IC authentication | QR code authentication

#Blockchain Middleware #Authentication #DID #Certificate #Pass

Verification of Credentials
- Verifying various credentials, such as for ID and certificates, on mobile device



Implementation Case

Period	Project	Owner
2017	• Bank network blockchain system establishment for the Korea Federation of Banks • Customer authentication and integrated app development for blockchain system of the Korea Federation of Banks	Dream Security SECUI
2018	• Establishment of blockchain open platform for cloud-based electronic commerce and authentication • Blockchain pilot project of 2018 for the Seoul Metropolitan City	Korea Minting and Security Printing Corporation Seoul Metropolitan City
2019	• Development of blockchain note management UI/UX for BaaS • Establishment and expansion of blockchain open platform for cloud-based electronic commerce and authentication • Blockchain-based administrative system development in 2019 (1st) • Mobile driver’s license service development in 2019 • Establishment of joint mobile driver’s license system for three mobile carriers	BLOCKO Korea Minting and Security Printing Corporation Seoul Metropolitan City SK telecom KT
2020	• Blockchain service maintenance in 2020 - 2021	Seoul Metropolitan City
2020	• KOMSCO trust platform operation and maintenance • Establishment of mobile local gift voucher (credit card payment) platform • Establishment of mobile driver’s license system for three mobile carriers • Digital ID-based contactless service development • Contract to extend mobile driver’s license service development and operation for three mobile carriers	Seoul Metropolitan City Korea Minting and Security Printing Corporation LG U+ Seoul Metropolitan City SK telecom
2021	• Blockchain service maintenance in 2020 - 2021 • Mobile driver’s license service operation in 2021 • Contract to change joint mobile driver’s license identification service system operation and maintenance in 2021 • KOMSCO trust platform integrated maintenance and functional improvement	Seoul Metropolitan City SK telecom KT Korea Minting and Security Printing Corporation
2022	• Blockchain service maintenance in 2022 • Mobile driver’s license service operation in 2022 • Blockchain application project	Seoul Metropolitan City SK telecom, KT, LG U+ eNtoB

Data History Management and Anti-tampering

PART 2. About Solution

46. GOONO
47. Giga Flash
48. Business information sharing system (BISS)
49. Logifrost
50. MyStarPick
51. BIoTrack
52. Integrated learning history management platform
53. BOATS
54. BERIT
55. Blockchain structure safety platform
56. Videochain
57. BizFrame BCM
58. sanggatalk
59. SWBADGE
60. Smart Identity Proof
61. SCANUS
62. APTREE
63. AngryWhalesClub
64. Event Club
65. eBrother Block Explorer
66. Electric vehicle reused battery life-cycle management system
67. zkVoting
68. COLET
69. kevoting
70. KT paperless
71. Keepers Note
72. Train4U
73. PAS (Hyundai Heavy Industries engine part authentication system)
74. Pay chain
75. PINO
76. Skin diagnosis SDK
77. Hi-tLenz
78. HealthBridge

Private blockchain-based SaaS-type electronic research note service, “GOONO”

Solution Information

Name of Solution	GOONO	Developer	ReDWit (www.redwit.io, www.goono.so)
Solution Category	Electronic research note	Inquiry	sales@redwit.io 042-861-5001
Core Technology	Hyperledger fabric-based private blockchain & IPFS decentralized storage		

About Solution

GOONO is a private blockchain-based electronic lab notebook solution. All research data are securely stored in GOONO’s internal server through double encryption.
It helps not only protecting the enterprise’s technologies and ideas, but also simply completing the necessary tasks for national R&D project implementation. In addition, all research data prepared using GOONO can be recognized as the R&D project lab notes, and used for the enterprise’s intellectual property right and patent applications.

Features

Blockchain Encryption
- Securely storing all uploaded documents through double encryption of the blockchain system of GOONO server, not an external server, to prevent external leakage

Time of Certification Processed by Korea Electronic Certification Authority
- Securing trust for all uploaded documents as authenticity verification and time stamping processing are automatically implemented through Korea Electronic Certification Authority

Operation Simplification
- Helping developers focus on their duties as the generated documents are recognized as electronic lab notes through uploading without any changes in the existing document preparation method

Service Integration & Collaboration Functions
- Providing Github & Google Drive integration function for IT and software fields to enable automatic lab note preparation, and cloud service to ensure that lab notes can be prepared anytime as long as the network environment is maintained

#Government Project #Affiliated Research Center #Lab Notebook #Electronic Lab Notebook #Information Security

Applications

Category	Description
Government Project	• Submitting and managing the results of government R&D projects through lab notes
Affiliated Research Center	• Submitting and managing the results of affiliated research center follow-up management results through lab notes
Patent Application	• Using lab notes in patent application
Technology Transfer	• Using lab notes in technology transfer
Intellectual Property Right	• Combining all of the above

- GOONO, the electronic lab notebook service, can be applied to all areas where government R&D projects are implemented and research notes are used. This electronic lab notebook service also meets the certification requirements. All research notes generated through this service can be used for intellectual property right in various fields including patent application and technology transfer.

Implementation Case

Period	Project	Owner
2021	• Designation as electronic lab notebook service provider • INNOPOLIS testbed project	Korea Technology and Information Promotion Agency for SMEs Korea Innovation Foundation
2022	• Electronic lab notebook service contract • Electronic lab notebook service contract with Soon Chun Hyang University Foundation	University of Seoul Soon Chun Hyang University
2023	• Service contract with Numerical Modeling Center and National Meteorological Satellite Center	Korea Meteorological Administration

Solution ensuring fast blockchain data processing and defending against data tampering and ransomware attack with MiddleNet, “Giga Flash”

Solution Information

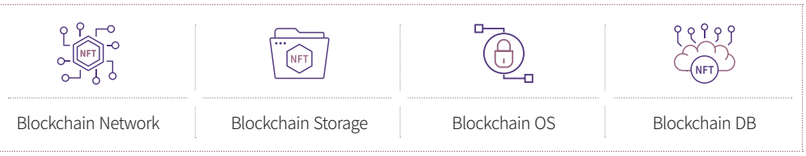
Name of Solution	Giga Flash	Developer	morrowbogi (www.morrowbogi.com)
Solution Category	MiddleNet data processing and security storage service	Inquiry	mssong@morrowbogi.com 010-2910-1924
Core Technology	Internal data processing and storage technology + WORM security storage technology		

About Solution

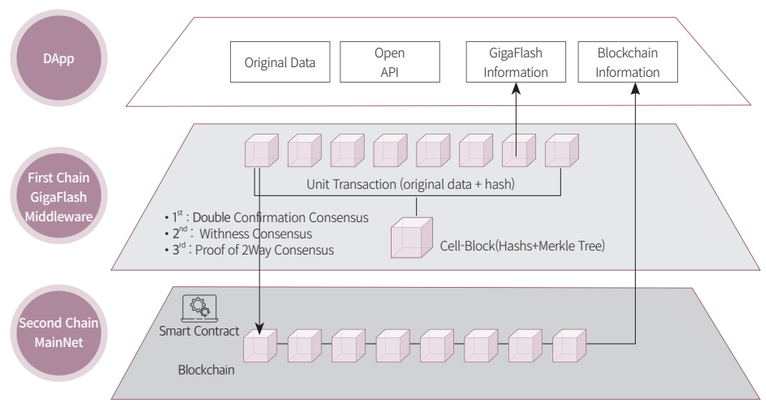
GigaFlash provides various commercial solutions and realizes the services for enterprises based on high-speed middleware blockchain system. With commercialized blockchains hardly available across the world, this solution introduced the traditional financial business processing method in a contemporary concept to blockchain.

With the concept of true and false ledgers applied to the securities system, this solution ensures fast processing through swift primary consensus among stakeholders and secondary notarization by witness, and therefore guarantees complete irreversibility through data saving in the secure and irreversible hardware storage.

After the data of transaction details are saved in the internal blockchain that corresponds to a false ledger through the three-stage consensus algorithm, a response is swiftly provided to DApp within 0.3 second. Then, hash values of the data saved in the false ledger are additionally stored in the blockchain of MainNet that corresponds to the true ledger.



- Combining high-speed processing MiddleNet and MainNet of cell block
- Providing irreversible security storage function
- Providing functions to disable tampering of the installed programs and hacking
- Saving and managing data of which only time-series management and append (addition) are possible



#MiddleNet #Layer 2 #Blockchain #Security Storage #DID

Features

▶ **High-performance Processing**
- Guaranteeing fast response speed through false ledger-based high-speed blockchain system

▶ **Solving Difficult Problems in Notarization**
- Executing three-stage consensus algorithm

▶ **Secure XML Applied**
- Implementing SecuXML with XML Schema standard applied to the data structure of high-speed blockchain system

▶ **Irreversible Security Storage Applied**
- Applying irreversible security storage to hardware

Applications

Category	Description
Data	• High-speed data processing on blockchain
Security	• Security storage for ransomware prevention and access control on blockchain
Authentication	• Identification management through DID

Implementation Case

Period	Project	Owner
2019	• Development of demonstration version for the agricultural crop history management MainNet	LionBio
2020	• DID function development and pet insurance blockchain service	DIGIIN
2023	• Microbial data and document management blockchain service	INTEGRITICS

Mutual authentication blockchain-based enterprise information sharing system, “Business information sharing system”

Solution Information

Name of Solution	Business information sharing system (BISS)	Developer	HASHNET (www.hash.kr)
Solution Category	Mutual authentication blockchain-based enterprise information sharing	Inquiry	biz@hash.kr 02-2026-2100
Core Technology	Ethereum		

About Solution

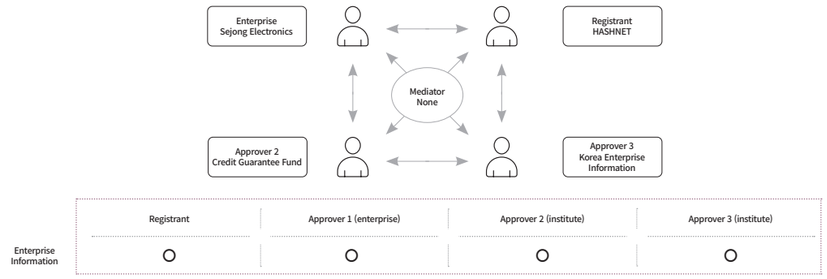
Business information sharing system (BISS) is a solution to record and manage enterprise information entered in the certificates for business registration, certificates of registry information, financial statements and other certificates in the database of decentralized storage, not of government organizations or credit information companies.

Patent-registered system (No. 10-1929482)	Generating and using reliable data through real name system-based operation with identification completed	Virtuous cycle to view information of another enterprise using digital assets given to registered/ authenticated enterprise

Features

▶ Improving Reliability

- With data registrant and the first and the second authenticators assigned, real name-based system is operated following identification through mutual data authentication by stakeholders
- This is an epochal method to combine the first, secondary and third transactions following their individual processing with which any “reliable related person” can check the details of approval on data recorded in the blockchain
- Even without a centralized organization or reliable mediator, reliable data can be generated and used

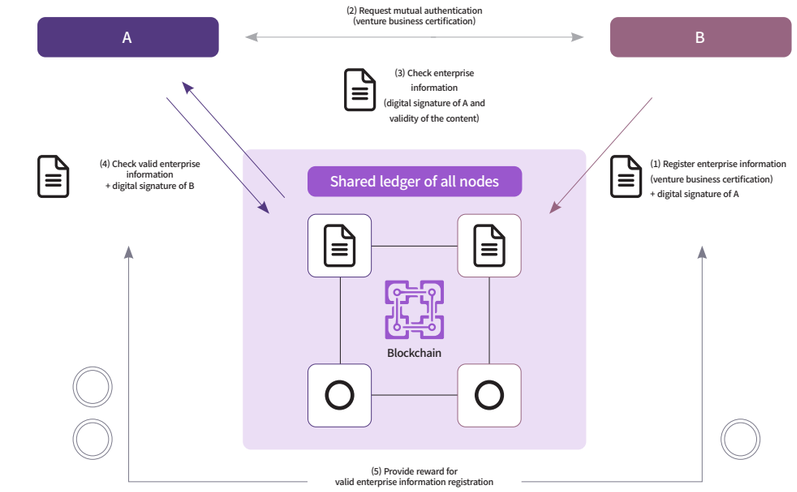


#Mutual Authentication #Blockchain #Enterprise Information #BISS #Transaction

▶ Reward System

- Digital assets are provided as a reward to the enterprise information registrant and authenticator, and the reward is used to view the information of other enterprises

Basic Concept



Applications

- ▶ Enterprise information authentication
- ▶ Personal history information
- ▶ Medical information
- ▶ Contract
- ▶ Logistics management
- ▶ Copyright management
- ▶ Application to other fields

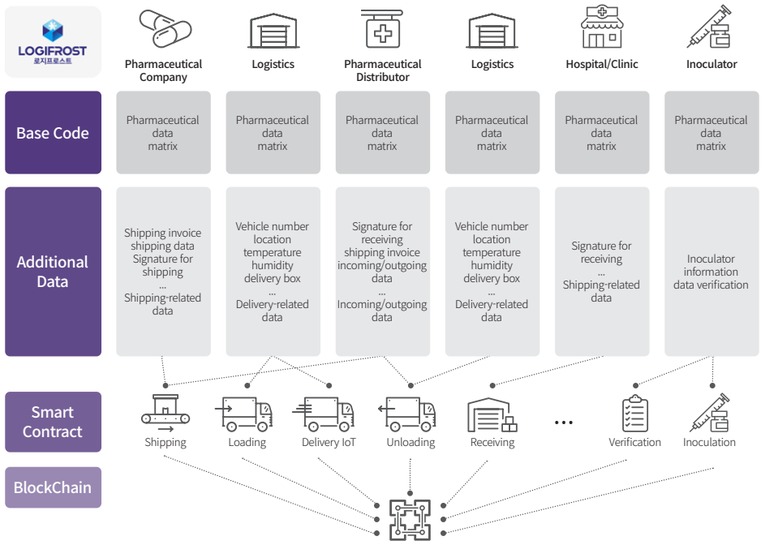
Blockchain-based temperature controlled supply chain monitoring system, “Logifrost”

Solution Information

Name of Solution	Logifrost	Developer	BP&Solution (www.bpnsolution.com)
Solution Category	Cold chain logistics management	Inquiry	bpns@bpnsolution.com 051-917-9133
Core Technology	Hyperledger Fabric v2.2 and IoT-based sensor data collection		

About Solution

Biopharmaceuticals, which are commonly referred to as biological materials, require a temperature controlled supply chain. For this, temperature and humidity control are essential in the process of distribution. Together with Hanjin, BP&Solution developed a system to collect temperature and humidity data based on the delivery boxes, and control temperature and humidity real-time during the pharmaceutical delivery process. This solution saves the collected data in blockchain, and provides them to consumers.

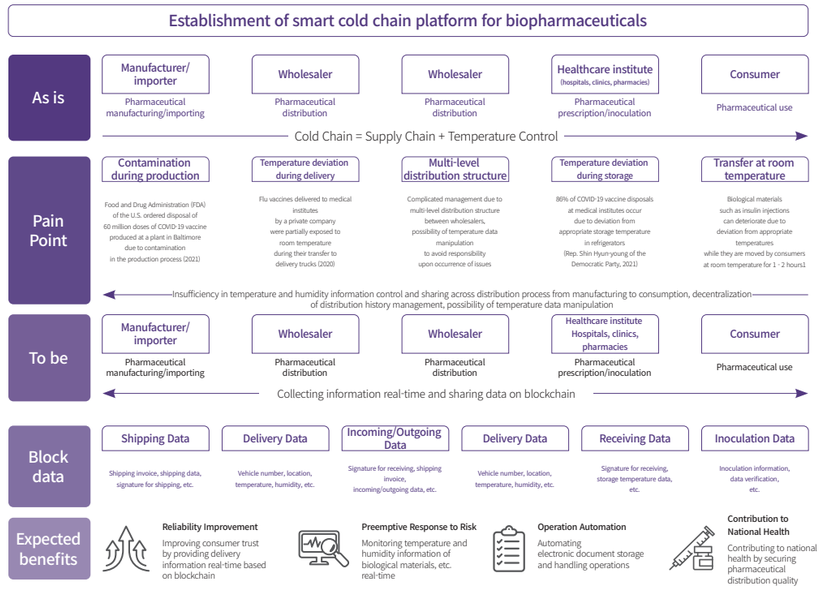


Guaranteeing data reliability, securing visibility throughout distribution, strengthening product stability, managing risks in advance

#Cold Chain #Temperature Controlled Supply Chain #Biopharmaceuticals #IoT #Logistics Monitoring, etc.

Features

- **Reliability Improvement**
  - Improving consumer trust for biopharmaceutical delivery by providing delivery information real-time based on blockchain
- **Preemptive Response to Risk**
  - Monitoring temperature and humidity information real-time during delivery of biological materials, etc.
- **Operation Automation**
  - Automating electronic document storage and handling operations
- **Contribution to National Health**
  - Contributing to national health by securing pharmaceutical distribution quality



Applications

Category	Description
Cold Chain Logistics	• Temperature controlled logistics environment for which temperature maintenance is necessary to secure freshness of products during distribution
Pharmaceutical Logistics	• Delivery environment for which temperature maintenance of products is necessary during distribution
Delivery Vehicle	• Securing trust through data management on delivery environment for products provided to consumers

Implementation Case

Period	Project	Owner
2019	• Blockchain-based smart marine logistics platform service	QUEST X
2021	• Establishment and application of smart cold chain platform for biopharmaceuticals	Hanjin

Blockchain-based audition platform with rigging prevented at the source, “MyStarPick”

Solution Information

Name of Solution	MyStarPick	Developer	NEXTRUST (www.nextrust.co.kr)
Solution Category	Ballot rigging prevention	Inquiry	cs@mystarpick.io 070-8064-1211
Core Technology	Klaytn, KakaoTalk Klip		

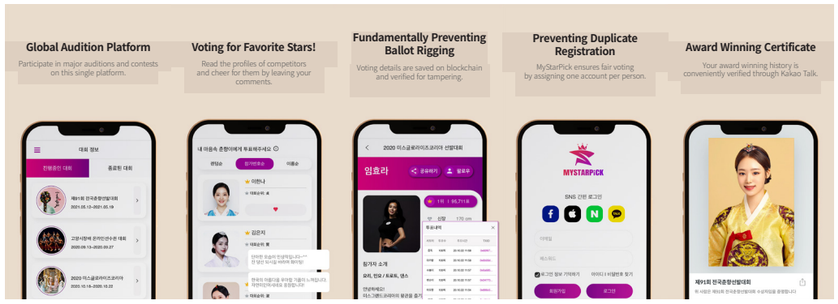
About Solution

No more ballot rigging!
MyStarPick is a voting platform that can be trusted by everyone from the event host to participants and voters as the votes are automatically counted using smart contract and recorded on the blockchain.
Applied to major auditions and contests including Chunhyang Beauty Pageant and Muscle Mania, MyStarPick has established itself as Korea’s representative audition platform that saves the details of over one million votes.
MyStarPick pursues to popularize auditions and contests by providing the public with an opportunity to take part in selecting their favorite stars.
Vote for your star at the global auditions of MyStarPick!

Convenient to participate in voting anytime, anywhere

Fundamentally preventing ballot rigging and hacking

Issuing award winning certificates (NFT)



#Blockchain Voting #Ballot Rigging #Audition #National Voting #MyStarChain

Features

▶ **Current market issues**
- Face-to-face voting takes a long time in vote counting, and the possibility of errors in the vote counting is high.
- The conventional online and text message-based voting is vulnerable to hacking and the results can be manipulated.
- As the influence of specific judges increases, the participants’ trust of and interest in voting drop.
  - There are structural limitations where it is difficult to make an event a hit because a large number of people cannot participate in the voting, and the event cannot be free from the argument of being unfair

▶ **Using smart contract to automatically count votes according to the pre-set rules and record them in public blockchain to improve reliability of the result**
- Considering the characteristic of contests where winners of regional events advance to the finals, hierarchical encryption structure is applied to hold a number of events on a single platform (patent registration No. 10-2120882)
- With a ledger for external audit institute generated, fairness and reliability of voting are improved as the ledger is comparatively analyzed in case of an argument for a voting being unfair

▶ **Suggesting solutions to improve profitability along with reliability and popularity of event**
- As a large number of users interested in contests are secured, holding an event on the platform automatically generates a promotional effect for the event
- The proceeds from selling paid voting rights to users who wish to participate in a voting in addition to the free votes provided by a host are shared with the host

Voting platform ensuring convenient participation anytime, anywhere and reliability of the voting result

Automatically counting votes through smart contract and permanently recording them on blockchain

Overcoming structural limitations of face-to-face voting

Fundamental preventing the risk of hacking or manipulation of the conventional online or text message-based voting

Applications

Category	Event
Beauty Contest	• Miss Korea, Miss Glorize Korea, Mister International • The Queen of Korea, Korea Hanbok Model Contest, K-Celebrity Contest • World Beauty Queen & King Gold Class, Senior Universe • Asia Beauty Queen, Paragon Queens International, Global Classy Queen
Model Competition	• World Sports Top Model Show, Mrs. Best Model • Twinkle Star, Kids Model Fashion Show
Fitness Competition	• Muscle Mania, K-classic Awards, Sports Creator Awards
Local Government	• Namwon-si Chunhyang Beauty Pageant, Goyang Mayor’s Cup Online Championship
Public Institute	• National voting for ICT Challenge, Anti-Corruption & Civil Rights Commission
Broadcasting	• Miss Golf Star, LG U+ Golf

NFT-based intelligent safe distribution platform, “BioTrack”

#Cold Chain #BioTrack #Safe Distribution Platform #Blockchain #IoT

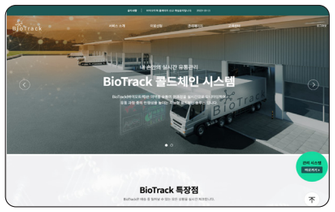
Solution Information

Name of Solution	BioTrack	Developer	Leadpoint System (www.leadpoint.co.kr)
Solution Category	Convergence platform	Inquiry	staff@leadpoint.co.kr 070-4618-0681
Core Technology	Neural block v1.0 KSB artificial intelligence edge platform technology, IoT multi-purpose sensing device technology for industrial use		

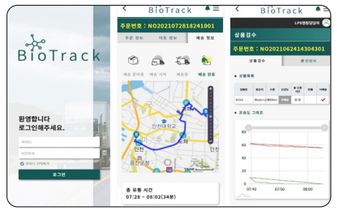
About Solution

BioTrack (SaaS) is a platform enabling preemptive response to distribution accidents by supporting efficient and reliable logistics/distribution service based on distribution history information collected using sensors for management of pharmaceuticals, and measuring and predicting quality changes over the course of distribution real-time through pharmaceutical quality control algorithm.

Providing dashboard displaying fresh logistics distribution status real-time	Providing risk prediction service using intelligent algorithm technology	Providing real-time data collection and analysis function through link to IoT technology	Providing delivery, route, temperature and humidity information provided by manufacturers to consumers (customers)	Recording and verifying anti-tampering for product authenticity, distribution history and quality information using blockchain technology



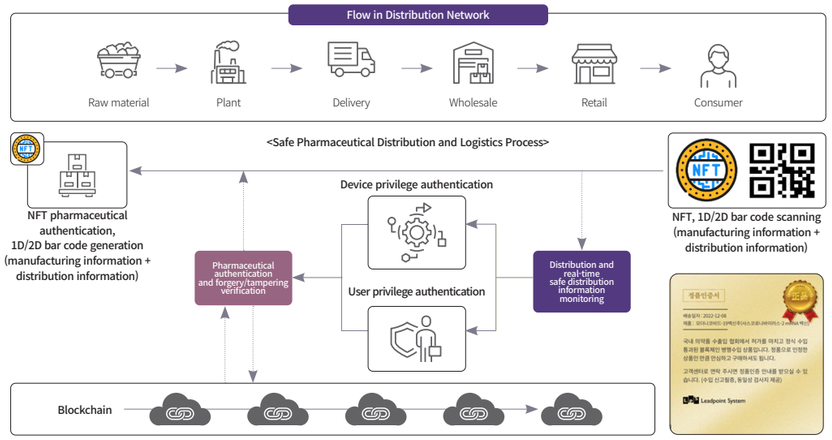
BioTrack Portal



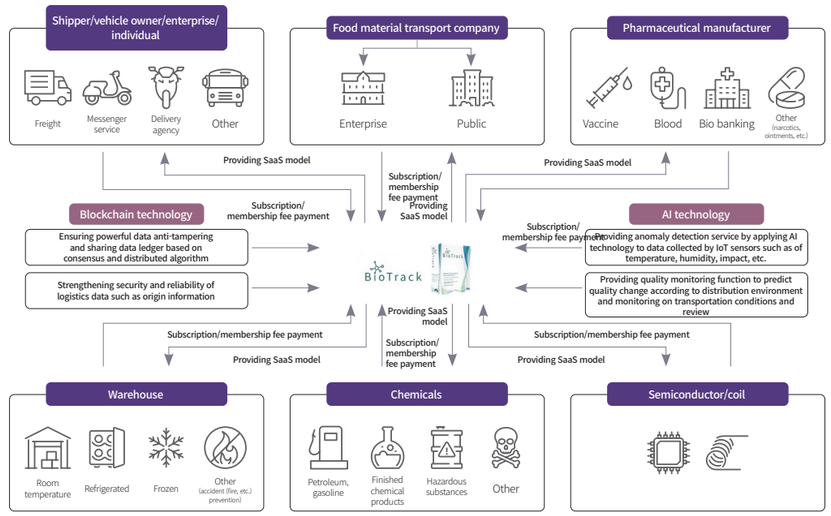
BioTrack Mobile Screen

Features

- Korea’s first cold chain solution developed through IoT, blockchain and AI technology convergence
- Strengthening security and reliability of logistics data
- Providing service to detect anomalies in distribution process
- Improving productivity and achieving innovation in terms of competitiveness and efficiency



Applications



Implementation Case

Period	Project	Owner
2018	• Blockchain-based domestic shipping invoice pilot project	POSCO ICT
2019	• Development of blockchain platform for distribution history management and product certification service	Korea Planning & Evaluation Institute of Industrial Technology
2020	• Verification of product history and amount of impact during distribution process • Establishment of smart marine logistics platform • Fresh food material distribution history verification for elementary, middle and high schools across the country	CJ Logistics, CJ Cheiljedang Busan Metropolitan City Approx. 10 schools including Bonghwa Elementary School
2021	• Pharmaceutical cold chain service verification	WONJIN Medipharm
2022	• Cloud flagship project for key industries • Cloud service certification	National IT Industry Promotion Agency

User-centric blockchain-based management system,“Integrated Learning History Management Platform”

Solution Information

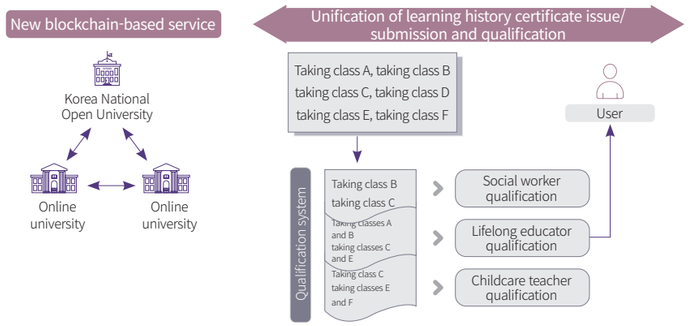
Name of Solution | Integrated learning history management platform
Solution Category | Certificate anti-tampering
Core Technology | Hyperledger Fabric v2.2.5

Developer | Rootlab (www.rootlab.xyz)
Inquiry | Blockchain@rootlab.xyz
053-710-3401

About Solution

Integrated learning history management platform is a blockchain-based platform that manages class-taking history necessary in the application for licenses and university entrance and transfer, and provides user-centric and convenient data request, check and issuance services with security issues resolved. This is a convenient platform for not only the applicants to obtain licenses based on their class-taking history in online universities, etc. but also institutes managing learning history and issuing licenses.
Using blockchain technology to fundamentally prevent forgery and tampering of the learners’ certificates, it ensures stability and reliability of the documentary evidences of learning history for both entities creating and checking blockchains.

Platform for blockchain-based integrated saving and issuance of documentary evidences	Service model enabling blockchain-based integration of and cooperation among the participating organizations	Automation of operations necessary in management system establishment and verification in relation to qualification for license application



Features

Economic Ripple Effects

- Reducing operation time and cost by establishing certification system for class-taking history to simplify process to check and verify individually submitted documentary evidences
  - Reducing Operation Time: 97.6 million cases × 10% (rate of use) × 5 min. (processing time) = 48.8 million minutes (approx. 810,000 hours)
  - Reducing Operation Cost: 97.6 million cases × 10% (rate of use) × KRW 1,200 (issuance cost) = KRW 11.7 billion
- Reducing social cost by decreasing amount of paper document issuance, cost for requesting issuance, mailing cost, time required in issuance application, document submission and authentication, etc.

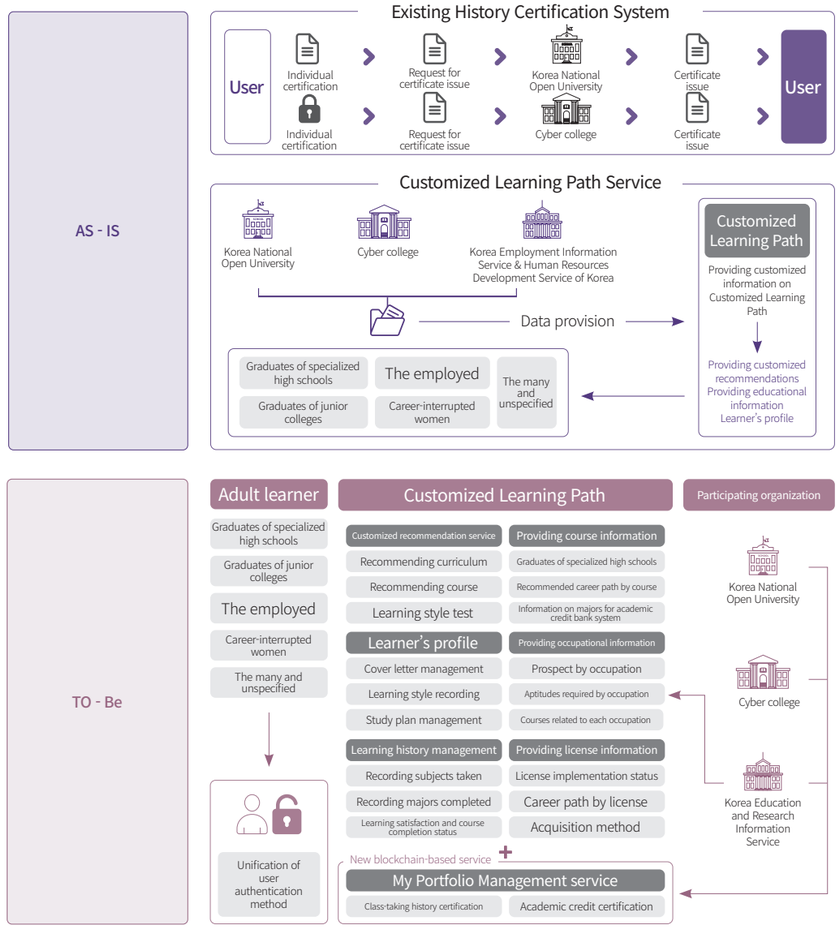
#Blockchain #DID #Learning History #Certificate #Reliability

Industrial Ripple Effects

- Promoting blockchain technology development through introduction and diffusion of DID
- Activating blockchain industry ecosystem through introduction and expansion of public services including learning history management, certificate issue and license issue

Social Ripple Effects

- Improving user convenience by establishing integrated data management system for learning history certificate and license issue
- Simplifying process and improving reliability through blockchain-based authentication of learning history certificates and licenses issued



Implementation Case

Period	Project	Owner
2022	• Establishment of blockchain-based integrated learning history management platform	Ministry of Education (Korea Education and Research Information Service)

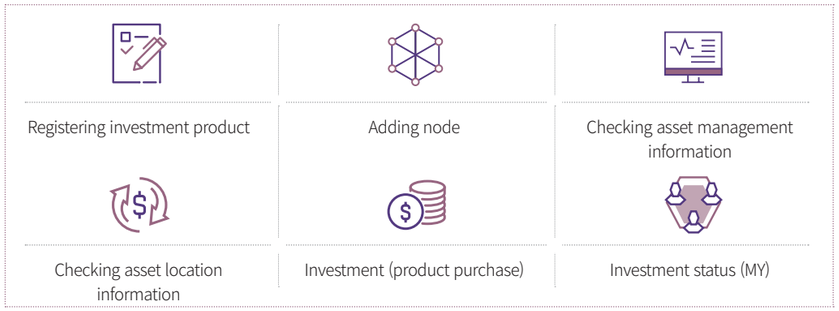
Platform to securely save asset management information real-time, “BOATS”

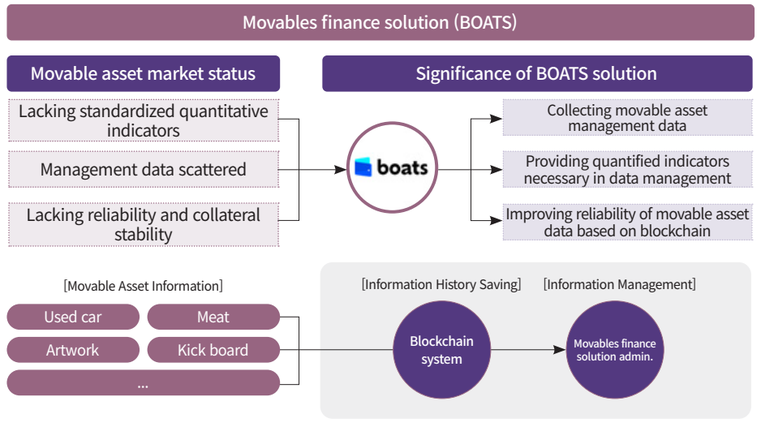
Solution Information

Name of Solution	BOATS	Developer	Block Odyssey (www.blockodyssey.io)
Solution Category	Digital management of real assets	Inquiry	contact@blockodyssey.io, 02-2088-6042
Core Technology	Hyperledger Sawtooth		

About Solution

Using BOATS, financial companies such as banks and insurance companies can accurately identify the information of used car sellers (cash reserves, location of vehicles in operation, vehicle accident history, such as of flooding, etc.), and therefore reduce the risk in loan services they provide. In addition, used car sellers can secure additional funds through business expansion by overcoming hurdles in the load screening process based on the data guaranteed with blockchain technology (ownership, repair history of used cars, accident history, etc.).
In the micro mobility field where management history is likely to be omitted due to frequent change of users, BOATS enables reliable asset information building.
Based on the information of micro mobility location, operation frequency, etc. provided through this solution, customers can stably invest in small-scale movable assets, and the movable asset management entities can increase service management profits (subscription fee, etc.) by using the assets entrusted by or purchased from investors.





#Financial Solution #Digital Assetization #Tangible and Intangible Assets #Financial Service #Investment Asset

Features

- With the admin. function of BOATS, users can visually check the data on movable asset value change (appraisal value,etc.), status of damage, etc. that are periodically recorded by the entities owning and appraising the movable assets.
- In addition, as the admin. of BOATS is in the form of a smart dashboard where each function and information display field are modulated, users can freely set and configure the dashboard according to the priority of information they wish to obtain upon introduction of the solution.
- BOATS uses Hyperledger Sawtooth, a private blockchain based on the PoET consensus algorithm. In Hyperledger Sawtooth blockchain, the stakeholders can be changed freely according to the characteristic of consensus algorithm. Therefore, characteristics of movables market where the entities of owning and lending movable assets change frequently can be appropriately reflected.

Applications

Category	Description
Smart Asset-based Lending	• Enabling safe management of assets used as collateral by checking data on the assets
B2C Small Amount Investment Platform	• Allowing general individuals to invest small amounts by resolving information limitations and the issues of data tampering

Implementation Case

Period	Project	Owner
2022	• Used car asset-based lending service	the trive
2023	• Micro mobility asset trust and investment service	The Swing

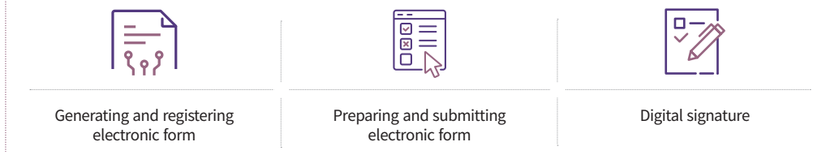
Blockchain-based electronic form service, “BERIT”

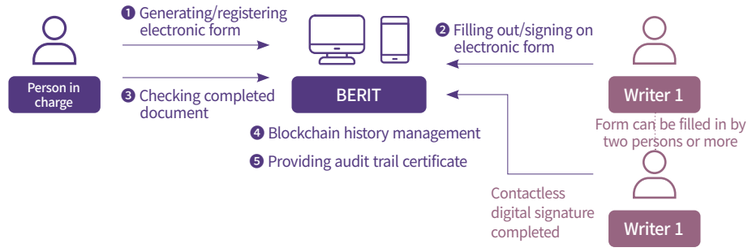
Solution Information

Name of Solution	BERIT	Developer	DIGITAL ZONE (www.digitalzone.co.kr)
Solution Category	Blockchain-based electronic form service	Inquiry	doculink@digitalzone.co.kr 02-2132-0542
Core Technology	Ethereum v1.11.4		

About Solution

BERIT is a paperless solution that can be applied to operations involving various electronic forms such as civil application forms submitted to public organizations, real estate contracts and consent forms. In addition to reducing time and cost required in paper printing, manual signature, scanning/uploading and mailing processes, this solution helps users conveniently prepare and deliver documents anytime, anywhere through computer or mobile devices.





#Electronic Form #Electronic Contract #History Management #Audit Trail Certification #Paperless

Features

▸ **Applicable to all public/private operations involving electronic forms**
- Uploading files of various extensions including HWP, DOC, XLS and PDF
- Free to set input fields in electronic forms, such as for text, check box and signature
- Enabling users to enter information and insert seal impression/signature/image through computer or mobile device without having to install program
- De-identifying and encrypting personal data
- Digital signature based on mobile identification/private authentication (single signature, multi-signature)
- Ensuring one-stop public/university certificate issue and submission

▸ **Providing blockchain history management and audit trail certification functions**
- Used for forgery/tampering verification by recording the entire process in blockchain
- Providing audit trail certificate as a legal proof of effectiveness

▸ **Supporting both on-premise and cloud environments**
- On-premise electronic form service
- Cloud native-based electronic form SaaS (cloud security issuance program (CSAP) (SaaS standard level) obtained)

Applications

Field	Example of Use	
Public	• Submitting various application documents, such as for subsidy • Submitting application form for driver’s license test • Application for new vehicle registration	
Education	• Submitting application form for entrance/transfer • Applying for correction in academic record • Applying for leave of absence/return to school	
Financial	• Applying for account opening	• Applying for car/housing loan
Medical	• Applying for medical record issue	• Filling out health check-up questionnaire
Other	• Employment/annual salary contract	• Franchise contract

Implementation Case

Period	Project	Owner
2021	• Electronic contract service system establishment for electronic document center, Datarium • Blockchain technology verification (PoC) support project in 2021	Hana TI National IT Industry Promotion Agency
2022	• Driver’s license administration electronic form (paperless) project	KoROAD
2023	• Integrated automobile management information system maintenance service • Development, verification and commercialization of electronic form service SaaS customized to public institutes • Development of electronic contract function for farmland bank system • Next-generation automobile management information system establishment	Korea Transportation Safety Authority National Information Society Agency Korea Rural Community Corporation Korea Transportation Safety Authority

Blockchain-based safety management data anti-tampering, structure safety management system/standard development solution, “Blockchain structure safety platform”

Solution Information

Name of Solution	Blockchain structure safety platform	Developer	JINOSYS (www.citylabs.co.kr)
Solution Category	Safety examination platform	Inquiry	pyjpark@nate.com 010-4452-4492
Core Technology	SKT object DID, SDK 1.0		

About Solution

With this solution, a safety examination platform for hazardous structures is established by assigning object DIDs to the LoRa-based IoT sensors and saving the data on blockchain. The sensor data are then collected and sent to the server real-time, enabling comprehensive safety monitoring.

There have been difficulties in ensuring continuous management of old and hazardous structures and trusting the information.

So, JINOSYS developed a new safety system based on blockchain and IoT convergence to overcome limitations of the existing system such as by “preventing occupational accident suppression and manipulation,” “securing reliability of the existing IoT data,” “examining structure safety and providing the related guidelines,” “preventing collapse accidents, etc.” To address the limitations, we developed the new system by, first, collecting data using the LoRa-based IoT sensors, second, securing measuring equipment customized to small and large-scale structures (bridge, dam, tunnel, etc.), third, ensuring integrity of the collected data using blockchain technology and, fourth, improving structure risk detection notification and prediction information service.

The new system is expected to, first, reduce the post-accident handling cost by 60% through dispute mediation, second, reduce administrative cost by 8% through curtailment of the post-accident administrative procedures, third, enable identification of the cause of accident using blockchain data and, fourth, ensure preparation for and prevention of various disputes and accidents.

- Improving reliability of collected data by applying DID to object, not individual
- Providing structure safety examination, monitoring and notification service by saving displacement (inclination, crack) data collected from the IoT (inclination, crack) sensors with object DIDs assigned in blockchain network
- Notifying risk examination result based on the data collected from IoT sensors and monitoring safety status of structures in the region

#Blockchain #DID Simplification #Safety Management Platform #Tilt Sensor #Crack Sensor

Features

- Ensuring convenience in comprehensive hazardous structure management using dashboard with IoT sensors applied and securing psychological stability through real-time monitoring on central and local systems before and after an accident occurrence
- Preventing occupational accidents in construction industry using real-time monitoring and examination system and resultantly reducing the rates of property accidents, casualties, building collapses and other accidents and post-accident cost

Applications

Category	Description
Expanding Scope of Service	• Naturally expanding the participating nodes by increasing the scope of data sharing to local government-related institutes and centers
Expansing Service Use	• Preventing accidents based on hazardous structure examination data, and enabling citizens to also prevent accidents by using and referring to the data

Implementation Case

Period	Project	Owner
2021	• Blockchain SoC IoT safety platform development for the Seoul Metropolitan City	Korea Internet & Security Agency, Seoul Metropolitan City
2022	• 5G IoT platform and safety management system development	Korea Industrial Complex Corporation, National Information Society Agency
2023	• Smart city IoT safety platform development for Dalseo-gu, Daegu Metropolitan City	Ministry of Land, Infrastructure and Transport, Dalseo-gu Office

Solution protecting smoking gun video evidences from manipulation, “Videochain”

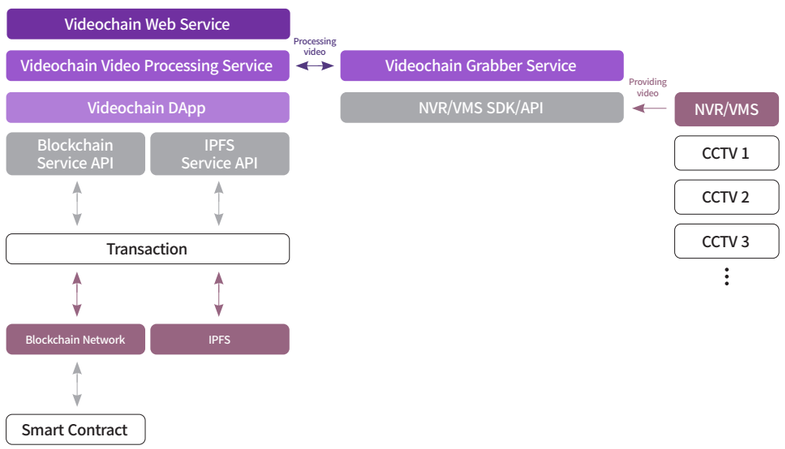
Solution Information

Name of Solution	Videochain	Developer	Userinsight (www.userinsight.co.kr)
Solution Category	Blockchain-based CCTV image security solution	Inquiry	support@userinsight.co.kr 070-7725-0331
Core Technology	Hyperledger fabric 1.4.6, Go-ipfs v0.5.0		

About Solution

This is a permissioned blockchain system preventing videos saved through CCTV from manipulation (modification, deletion, etc.).
It extracts key information of a video and saves it in the blockchain and IPFS, and provides a verification function through comparison with the original video in case such accidents as video manipulation and loss, etc. occur
It can be applied to all areas where CCTV videos are saved.

Solution with high usability that can be applied to various fields	Ensuring accuracy of comparison between original and manipulated videos	Preventing video loss



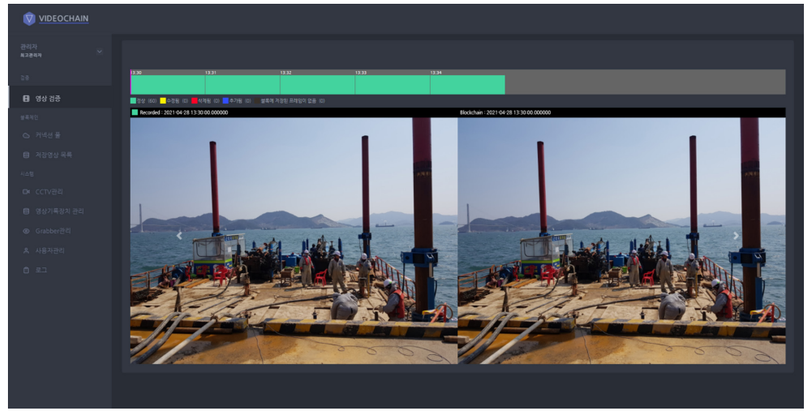
#Video Security #Video Verification for Manipulation #Video Reliability #Evidence Securing

Features

▶ **Link to Various Video Recording Devices**
- Enabling convenient application of blockchain-based video security through integration with SDK/API of video recording devices from various manufacturers

▶ **Web-based Interface**
- Ensuring convenient web-based system control without requiring separate software or plug-in installation

▶ **Verification of Video for Manipulation**
- Helping users conveniently identify the manipulated parts of a video through comparison against the original
- In case a video is deleted, the original video is restored in blockchain network, and provided to user



Applications

Category	Description
Securing Reliability of Videos Saved on CCTV System	• Used to prevent loss of determinant evidences (saved videos) for an accident due to malicious manipulation (deletion of saved videos, etc.) or system failure in locations where the role of CCTV evidences is critical, such as construction sites, childcare centers and public institutes
Preventing Forgery/ Tampering of Videos Saved on CCTV System	• Preparing for a situation where it is difficult to secure CCTV videos due to malicious manipulation or damage of evidences, and providing original videos with reliability secured through the application of blockchain technology

Implementation Case

Period	Project	Owne
2021	• Pilot video security project for grouting work in Gwangyang Port	Serim Communication
2022	• Pilot project for visitor video security in Jeongbuk Tech Biz Center	Pilot project for visitor video security in Jeongbuk Tech Biz Center

Blockchain-based content management solution, “BizFrame BCM”

Solution Information

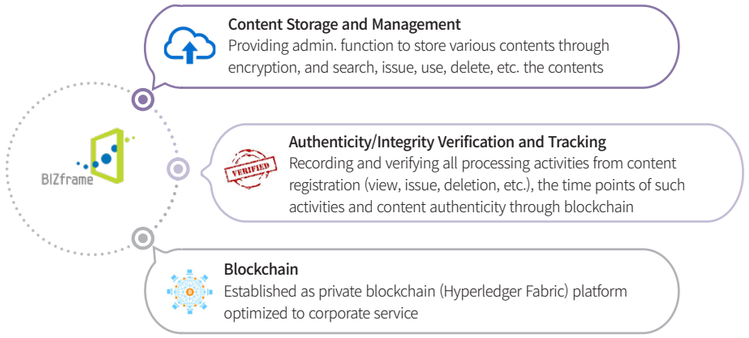
Name of Solution	BizFrame BCM	Developer	TORPEDO (www.torpedo.co.kr)
Solution Category	Trusty electronic document management solution	Inquiry	darkdang@torpedo.co.kr 02-552-7483
Core Technology	Hyperledger Fabric v1.4		

About Solution

This is a blockchain-based reliable content management solution.
Providing management functions to register, store, view, issue and destroy various content files generated in the process of corporate business operation, BizFrame BCM ensures reliability of the data including authenticity and integrity through blockchain-based full-cycle transaction tracking across the management stages.
In addition, it guarantees safe content management of enterprises and institutes by securing reliability of data without the risk of information leakage based on confidentiality ensured through encrypted content management and access control according to user privilege.

Hyperledger Fabric framework applied

Guaranteeing scalability to layered architecture



WEB Service	• User function web, admin. function web, common processing, page routing, API communication
API Service	• Authentication, document management, content management, document attribute management, user management, group management, role management, history management
Content Management Service	• Document metadata verification, document attribute information extraction, automatic document form conversion
Blockchain Gateway	• Member management, metadata registration by document version, document authenticity verification
Blockchain Platform (Hyperledger Fabric)	• Block, Ledger DB, Smart contract

#Blockchain #Electronic Document Management #Content Management #Authenticity #Record Management

Features

▸ **Supporting Blockchain Network Configuration**
- Establishing blockchain network based on Hyperledger Fabric
- Configuring nodes (peer, orderer, CA) based on docker container
- Supporting internal blockchain network configuration or consortium blockchain network configuration through cooperation with partnering companies

▸ **Supporting Integration with Internal Corporate Operating Systems**
- Providing plans to support integration with various internal and external systems
- Supporting both DB or file sharing-type asynchronous link and API anchoring-type synchronous link
- Supporting error history management and automatic/manual retry functions in case of linked error occurrence

▸ **Strengthening Reliability through Link to Public Blockchain**
- Anchoring to public blockchain on a regular basis to strengthen reliability of private blockchain
- Securing reliability of content management verifying authenticity and integrity, executing life-cycle management and ensuring secure storage of content

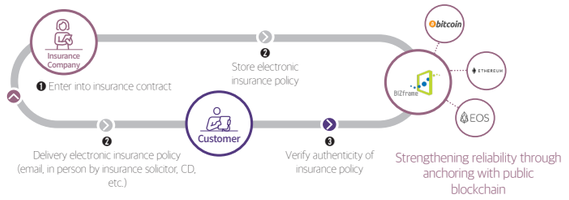
Time Stamp
Providing time stamping function for activities in each stage, such as content creation, issue, delivery and destruction, along with non-repudiation

Authenticity/Integrity Verification
Guaranteeing authenticity and integrity of content after registration by recording content meta information and hash information in blockchain

Content Life-cycle Management
Providing management function for each stage of content registration, search, use and destruction

Guaranteeing Content Confidentiality/Safety
Guaranteeing confidentiality through encrypted content storage and providing secure content management function based on access control according to user privilege

Applications

Category	Description
Corporate Content Management	• Used as system for reliable storage and management of various contents including electronic documents
Accredited Electronic Document Center	• Used to provide legal reliability for electronic document storage and as base engine for accredited electronic document center system establishment
Record Management	• Used as platform to ensure authenticity and reliability for record management in public and private sectors (applied to record management system of the National Archives of Korea in 2019 to strengthen reliability of the records)
Electronic Insurance Policy	

Implementation Case

Period	Project	Owner
2019	• Pilot project to establish trust-based record management platform with blockchain application	National Archives of Korea
2020	• Data-based individually customized smart healthcare platform development using blockchain (1st year) • FHIR-XDS and blockchain-based medical document sharing system development • Study on plans for record management application using blockchain transaction and smart contract	Ministry of SEMs and Startups Korea Health Industry Development Institute National Archives of Korea
2021	• Data-based individually customized smart healthcare platform development using blockchain (2st year)	Ministry of SEMs and Startups

Token Wallet System, “sanggatalk”

#Solana #sanggatoken #Blockchain #Tokenomics

Solution Information

Name of Solution	sanggatalk	Developer	QOOS (sanggatoken.io)
Solution Category	Token wallet system/mobile application	Inquiry	sanggatalk@gmail.com

About Solution

This is a commercial transaction platform for store owners and consumers using sanggatoken. Store owners can conveniently and swiftly post store information and advertising on the noticeboard, and consumers voluntarily accessing store information or advertising in the application are rewarded with sanggatoken.
Consumers can selectively view store information and advertising exposed in the order of distance from their current locations and, as a reward, receive sanggatoken provided by the respective store owners. This token can be used as cash in online and offline stores. It can also be used as an asset for remittance, staking and trade at an exchange.
No store pays an additional fee for exposure higher up in the list. All stores are exposed fairly in the order of distance from the consumer’s location.
sanggatalk application provides a safe online commerce platform where everyone can perform business activities freely without any conditions, such as in terms of nationality, business type or qualification, in a decentralized system free of centralized regulations and monopolistic institutes. It will promote shared growth by connecting all consumers across the world.

Connecting all channels previously distributed to several platforms

Fairly treating all store owners without inducing competition

Guaranteeing freedom in business activities based on decentralized system

Features

- **Location-based Store Advertising**
  - Implemented for use also in mobile environment
- **Free to Write Advertisements**
  - When verified by decentralized verifiers, advertisements automatically posted without an additional registration process
- **Transaction with blockchain-based sanggatoken (SFT), the decentralized payment system**
- **Providing discount (coupon) and point accumulation (stamp) system**

Applications

Category	Description
Preparation for Digital Transformation	• Helping the entire industry overcome crisis situation as conversion to contactless business due to the impact of COVID-19 requires a large investment cost
Online Platform Activating Micro Enterprises	• Supporting both face-to-face and contactless transactions of micro enterprises with convenient service at low cost

Implementation Case

Period	Project	발주처
2020	• Sanggatalk app service launch	Internal

Korea's only OpenBadge service platform complying with international digital badge standard, "SWBADGE"

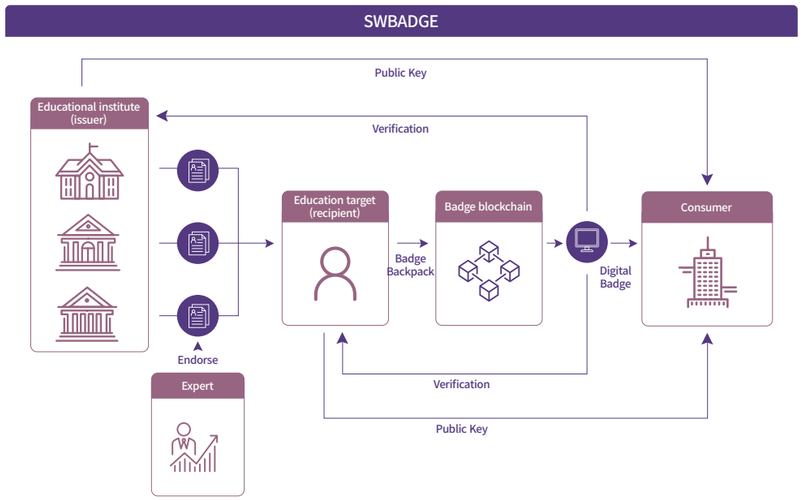
Solution Information

Name of Solution	SWBADGE	Developer	SW Empire (www.swempire.co.kr)
Solution Category	Digital badge service platform	Inquiry	cmsjjang@swempire.cokr 031-972-0409
Core Technology	Hyperledger Fabric, OpenBadge		

About Solution

This is a new online digital credentials service. As a Korean-style digital badge service platform developed on the basis of an international standard, SWBADGE verifies qualifications, learning history, technology levels, experiences, reputation, capabilities, etc. of each individual using blockchain technology by placing such information as meta data in the unique badge image.

- Digital badge service platform
- Complying with international standard OpenBadge
- Blockchain-based digital badge verification

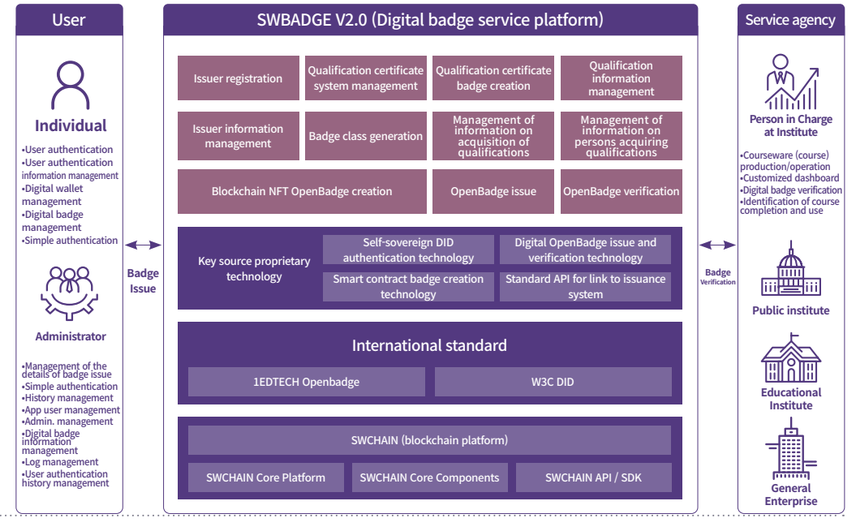


#Digital Badge #Open Badge #Blockchain #Online Credentials #K-OpenBadge

Features

- Korea's only product complying with the international digital badge standard, 1EdTech OpenBadge
- Digital badge complying with international standard OpenBadge, compatible with other OpenBadge platforms
- Service based on blockchain platform internally developed by SW Empire to secure reliability of digital badge
- Providing blockchain DID-based digital wallet
- Providing function for linked posting on social network such as Instagram, X (Twitter) and Facebook
- Providing e-Portfolio using folder and e-Portfolio URL sharing function through Kakao Talk and email
- Providing both web and app-based services
- Providing LMS-linked standard API
- Simplifying complicated credentials process and reducing the use of management recourses by operating institute
- Decreasing cost in comparison to conventional credentials document (paper), ensuring convenient storage and preventing forgery/tampering

Applications



Implementation Case

Period	Project	Owner
20221	• Blockchain-based KOpenBadge service platform development for educational integrated badge management service • Blockchain DID-based educational and qualification examination service platform • Blockchain DID-based educational digital badge service platform	Ministry of Trade, Industry and Energy Ministry of Science and ICT Ministry of SEMs and Startups

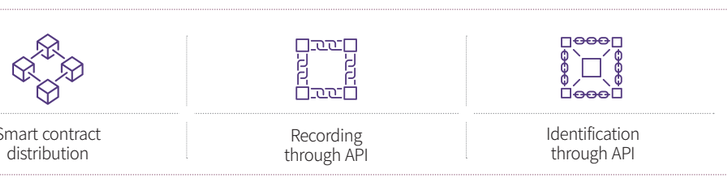
Smart Authentication, Smart Contract and rest API Development Service, “Smart Identity Proof”

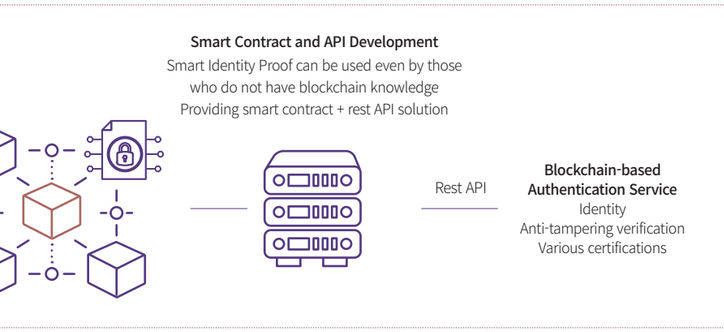
Solution Information

Name of Solution	Smart Identity Proof	Developer	RE Trust (www.retrust.world)
Solution Category	Personal authentication, identification, document anti-tampering management	Inquiry	ceo.retrust@gmail.com 010-2740-8802
Core Technology	Smart contract + rest API		

About Solution

There is no need for direct development of the difficult smart contract. With API provided by RE Trust, you can simply develop forgery and tampering prevention verification and authentication services.
It enables uses to build authentication solution smart contract and rest API on the basis of public or private blockchain, or use the established service in the API format. In addition, the solution distributes it to the internal MainNet or a public MainNet, and provides an operation consulting function.





#Personal Authentication #Identification #Smart Authentication
#Document Anti-tampering Management

Features

- **Ensuring response to various flexible blockchains**
- **Solution development customized to enterprises**

Applications

Category	Description
Contract	• Blockchain-based contract
Anti-tampering Verification	• Blockchain-based time stamping
Identification	• Blockchain-based identification

QR Code-based authentication/distribution management solution, “SCANUS”

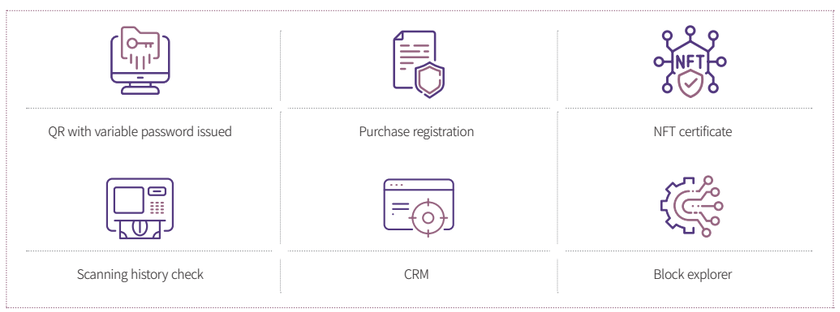
#Authentication #Distribution History #QR Code

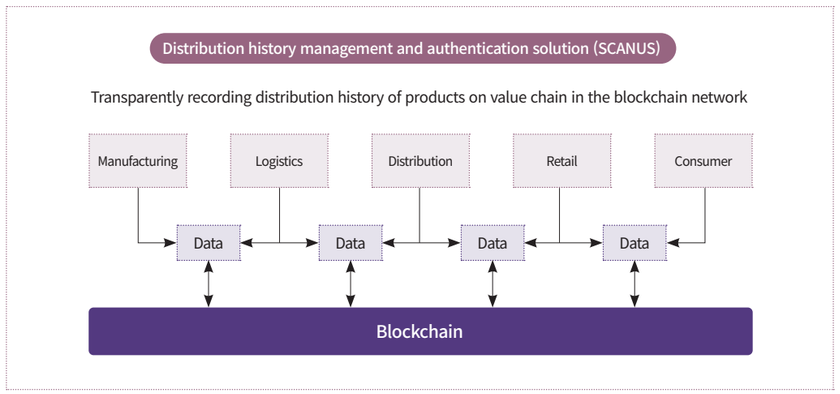
Solution Information

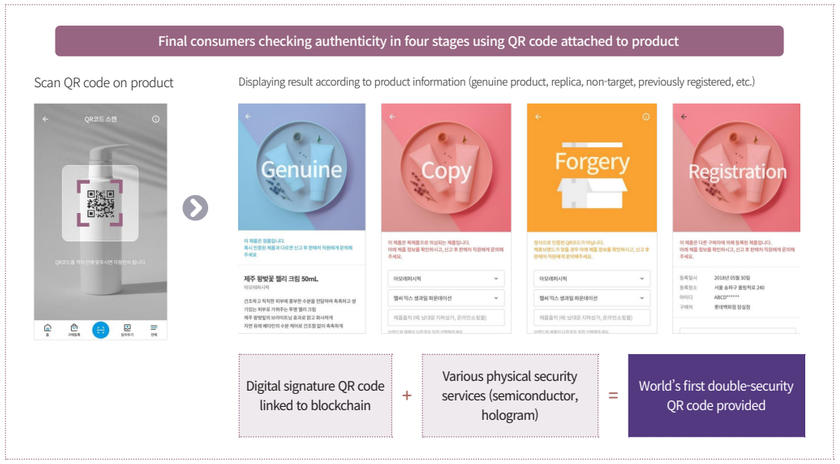
Name of Solution	SCANUS	Developer	Block Odyssey (www.blockodyssey.io)
Solution Category	Production > sales data distribution record management	Inquiry	contact@blockodyssey.io 02-2088-6042
Core Technology	Hyperledger Sawtooth		

About Solution

SCANUS is a solution supporting product distribution history management and authentication by connecting offline products with blockchain using QR code independently developed and patented by Block Odyssey.
Using the QR code attached to products in distribution, key data, such as of the status of product distribution stages and issues, can be recorded on the blockchain network. Also, the data can be managed through the SCANUS dashboard. In addition, final consumers can simply check the authenticity of a product by scanning the QR code attached to the product. As Korea’s first blockchain solution optimized to the characteristics of distribution industry, SCANUS supports the establishment of reliable relationships and improved operation process efficiency among all users.







Features

- The solution prevents the inflow of forged/tampered products in the process of product distribution and verifies and controls product loss and damage information using blockchain technologies. Therefore, it reduces the risk of damage on corporate brand image caused by issues in the distribution stage.
- Through authentication by final consumers, products illegally distributed in the market can be identified. Based on this, damage to a company’s product distribution policy, such as for pricing, can be prevented.
- For enterprises manufacturing and distributing value-added products, those experiencing difficulties in product distribution management due to complicated distribution stages, such as for export, and those in need of strict management and supervision in relation to the risk of product deterioration in the stage of distribution, SCANUS provides a simple and efficient solution to the problems.

Applications

Category	Description
Authentication	• Used in digital monitoring for and prevention of illegal replica product distribution
Distribution Information Check	• Not a simple printing on product, enabling users to conveniently check certificates and production details (place of origin) through mobile devices

Implementation Case

Period	Project	Owner
2021	• P2P distributed transaction distribution history platform	Ministry of Trade, Industry and Energy
2022	• Blockchain-based bio raw material distribution history management platform • Authentication service for cosmetics brand, VIDIVICI • Used car history certification	Korea Internet & Security Agency Shinsegae International SK Rent a Car
2023	• Waste plastic distribution history certification	SK geo centric

Integrated apartment management platform with blockchain technology applied, “APTREE”

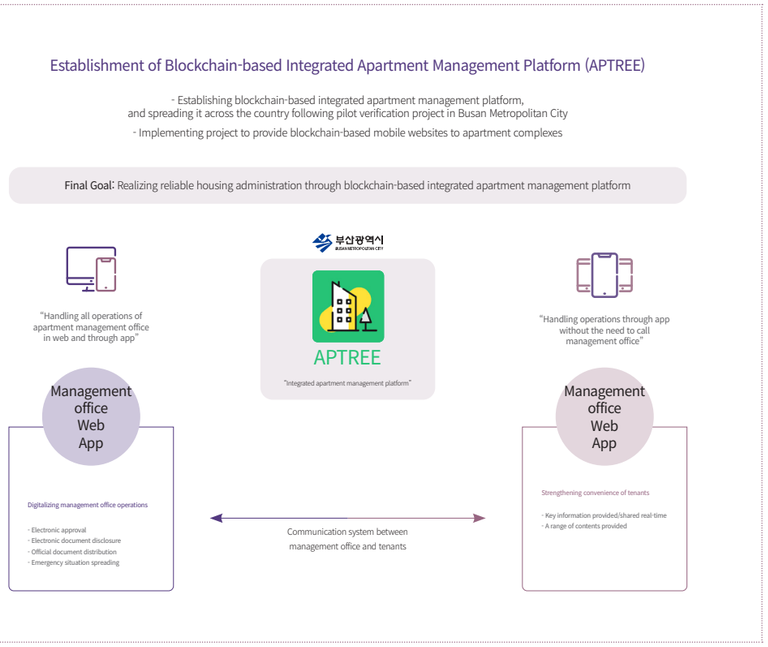
Solution Information

Name of Solution	APTREE	Developer	BK Winner (www.bkwinner.co.kr)
Solution Category	Integrated apartment management platform establishment	Inquiry	bkwinnerceo@naver.com 051-911-0120
Core Technology	Hyperledger Fabric v2.3		

About Solution

APTREE is an integrated apartment management platform developed through a pilot blockchain promotion project according to the designation of Busan Metropolitan City as a Blockchain City. The blockchain-based integrated apartment management platform aims to achieve reliable housing administration.

Supporting Android and iOS	Strengthening security through application of blockchain technology to the existing KCMVP security module	Certification by Software Testing and Certification Lab (TTA) completed



#Blockchain #Apartment #THE APT #ERP #Tenant-friendly #Integrated Apartment Management Platform

Features

- **Developed through blockchain verification project with the Ministry of Science and ICT, Korea Internet & Security Agency and Busan Metropolitan City**
  - Pilot project in Busan Metropolitan City in 2022 followed by public project for nationwide diffusion in 2023
- **Link to Public Institutes: City hall and 16 gu and gun offices/11 fire stations including Busan Metropolitan City Fire Disaster Headquarters**
  - Management office receiving electronic documents from administrative institutes
- **Management office handling operations through mobile device**
  - Electronic voting/meter reading/vehicle check/on-call vehicle service booking, etc.
- **Function to check maintenance fee/consultation in progress with financial institutes for maintenance fee payment**
- **Reducing maintenance fee with A-Point (apartment maintenance fee payment point) (service under development)**
- **Automatic registration service for vehicles under parking control (service under development)**
- **Notification service for bus arrival at bus stop (service under development)**
- **Three zeros**
  - Electronic voting fee (※ Cost of SMS Paid by Management Office: KRW 22 per case/Other Companies: KRW 44 per case)
  - Mobile app (mobile website) sign-up fee/mobile app (mobile website) service fee
- **Free e-book service to management office**
  - Written by Kim Deok-il: Guide to apartment housing condominium building management (Vol. 1/ Vol. 2) (Price: KRW 45,000)
  - Guidelines for housing management company and service provider selection (Price: KRW 20,000)
- **Network participation by permitted institutes/organizations only through Hyperledger Fabric-based blockchain network establishment**
- **Registration/inquiry functions divided by organizational composition through privilege processing, configuring private data management policy**
- **Developing chain code for smart contract implementation in Hyperledger Fabric, chain code called by CLI, gRPC and SDK and used in data registration and inquiry**
- **Call privilege of REST API controlled through ACL (access control list) management system**
- **REST API accessed by servers and hosts registered in ACL only, privilege handling function by API provided**

Applications

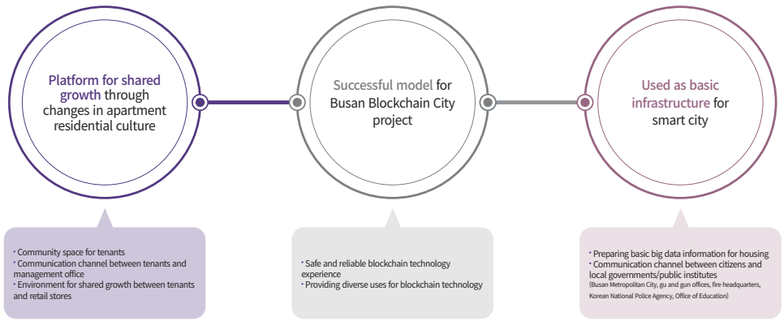
▶ **Standardizing apartment management operations**

- Document standardization
  - As documents used by management office are standardized, all apartment complexes using APTREE use the same document forms, and official documents are exchanged using the forms
  - Providing over 30 document forms agreed upon by government offices, public institutes, housing management associations and heads of management offices
- Electronic approval system
  - Through introduction of electronic approval system based on standardized document forms, electronic approval operations can be handled in all app and web services
  - Providing linked service for document exchange with government offices and public institutes through electronic approval system
  - Emergency notification service by apartment complex through link to fire headquarters
  - ⇨ Information saved through management office operation standardization and document digitalization achieved by this project will not be easily damaged or altered, and transparency will be guaranteed through information disclosure

▶ **Expanding areas of use through public data application**

- Providing diverse services through cooperation with local governments and public institutes
- Fire Headquarters: Providing information and notifications through this platform in case of fire or emergency situation
- Korean National Police Agency: Providing immediate police dispatch service for domestic violence cases and other crimes through reporting by simple control
- Office of Education: Providing service to ensure safety of children on their way to and from school by preventing kidnapping and other accidents based on GPS

▶ **Expected Benefits**



Implementation Case

Period	Project	Owner
2022	• Pilot blockchain project in 2021	Approx. 350 apartment complexes applied for project participation

Solution to reduce carbon emissions and contribute to local communities by promoting corporate ESG campaign development and individual participation, “AngryWhalesClub”

Solution Information

Name of Solution	AngryWhalesClub	Developer	HashBrand (hashbrand.kr)
Solution Category	ESG history management	Inquiry	master@hashbrand.kr 010-4417-2314
Core Technology	IFRS-based ESG impact activity development, multi-chain		

About Solution

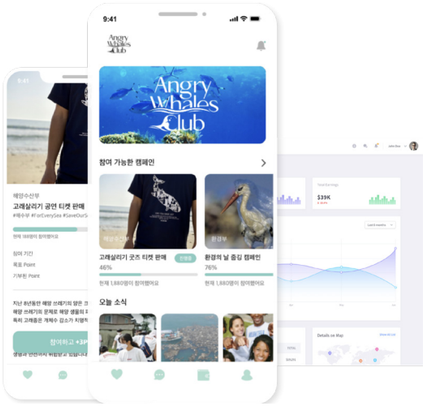
AngryWhalesClub has hosted the flogging camping, which was started as an eco-friendly project, with around 100 participants each month. Having expanded the scope of business to include ESG solution based on corporate and individual needs, HashBrand is currently providing campaign development and ESG history management services based on the AngryWhalesClub technologies.

- Eco-friendly ESG campaign consulting, development and operation
- Developing ESG activity indicators such as carbon emission and local community contribution (used in sustainability report, marketing, product branding, etc.)
- Blockchain-based corporate ESG data history management
- Providing OpenBadge according to individual participation level (core fan base established)

#ESG #Eco-friendliness #Blockchain #Solution #SI

Features

- Developing campaigns to assist in sustainable management
- Helping in eco-friendly product branding and marketing
- Providing scalability to OpenBadge, carbon point, etc. through blockchain-based history management



Applications

Category	Description
ESG Campaign	• ESG campaign with participation by citizens and customers
ESG Report	• Assisting in sustainability report based on corporate campaign activities
Data History Management	• SaaS-type history management

Implementation Case

Period	Project
2023	• Angry Wales Club app service

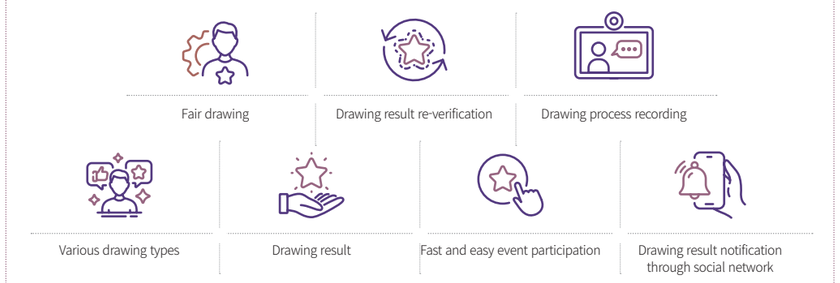
Platform for fair lottery drawing using the world's most powerful public blockchain, "Event Club"

Solution Information

Name of Solution	Event Club	Developer	RealCheck (event-club.co.kr)
Solution Category	Event Club, a platform for fair lottery drawing (internal fraud prevention, result re-verification)	Inquiry	contact@event-club.co.kr 010-7193-7235
Core Technology	Hash data of BitCoin Blockchain that is generated anew at the time of drawing, SHA-245 hash function		

About Solution

- In addition to lottery drawing by insiders and outsiders and prevention of intervention in lottery result, this solution ensures lottery drawing that can be directly verified by users.
- It is aimed at providing fair lottery drawing without any unfair elements or interventions to manipulate the result.
- It also enables response to elements for intervention in lottery drawing, such as drawing group, order and pair, and offline events (lottery drawing using a large-sized screen, number selection) as well as lottery drawing offering giveaways.



Multi-channel-based Distributed Ledger Management
- Creating drawing seed keys that cannot by predicted by insiders/outsiders and ensuring fair drawing using the seed keys based on hash values of public blockchain with the most powerful hash power

Drawing Result Re-verification
- Transparently disclosing drawing algorithm and process to not only the drawing event host, but also participants to enable direct re-verification of the drawing result

Drawing Process Recording
- Providing drawing process recording function, which is a tool for proving transparency and reliability of the drawing event host, and result notification function to immediately inform the drawing result to participants

Various Drawing Types
- Providing ranking draw, randomized draw, group draw, draw in turn and team/pair draw in addition to simple lottery drawing to present gifts, and also screen number draw/number draw that can be applied to offline events

Drawing Result
- Providing information on drawing process and drawing result, event information, host information and documented drawing result for review and check as necessary

Fast and Easy Event Participation/Drawing Result Notification through Social Network
- Enabling users to check the information of and enter an event using QR code and URL or through social network channel without the need to install a package program, and providing drawing result immediately by host

#Fair Drawing #Fraud Blocking #Re-verification #Platform #Reliable Drawing Result

Features

Characteristics
- The most powerful public chain generates new data through participation by the computers of the unspecified and many, and the data have randomness to disable predictability
- Verification of the blockchain data takes place concurrently with the data creation, and integrity verification of the accumulated data is also conducted
- In addition, the data are disclosed to all, and public blockchain data with such characteristics cannot be forged/altered and have transparency and reliability

Differentiation
- Overcoming the issues and limitations of lottery drawing methods of domestic and international competitors with technology to use public blockchain of the most powerful hash power: Objectively and epochally revealing and controlling suspected external intervention, which is a limitation of the existing offline and computer drawing systems
- Providing diverse drawing types suitable for various situations in addition to simple prize giveaway event drawing
- Providing convenient user experience including simple Kakao Talk login, scheduled for integration with global social network channels (Facebook, Instagram, YouTube, etc.) and service expansion to build global partnerships

Applications

Category	Description
Prize Giveaway	• Simple prize giveaway
Corporate Promotion (Exhibition, Fair, etc.)	• Providing products to visitors for corporate or event promotion
Drawing Requiring Intervention for Fairness	• Campsite and golf range booking, preview tickets, permission to attend trials, judge assignment
Housing Subscription	• Fair drawing through complete prevention of internal fraud and direct re-verification by participants
Lottery Ticket	• Lotto, pension lottery

Individual	Enterprise	Government
• Simple drawing/betting among friends or coworkers • Drawing event hosted by influencers (individuals) targeting subscribers and viewers • Event drawing hosted by student council or student organization	• Drawing targeting consumers (based on phone number, raffle ticket, game item, etc.) • Sports draft, subscription to publicly offered shares (partial)	• Drawing targeting enterprises (private companies, for government-funded construction projects) • Drawing targeting citizens (military unit assignment, school allocation, etc.)

Implementation Case

Period	Project	Owner
2022	• Prize giveaway event targeting visitors to booth at Busan Technopark during blockchain promotion week using Event Club platform	Blockchain Grand Week
2023	• Fair prize giveaway drawing at monthly event of the Pusan IT Partners Association • Fair drawing for corporate promotion at K-ICT Week event	Pusan IT Partners Association K-ICT Week In Busan

Platform for management of scopes 1, 2 and 3 carbon emissions based on GHG Protocol, “eBrother NetZero”

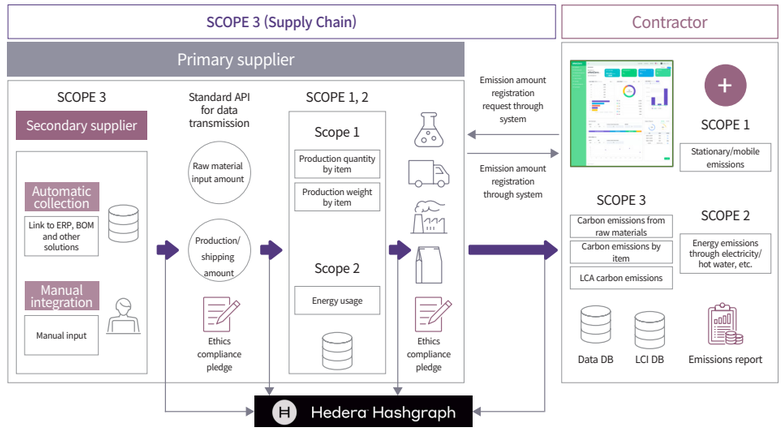
Solution Information

Name of Solution	eBrother NetZero	Developer	CCmediaService (www.ccmedia.co.kr)
Solution Category	Blockchain-based carbon management platform	Inquiry	service@ccmedia.co.kr 02-501-6371
Core Technology	Hedera Hashgraph v2.26		

About Solution

Supporting the accomplishment of Net Zero, eBrother NetZero assists in carbon emission control and reduction activities in compliance with the GHG Protocol. It provides scientific and systematic carbon emission control functions. Carbon emission estimation and control, reduction goal setting and performance of reduction activities must be promoted with a methodology verified for upward adjustment of the NDC and achievement of the Net Zero. eBrother NetZero helps enterprises and organizations estimate carbon emissions using a verified method, provide emission information for regulatory response and carbon neutral activities, and efficiently handle carbon control operations. With emission factor control function and carbon emission calculator applied, carbon emissions are automatically calculated with the input of minimum necessary information and all information is recorded on the blockchain. This solution also provides a tracking function for access to and selective access permission for data. Together with a function to support operation handling among stakeholders for carbon emission estimation and control, carbon emission information analysis and reporting functions are provided.

▶ eNetZero Service Configuration



#Blockchain #Carbon #Net Zero #GHG #ESG

Features

▶ **Estimating and Controlling Carbon Emissions**
- Estimating and controlling scopes 1, 2 and 3 emissions based on GHG Protocol, and supporting emission goal management and history management

▶ **Securing Data Integrity and Reliability**
- Integrating blockchain, preventing data forgery/tampering, protecting rights of data owners, and supporting data traceability

▶ **Built in with Carbon Emission Calculator and Emission Factor Control Function**
- Providing carbon emission calculator and emission factor control function for automatic carbon emission estimation

▶ **Supporting Operations for Carbon Emission Control**
- Built in with operating support flow for emission estimation request, processing and management between stakeholders (contractor, supplier, etc.)

▶ **Analyzing Data and Generating Report**
- Generating automated carbon emissions report

▶ **Protecting Sensitive Information**
- Protecting data ownership of data owners, approving/blocking access and logging access records

Applications

Category	Description
Carbon Emission Control	• Estimating and controlling carbon emissions to implement environmental regulations and achieve Net Zero

Implementation Case

Period	Project	Owner
2023	• Establishment of supply network carbon emission history management system	Hyundai Motor Company

Blockchain-based “electric vehicle life-cycle management system”

#Blockchain #Electric Vehicle Reused Battery #Life-cycle Management #ESS Monitoring #Reused Battery

Solution Information

Name of Solution	Electric vehicle reused battery life-cycle management system	Developer	INFOMIND (www.infomind.co.kr)
Solution Category	Electric vehicle reused battery management	Inquiry	chs1217@infomind.co.kr 064-712-4787

About Solution

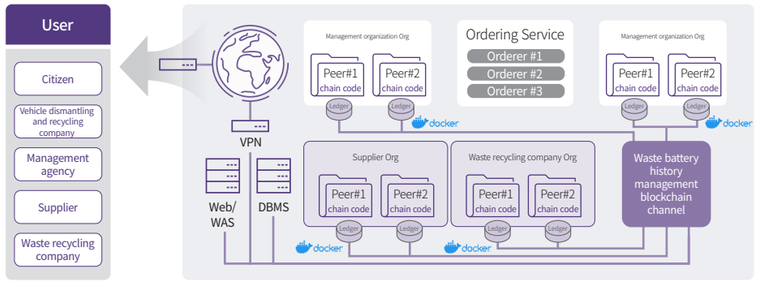
This is a blockchain-based solution to manage waste battery history by stage, such as battery inspection, certification, release and recycling status, including information of electric vehicle batteries in operation, and optimize maintenance of and secure stability for products products manufactured with used batteries (ESS, etc.) through monitoring.

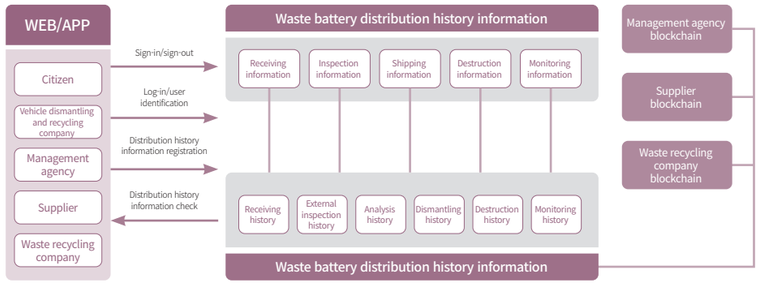
Managing electric vehicle waste battery status by cycle, such as receiving, inspection and ESS release

Strengthening anti-tampering function through blockchain loading at each status change

Enabling general users to check the history of ESS mounted on blockchain of which forgery or tampering is not possible

Blockchain-based Electric Vehicle Life-cycle Management System





특장점

- Electric vehicle waste battery life-cycle management (battery inspection/certification/release/recycling, etc.)
- Securing convenience of maintenance and preventing forgery/tampering through reused battery ESS monitoring
- Cloud-based service platform
- Service based on e-Government standard framework

Applications

Function	Details
Electric Vehicle Waste Battery Management	• Managing electric vehicle waste battery receiving, inspection, shipping and destruction information • Managing life-cycle history of electric vehicle waste batteries
Reused Battery Management	• Managing shipping of products made with reused batteries • Providing blockchain-based anti-tampering function • Conducting remote monitoring on products made with reused batteries

Implementation Case

Period	Project	Owner
2019	• Blockchain-based waste battery distribution history management system establishment	Korea Internet & Security Agency, Jeju Special Self-Governing Province
2020	• Blockchain-based electric vehicle battery life-cycle management system establishment	Korea Internet & Security Agency, Jeju Special Self-Governing Province

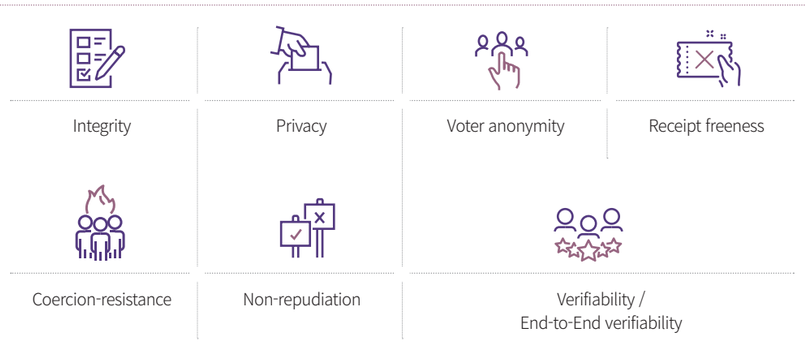
Blockchain online voting app guaranteeing secret ballot and verification, “zkVoting”

Solution Information

Name of Solution	zkVoting	Developer	ZKRYPTO (www.zkrypto.com)
Solution Category	Online voting platform	Inquiry	contact@zkrypto.m 02-2293-5423
Core Technology	zk-SNARK, library optimization, zero knowledge proof circuit design		

About Solution

zkVoting is a voting app supporting secret ballot, end-to-end verification and complete prevention of ballot rigging by using public blockchain and zero knowledge proof technologies. As it is very difficult to organize a secret ballot on public blockchain, the voting systems so far have been implemented on the basis of private blockchain and no voting system with zero knowledge proof technology applied has been available. Equipped with zero knowledge proof technology, ZKRYPTO developed this world’s first and best voting system with improved security operated on public blockchain.



	Existing Blockchain-based Voting System	zkVoting System
Integrity	• Based on private blockchain • Risk, time and maintenance cost of blockchain establishment and management increased	• Based on public blockchain • Using Klayton or Ethereum public blockchain • Security, economic efficiency of maintenance and stability increased
Privacy	• Limited secret ballot • Vote counter aware of voter • Only stakeholders to verify voting/vote counting	• **Secret Ballot**: No one aware of the voters or details of votes • **Vote Sale Prohibition**: Showing details of a vote to a third party, such as for voting solicitation, prohibited • **Resistance against Coercion**: Ensuring safe voting even when voters’ secret keys for voting have been stolen
Verifiability	• Vote decryption necessary for voting and vote counting verification • Vote counting verification conducted by limited people only • Only stakeholders to verify voting/vote counting	• **End-to-end Vote Verification**: Entire process of voting verified • **Voter Verification**: Voters checking if their votes have been reflected • **Voting Suitability Verification**: Allowing everyone to verify suitability of voting, such as valid vote, double voting and voting for multiple candidates
Non-repudiation	• With most voting systems, the election commission hands out voting (secret) keys to voters • Voters cast their ballots using the secret keys • As the keys are not created by voters, it is difficult to achieve non-repudiation	• Voters directly create voting verification and secret voting keys • Voting verification keys are registered with the election commission • Proxy voting is not possible because even the election commission does not know the secret voting keys • Non-repudiation is provided

#Blockchain #Zero Knowledge Proof #Privacy Protection #Secret Ballot #Vote Verification

Features

- World’s first zero knowledge proof voting system
- Integrity, confidentiality, verifiability and non-repudiation completely supported on public blockchain
- Won Best Innovation Award in cyber security and privacy protection category of the CES 2023 (first blockchain application to win the award)
- Won Innovation Award in software and mobile app category of the CES 2023
- Established blockchain-based online voting system for the National Election Commission (2023)
- Registered 1 patent and 3 patents in the U.S. and Korea respectively

Applications

Category	Description
Public Sector	• National and local elections, local government referendum, primary election of polical parties, etc.
Private Sector	• Apartment housing, association, popular vote in entertainment industry, etc.

Implementation Case

Period	Project	Owner
2023	• Project to spread blockchain-based online voting system	National Election Commission

Decentralized wallet service not requiring mnemonic, “COLET”

Solution Information

Name of Solution	COLET	Developer	Nonce Lab (www.noncelab.com)
Solution Category	Blockchain wallet	Inquiry	dykoh@noncelab.com 02-702-1718
Core Technology	Multi-signature, context awareness		

About Solution

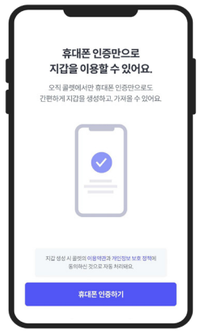
This is a blockchain wallet. But, it’s different from other wallets.

- COLET does not store customers’ private keys (mnemonics).
- Even so, it can restore customers’ private keys.
- Through a few simple steps, an encryption key can be restored.

Not requiring mnemonic codes	Enabling private key restoration	Multi-signature technology applied	Context awareness authentication technology applied

COLET provides two encryption key recovery methods.

❶ Multi-signature key recovery



❷ Context data-based key recovery

#Decentralization #Unhackable #Non-repudiation #Context-aware authentication #Multi-signature technology

Features

▶ **It is never an easy job to manage customers’ private keys.**
- Don’t store customers’ private keys in the office.
- Be free from hacker attacks, insider control, non-repudiation and litigations.

▶ **Customer’s private key? Don’t entrust it with anyone.**
- Don’t store the private key of your customer by entrusting it with a third party.
- Neither you nor the third party can protect the customers’ assets.
- Let your customers protect their own assets by themselves.

▶ **Don’t stress your customer for private key backup.**
- Mnemonics cause huge stress on customers.

▶ **Try using our encryption key recovery technology.**
- The company becomes free from customers’ private key management.
- Customers become free from mnemonic backup.

Applications

Category	Description
Digital Asset Management Company	• Exclusive wallet service for customer’s blockchain assets
Exchange	• Safe and convenient personal wallet withdrawal service for customers
NFT Service Provider	• NFT wallet for NFT holders
Games	• Game NFT, asset storage wallet

Implementation Case

Period	Project	Owner
2021	• Blockchain wallet, COLET	Nonce Lab

Online voting platform, “kevoting”

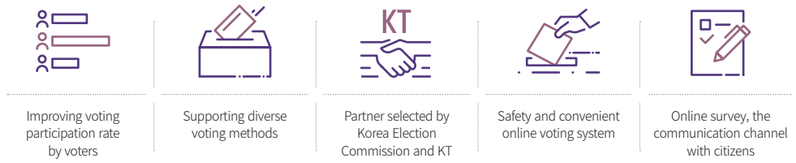
#Electronic Voting #Online Voting #Blockchain #Blind Signature #Ballot Counting Key Splitting

Solution Information

Name of Solution	kevoting	Developer	KOREA E-VOTING (www.kevoting.io)
Solution Category	Online voting platform	Inquiry	jsun465@kevoting.com 070-7791-1103
Core Technology	Hyperledger Fabric v1.4, voting and vote counting security engine		

About Solution

Used by approximately 18 million people over nine years, this online voting platform with verified stability and excellence has hosted many voting events including one targeting 550,000 people. Compared to general electronic voting systems of other companies that use KCMVP or standard library encryption technology, kevoting is equipped with three key technologies of blind signature, ballot counting key splitting and bit commitment to meet all of the seven electronic voting guidelines of the Korea Election Commission.
With the technologies, this solution not only complies with the four principles of election, but also fundamentally blocks election fraud and perfectly protects personal data.



Features

The Largest Reference
- Solution provided to the National Election Commission (constitutional institution) and service provided to Korea Land & Housing Corporation (public institute) and a number of other organizations including Korea’s No. 1 mobile carrier SKT and the People Power Party (600,000 people)

Operating Experience
- Approx. 18 million voters over nine years, operation with zero accident, diverse customized services provided

Security Technology
- Online voting and vote counting security engine meeting the electronic voting guidelines of the National Election Commission developed and in operation

R&D
- Ministry of Science and ICT project to develop blockchain-based online voting system (Korea Internet & Security Agency, Korea Election Commission, 2018)
- Ministry of Science and ICT project to develop blockchain DID-based electronic general shareholder meeting system (Korea Internet & Security Agency, 2021)
- Voting and vote counting security engine and Mixnet supplied for establishment of blockchain online voting system of the National Election Commission (2021)
- Two online voting-related patents registered (2019)
- Electronic voting system using election title/electronic voting method using election title

Applications

Category	Description
Private Sector	• Used for personal election and agenda voting of associations, groups, educational institutes, apartment complexes, etc.
Public Sector Including Government	• Collection of public opinions for participatory budgeting of local governments, primary elections of political parties, etc.

Implementation Case

Period	Project	Owner
2018	• Internal development and operation of	blockchain cloud-based online voting system
2021	• DID shareholder identification-based contactless electronic general shareholders’ meeting	ISSAC Holdings

Electronic document service with document storage and true copy certification functions, “KT Paperless”

Solution Information

Name of Solution | KT Paperless
Developer | KT(www.kt.com)
Solution Category | Electronic document service with document storage and true copy certification functions
Inquiry | enterprise.kt.com/main.jsp, 080-318-5306
Core Technology | Hyperledger Fabric v2.4

About Solution

As a company designated by the Ministry of Science and ICT, KT guarantees efficiency and safety of document storage and ensures legal authenticity for documents stored in the Accredited Electronic Document Center. Allowing anyone to simply and safely store and use documents at a low cost, KT Paperless offers service optimized to users through expansion to a range of application services including document centralization and digital asset storage and management.

Paperless trust scan

Paperless Accredited Electronic Document Center

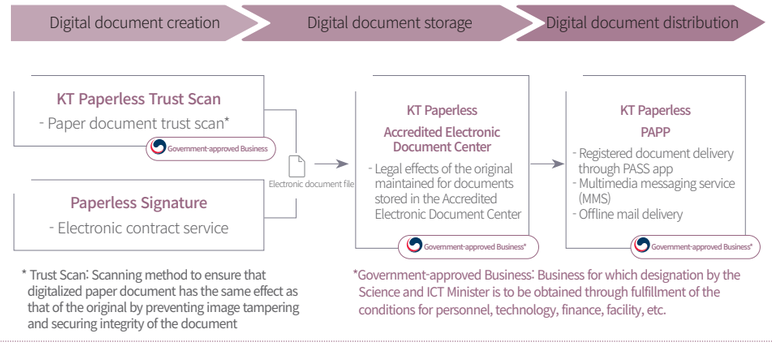
▶ **Trust scan to digitalize paper documents providing legal effect even after disposal of the paper documents**
- Services: Forgery/tampering verification, compression algorithm, integrity verification, digital signature, time stamp

▶ **Electronic document storage platform providing document authentication and distribution service**
- Services: Storage, proof, and viewing services

▶ KT Paperless Service

Provides life-cycle document management functions (creation, storage, distribution) to simply create, safely store and conveniently send documents.

▶ KT Paperless Service Composition



* Trust Scan: Scanning method to ensure that digitalized paper document has the same effect as that of the original by preventing image tampering and securing integrity of the document

*Government-approved Business: Business for which designation by the Science and ICT Minister is to be obtained through fulfillment of the conditions for personnel, technology, finance, facility, etc.

#Blockchain #Accredited Electronic Document Center #True Copy Certification #Distributed Ledger

Features

▶ **Providing more convenient electronic document management/storage functions through computer, mobile devices, API, etc. in comparison to the existing accredited electronic document storage**
- User Convenience: HTML5, no separate client installation (installation of the existing IE, Active-X)
- Supported Terminals: Computer (Windows, Mac), mobile devices, tablet (centering around the computer)
- Storage Interface: Fast and easy development (REST type)
- Electronic Document Storage Method: Worm storage + blockchain
- Standard Application: The latest 4.X standard applied
- Paper Certificate Anti-tampering: Secure QR (existing 2D bar code)
- Certificate Verification: Web verification service (separate client installation not necessary)
- Specialized Service: Supporting distribution of electronic documents issued (text message, Kakao Talk, etc.)

▶ **KT Paperless Trust Scan**
- Trust Scan to digitalize paper documents keeping legal effect of documents even after disposal
- Document digitalization, digital signature, search, accessible DOCUZERO service

Document classification → Trust Scan → Quality check → Search/view

- Services: Forgery/tampering verification, compression algorithm, integrity verification, digital signature, time stamp
- Characteristics: Document management, real-time check, dashboard, view and download

▶ **KT Paperless Accredited Electronic Document Center**
- Korea’s first electronic document storage platform using blockchain providing document authentication and distribution services
- New blockchain-based Accredited Electronic Document Center

Document registration → Search/view → Issue/proof → Disposal

- Services: Storage, proof, and viewing services
- Characteristics: KT blockchain, real-time access, API-linked service provision

▶ **Implementation Case (Company A)**
- Resolving the issues of document damage, labor cost/logistics cost, access protection, legal disputes, etc. caused by paper document storage with KT Paperless, leading ESG management by innovating digital operation

Handling paper document management by 1.16 million pages → Reducing cost of archive transfer/ storage → Eliminating risk of legal dispute caused by paper document damage/loss, etc. → Increasing work efficiency through document digitalization

General support service before and after the death of seniors, “Keepers Note”

Solution Information

Name of Solution | Keepers Note

Developer | Keepers Korea (www.keeperskorea.com)

Solution Category | General support service before and after the death of seniors

Inquiry | keeperskorea@naver.com, 1688-8422

About Solution

Most people are not prepared for, and are reluctant to face the coming of death.
Facing an unexpected situation unprepared, one is bound to experience difficulties in making prudent judgment.
Keepers Note, a funeral, trauma clearing and inheritance platform, is aimed at offering information and services for the entire process covering from nursing and preparation for the deathbed to funeral, and handling the process through a single consultation.
Handling of the process from before and after one’s death requires complicated and professional knowledge.
Keepers Korea stays with customers throughout this process, making sure their decision-making rights are fairly and legitimately ensured.

Ensuring customer’s decision-making right for their digital will

Verifying ownership of keepsakes through digital archiving

Linked with each funeral service agency

Features

▸ **Blockchain-based Digital Testamentary Trust Note**

- Delivering information and notes prepared by customers to their bereaved families
- Helping customers through the process to prepare for death

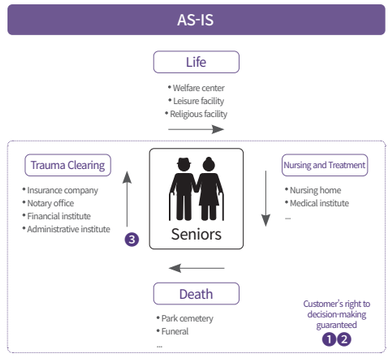
▸ **Fostering Professional Planners**

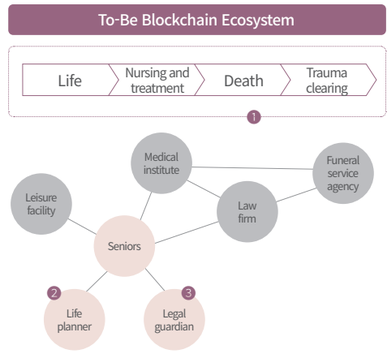
- Fostering planners capable of supporting and handling the entire process from before to after death
- Handling end-of-life services including nursing, funeral, death benefit, inheritance and trauma clearing

▸ **Matching Customers (or Bereaved Families) with Planners & Partners**

- Customer checking locations of planners and selecting a planner using location-based service
- Matching customer with partners providing various services before and after death

#Keepsake #Keepsake Digitalization #NFT #Funeral Service





Applications

Field	Description
Bereaved Family	• Producing memorial website • Providing end-of-life information (platform development) • Selling specialized products of each funeral service agency • System to recommend funeral products • Trauma clearing service platform • Possession clearing system
Customer	• Developing pre-booked package products • Website introducing notary offices • Digital testamentary trust note • Digitalizing secondhand trading
Partner	• Developing products in connection with funeral service • Shopping mall for funeral items • Funeral hall introduction platform • Shopping mall for gifts to visitors • Trauma clearing platform
Planner	• Integrated EMS • Fostering instructors

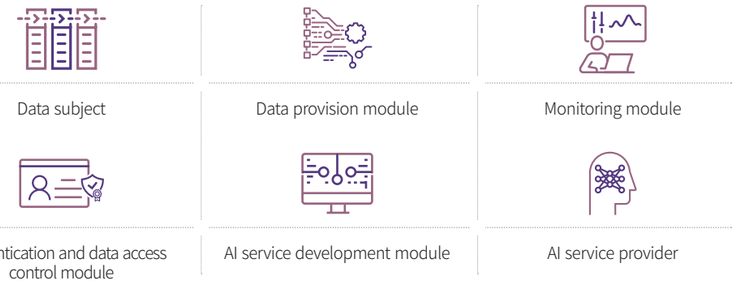
Solution to guarantee transparency and reliability in training process by developing deep learning models using blockchain technology, “Train4U”

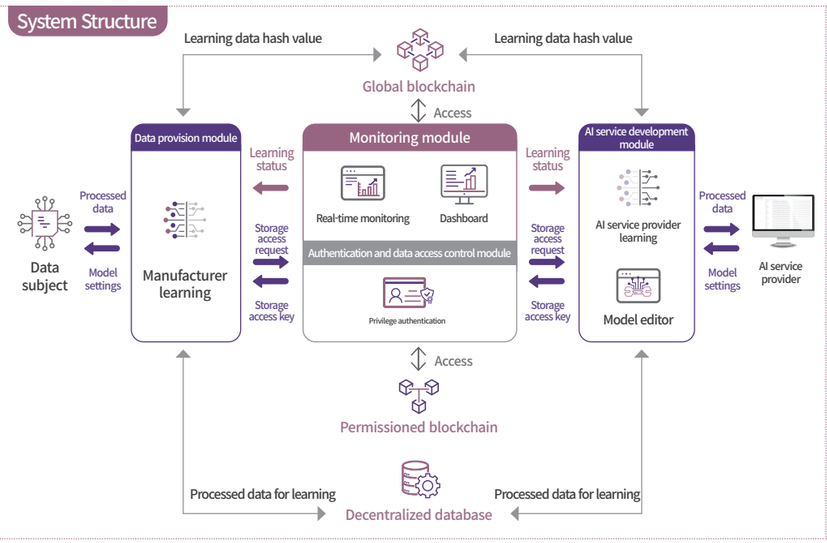
Solution Information

Name of Solution	Train4U (learning data leak prevention solution)	Developer	chaintree.biz
Solution Category	Executing deep learning without data leakage and providing history/privilege management function	Inquiry	durnffl@gmail.com 010-2007-5265
Core Technology	Klaytn (history management), Hyperledger Fabric v2.2 (access permission and key management), Cassandra Database (training data management), SplitNN (deep learning without data leakage)		

About Solution

Train4U is a solution that enables deep learning model development without data leakage, and guarantees transparency and reliability of training process based on blockchain technologies.
Protecting data sensitive to exposure and enabling customized deep learning service development, this solution helps enterprises maximize business efficiency and productivity.



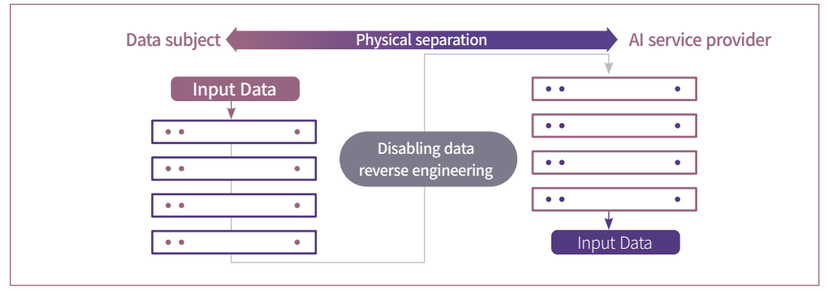


#Blockchain #Deep Learning #Manufacturing AI #Data Loss Prevention #SplitNN

Features

Zero Risk of Data Leakage

- Preventing data loss through deep learning in physically separated environment
- Protecting original data through reverse engineering prevention

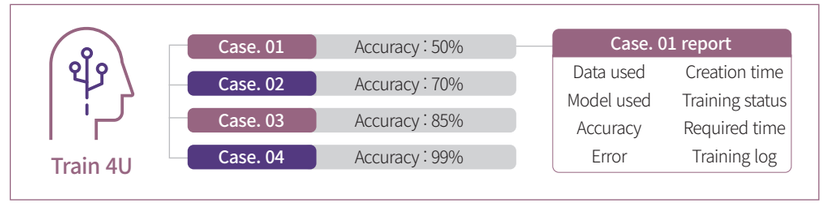


Transparently Verifying Training Details

- Managing training details using decentralized database and blockchain
- Verifying details of data use and training

Verifying Reliability of Training Result

- Managing and verifying training details by case for optimal model creation
- Providing report by training case for user convenience



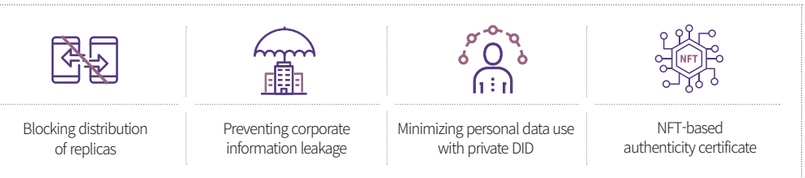
NFT-based HiMSEN engine part authentication system, “PAS”

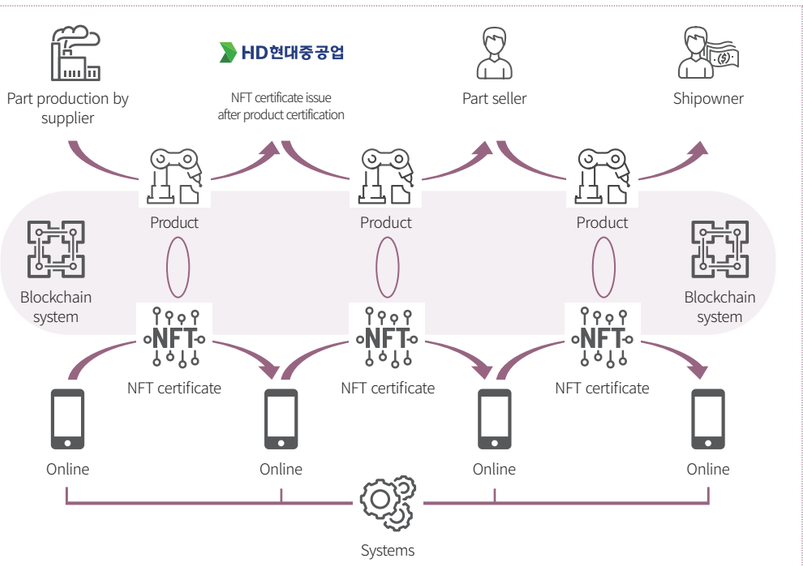
Solution Information

Name of Solution	PAS (Hyundai Heavy Industries engine part authentication system)	Developer	BP&Solution (www.bpnsolution.com)
Solution Category	Distribution management	Inquiry	bpns@bpnsolution.com 051-917-9133
Core Technology	Hyperledger Fabric v2.2, Klaytn, Hyperledger Indy		

About Solution

A number of technologies are used for authentication of parts in the course of their distribution. However, with an offline authentication system, distribution of replicas cannot be completely prevented. To address the issue, BP&Solution configured a system to issue an authentication certificate based on the NFT, a token that cannot be replicated, in order to make sure the replicas cannot be sold in excess of the NFTs possessed. This system can block the distribution of replicas, and was applied for verification to the HiMSEN engine parts of Hyundai Heavy Industries.





#Blockchain #SCM #NFT #Distribution Management, etc.

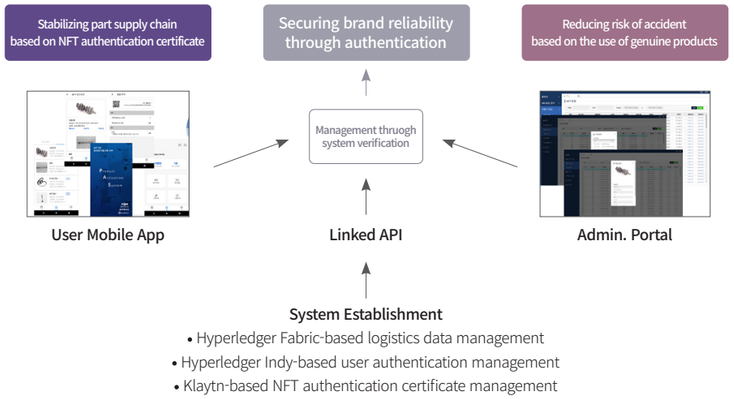
Features

▶ **Blocking Replicas**
- Issuing authentication certificate based on NFT to enable replica identification in the course of distribution using the certificate
- With authentication certificate, sale of replicas fundamentally blocked in the course of distribution because NFTs cannot be replicated

▶ **Security for Corporate Information through Private Blockchain**
- Applying blockchain technology without the risk of information leakage through Hyperledger Fabric

▶ **Individual Authentication through Hyperledger Indy**
- Self-sovereign user authentication with private DID to minimize the use of personal data within system

▶ **Securing Safety and Brand Reliability**
- Reducing risk of accident through the use of genuine parts
- Securing brand reliability by reducing the risk of product accident



Applications

Category	Description
Authentication	• Applied to situations where the issue of authentication certificate is required in the course of part or product distribution

Implementation Case

Period	Project	Owner
2022	• NFT-based Hyundai Heavy Industries HiMSEN engine part authentication system	Hyundai Heavy Industries
2023	• Blockchain-based coffee logistics platform (in application)	Busan Technopark

Blockchain-based ledger management system for mobile payment platform, “Pay chain”

#Blockchain #Payment #Integrity #History Management

Solution Information

Name of Solution I Pay chain
Solution Category I Ledger management system
Core Technology I Hyperledger Besu v23.10.2(Stable)

Developer I payup (www.payup.co.kr)
Inquiry I tech@payup.co.kr
02-6358-0511

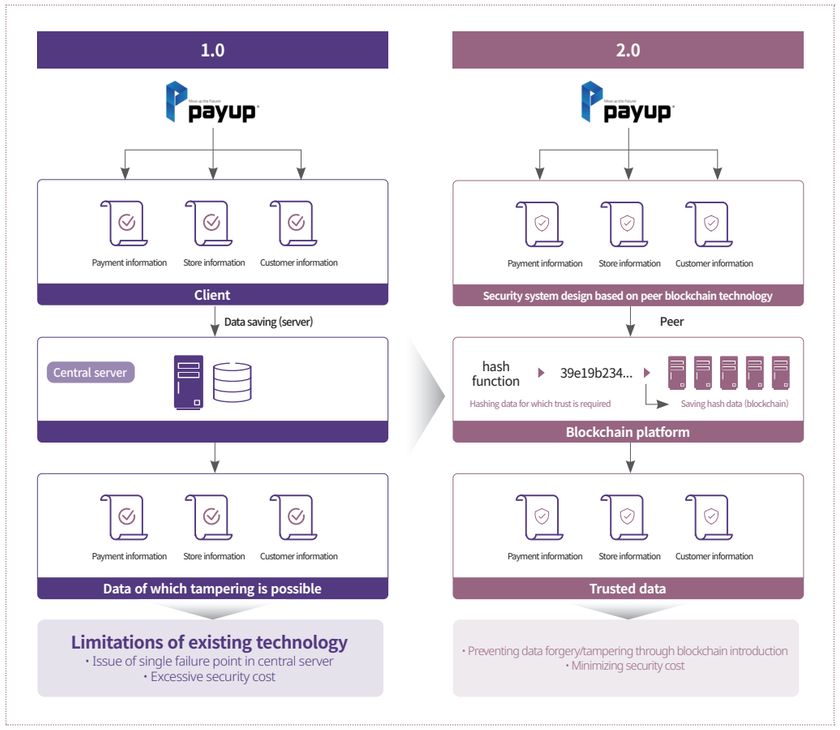
About Solution

A blockchain-based ledger management system has been developed. With security ensured through the application of blockchain technologies, the system provides reliable blockchain-based data to prevent various accidents of PG companies.
The integrity of blockchain-based transactions is verified. Pay chain is executed in the state for event processing, such as information exchange between nodes for blockchain network configuration, network connection, transaction spreading and blockchain consensus.

- Developing P2P network, security and encryption technologies as well as consensus technology which is a key blockchain technology
- Developing advanced platform to prevent forgery/tampering in payment system, such as blockchain structure, saving method, consensus element technology, etc.
- Rest API service for platform interface
- Function to create block at payment transaction saving request
- Function to search new block at payment transaction block search request
- Verification function for forgery/tampering of payment transactions

Advanced blockchain platform of mobile payment platform

Verifying transaction integrity



Features

▸ Through ledger management with stability secured through blockchain technology, users can safely manage their transaction information and assets

Applications

Category	Description
payup	• Management of transaction details for PG payment system

Implementation Case

Period	Project	Owner
2018	• Development of mobile payment platform technology in connection with social networks service	Small and Medium Business Administration

Electronic document distribution management system, “PINO”

Solution Information

Name of Solution | PINO

Solution Category | Electronic document distribution and management solution

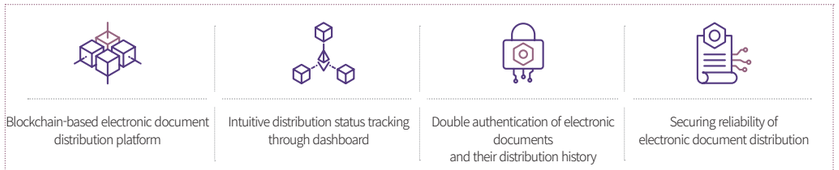
Core Technology | Blockchain, encryption, document authentication, information link

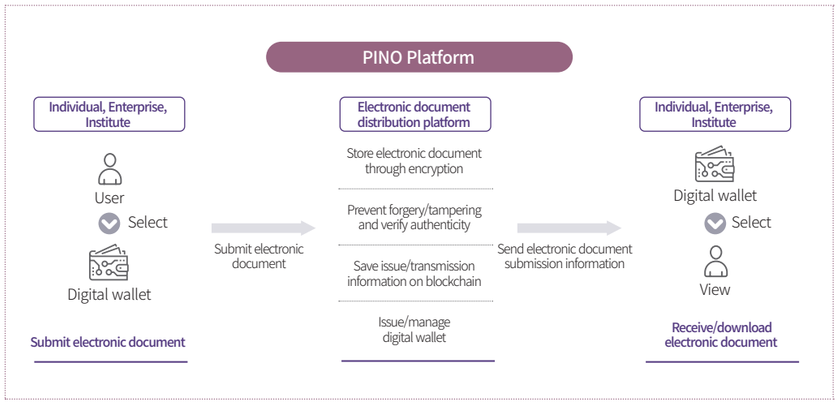
Developer | SolideoSystems (www.solideos.com)

Inquiry | service@pinokr.com
02-761-9281

About Solution

This is a blockchain-based electronic document distribution platform that provides an integrated electronic document issue/storage/delivery/tracking system for online distribution of the documents. Applicable to enterprises and associations that intend to provide trust-based electronic document distribution service, this platform offers services according to customers’ informatization environment, such as portal service use and integration with customers’ legacy systems using API.





#Blockchain #Electronic Document #Official Document #Certificate #Qualification

Features

Safe Service

- Double security using blockchain & encryption technology following digital signature by document distribution stage
- Ensuring security through malware detection within document prior to distribution
- Providing biometric security system using fingerprint/face recognition technology
- Providing authentication system with document issue/distribution system and internal program applied

Convenient Service

- Ensuring convenient document issue and management through digitalization of decentralized documents
- Enabling electronic document submission by members and non-members through digital wallet and corporate mailbox
- Monitoring on document distribution status to control electronic document creation and submission, etc.

Service Specialized to Enterprises

- Applied to integration with legacy system by providing diverse APIs (RESTFul) for electronic document distribution
- Ensuring efficient document management by creating mailbox within representative wallet and designating person in charge

Applications

Category	Description
Safe Distribution	• Guaranteeing safety in document distribution process based on blockchain
Anti-tampering	• Authenticating documents based on the time of data creation
Efficient Organization Management	• Enabling conversion of various data to electronic documents, and providing document management function by department

Platform for skin diagnosis and detailed reporting through smart phone, “Skin diagnosis SDK”

Solution Information

Name of Solution | Skin diagnosis SDK
Developer | THEBALL.HOLDINGS
Solution Category | Blockchain system establishment
Inquiry | teddy@cosball.io, 010-4015-3463
Core Technology | Skin detection using camera and skin condition analysis through AI

About Solution

Skin diagnosis SDK analyzes user’s skin information, and provides a detailed report.
Data are accumulated using blockchain, and the solution is further upgraded using the accumulated data.

Analyzing skin information

Using blockchain

Features

- **Implementation regardless of operating system such as Windows, Android or iOS**
- **Providing a version that can be used immediately without installation through simple pasting and a version enabling detailed customizing by developer**
- **Swift introduction at low cost to industries requiring skin information measuring and diagnosis**
- **Continuous improvement in recognition rate**
  - Continuous learning of customized skin information in blockchain to enhance AI recognition rate

#SKINTECH #SKINDETECT #Skin Measuring App #Skin Information #Skin Diagnosis

Applications

Category	Description
Cosmetics	• Enabling users to recommend cosmetics using skin diagnosis information
Medical	• Enabling users to suggest areas requiring improvement using skin diagnosis information
Entertainment	• Applicable to fashion, virtual fields, etc. using skin diagnosis information

Implementation Case

Period	Project	Owner
2020	• Skin diagnosis app development for COSBALL	COSBALL
2023	• META21 skin diagnosis and cosmetics subscription algorithm • Advertising-type eye tracking service, CAPP	META21 Global CTOMORROW.LTD

Real-time wallet monitoring system for transparent digital asset management, “Hi-tLenz”

Solution Information

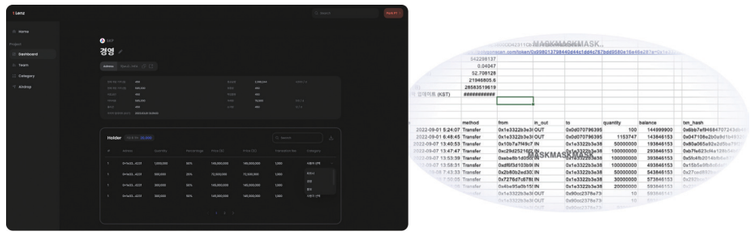
Name of Solution | Hi-tLenz
Solution Category | Real-time wallet monitoring

Developer | HiFive Lab (hifivelab.io)
Inquiry | gihoon.kang@hifivelab.io
010-3268-4024

About Solution

Real-time monitoring by token and address	Token-based distribution volume check	Wallet-based transaction history check	Real-time accounting for digital assets in connection with accounting system

- Real-time tracking of overall token distribution amount
- Real-time monitoring of wallet addresses under root wallet address and smart contract
- Naming and real-time notification of target/key wallet addresses
- Providing large-scale airdrop function for business convenience
- Providing convenient monitoring system for security token issuing partners



Features

- Real-time tracking of token distribution amount
- Managing key wallet addresses using wallet address sub-tree
- Real-time monitoring on target addresses
- Real-time calculation of total assets for registered address

#Token Monitoring #Wallet Monitoring #Distribution Volume Control
#Digital Asset Management #Integration with Accounting System

Applications

Category	Description
STO Platform Monitoring	• Real-time monitoring on target/key addresses (wallet) • Managing large-scale/key wallets of business
CBDC Platform Monitoring	• Real-time monitoring on target/key addresses (wallet) • Managing large-scale/key wallets of business
Digital Asset Platform Monitoring	• Real-time monitoring on target/key addresses (wallet) • Linking total amount of digital assets to accounting system real-time

Solution with blockchain technology, “HealthBridge”

Solution Information

Name of Solution | HealthBridge
Developer | JEYUN MEDICAL (www.jeyunmedical.com)
Solution Category | Remote contactless monitoring service
Inquiry | jwnah@jeyun.com, 053-581-0295
Core Technology | HealthBridge v1.0

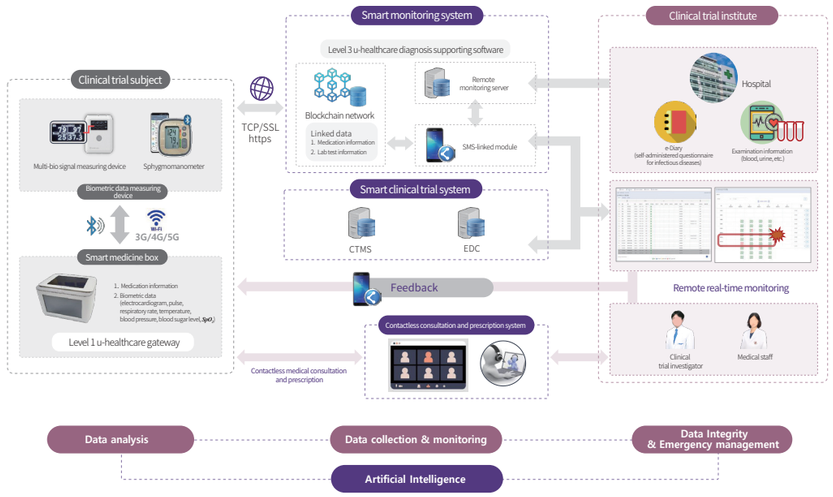
About Solution

This is a remote contactless monitoring service provided on the basis of the real-time medication compliance rate monitoring and bio signal measuring device integration technologies.

Home gateway | Home monitoring service | Web advisor

Features

- Home gateway to collect biometric data of clinical trial subjects
- Collecting and analyzing biometric data of clinical trial subjects at home (medication compliance rate, electrocardiogram, temperature, weight, blood pressure, blood sugar level) and linking the data to third party
- Evidence-based web advisor



#Real-time Medication Monitoring #Contactless Treatment #Web Consultation #Blockchain

Applications

Category	Description
Link between Self-diagnosis and Medical Institute	• Contactless control of chronic and infectious diseases
Self-diagnosis, Medical Institute, Dementia Center, Public Health Center	• Contactless management of cancer, dementia and elderly patients
Clinical Trial Institute, Pharmaceutical Company, CRO	• Contactless smart clinical trial on pharmaceuticals and health supplements

Implementation Case

Period	Project	Owner
2019	• Stage 1 of smart clinical trial/management service verification project	Kyungbook National University Hospital
2022	• Stage 2 of smart monitoring-based smart clinical trial verification project	Kyungbook National University Hospital

DID System Establishment/ Management

PART 2. About Solution

79. DX Badge
80. Magic DID
81. MetaPass
82. DID-based data platform
83. Integrated decentralized ID multi-level interpreter
84. BTPASS
85. Object DID
86. SWDID
87. SWPASS
88. ANYPASS
89. OmniOne Digital ID
90. WizID
91. initial
92. Jamongkumong
94. PBT platform

Digital badge platform for blockchain and DID-based qualification/training certification, “DX Badge”

Solution Information

Core Technology	DX Badge	Developer	DX WORKS (www.dxworks.kr)
Solution Category	Blockchain & DID-based certification digital badge platform	Inquiry	daniel.lee@dxworks 070-8656-0670
Core Technology	Open Badge 2.0 and 3.0, Decentralized Identifier (DID), Hyperledger Fabric v2.3 or v2.5, etc.		

About Solution

This is a digital badge platform for blockchain and DID-based qualification and training certification with IMS Global OpenBadge 2.0 or 3.0 applied.

- **Simple Digital Badge Issue Service**
  - Issuer service (list/details, registration/modification)
  - Badge issue service (details/creation/modification, etc.)
  - Badge award service (list, individual/bundle)
- **Digital Badge Chief Manager Service**
  - User management, API key and integration management
  - Log management, admin. management
  - Status management (digital badge, NFT)
- **User Backpack Service**
  - Individual digital badge management
  - Collection (list/details/creation/modification, addition/sharing)
- **Data Backup and Recovery Service**

#Digital Badge #Digital Authentication #OpenBadge #International Standard #Blockchain/DID

Features

- **Business**
  - Providing digital certification services including badge service development, verification/collection/issue/management using blockchain and DID-based digital badge platform
- **User**
  - Between public/educational service sector and private/enterprise sector, public/educational service sector is expected to be the largest market, badge is used to motivate fulfillment of qualification/training and learning goals at schools, universities and private institutes, etc.
- **International Standard Applied**
  - IMS 1Etech OpenBadge 2.0 or 3.0, for OpenBadge 3.0, in particular, supporting blockchain and DID-based service
- **Application/Use**
  - Blockchain/DID-based performance certification, emblem, accomplishment, technology, digital certification (verification) for quality or interest according to learning/qualification/training course Application Case) National qualification/training digital badge service development for Human Resources Development Service of Korea in 2023, DX Badge 3.0-based service development

Applications

Category	Description
Training and Completion Certification	• Education/course completion certification, etc. for universities and educational institutes
Self-development	• Certification service for qualification/training, etc. in relation national competency standards (NCS), etc
Employment	• Badge-based learning path for employment/re-employment service linked to competency development
Certification and Proof	• Certification service for technology, quality and performance, rating, etc.
Learning Platform	• Demand for digital learning on online platform, etc. increasing, used as badge for learning

Implementation Case

Period	Project	Owner
2023	• Supply and demand-based prototype production support project (blockchain-based training certification digital badge service development (based on OpenBadge 2.0)) • Korea Internet & Security Agency project for blockchain promotion and spread in public sector (Human Resources Development Service of Korea, national qualification/training digital badge service development (digital badge, API link and development))	Daegu Digital Innovation Promotion Agency Time Consortium Contractor: Megazone

Blockchain-based identification solution using the concept of self-sovereignty “Magic DID”

Solution Information

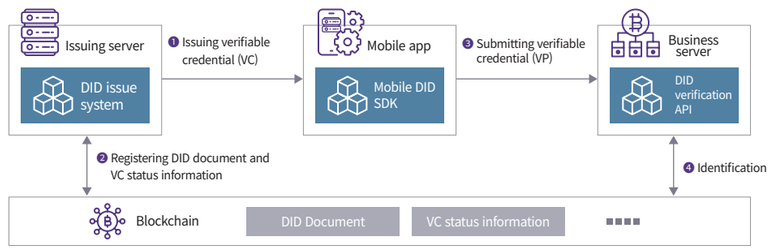
Name of Solution	Magic DID	Developer	DREAM SECURITY (www.dreamsecurity.com)
Solution Category	User authentication	Inquiry	sskim@dreamsecurity.com 02-2146-9531
Core Technology	Decentralized identifier (DID), PKI, encryption		

About Solution

DID is an identifier or an identification system managed in a trusted decentralized environment that can be verified with decentralized identity. Magic DID offers a blockchain-based identification service with which DID technology users can control their own personal data using the self-sovereignty concept.

Creating key pair, DID and DID document (including DID and public key), and registering them in blockchain	Creating verifiable credentials through collection of claims provided by users	Securely saving and managing credentials sent by issuing organizations in user’s mobile app
Creating and submitting verifiable presentation based on essential identity information according to identification request of business server	Verifying identity based on DID document and VC status information posted on blockchain	Providing web-based management tool

System Configuration



※ VC: Verifiable credential, VP: Verifiable presentation

#DID #Self-sovereignty Concept #Identification #Credential #PKI

- **Mobile DID SDK**: SDK that can be applied to user’s mobile app, used in DID and DID document creation, VC management and VP submission according to request from business server
- **DID Issue System**: System issuing user identity information, used in VC issue and transmission to user and DID document and VC status information registration through link to blockchain
- **DID Verification API**: Verification API applied to business system, used in identity information verification through link to blockchain
- **Blockchain**: Saving and managing DID document, credential status information, etc.

Features

Complying with Domestic and International Technology Standards

- Complying with international DID standards such as W3C and domestic DID technology standards, solution continuously updated through participation in standard activities, security improved with encryption module verified by the National Intelligence Service
- Complying with international DID technology standards such as W3C
- Supporting RSA, Ed25519 and secp256k1 (Bitcoin public key) digital signature algorithms, etc.
- Supporting link with DID authentication systems of other blockchains through Universal Resolver by complying with DIF international standard

Security

- Encryption/decryption of transmission data in network section, encryption/decryption of key user information using WBC, zero knowledge proof through selective information submission, compliance with security requirements through DID private key backup and recovery
- Applying encryption module of NIS and complying with guidelines in relation to security requirements such as for key generation, digital signature and encryption
- Encrypting/decrypting transmission data in network section between issuing organization and user, and user and verification agency
- Providing DID URL reverse relation function to obtain specific resources in DID document
- Safely saving DID private keys and credentials managed by users through encryption using WBC (White Box Cryptography) solution and password
- DID private key backup and recovery using KMS solution, PDS (Personal Data Storage), mnemonic code, etc.

Compatibility

- Not dependent to specific blockchain or alliance, supporting various blockchain platforms to guarantee compatibility and universality
- Used in DID-based mobile ID authentication at integrated login through integration with SSO solution
- Used in biometric authentication upon user identity information submission through integration with FIDO solution
- Providing decentralized self-sovereignty identification service based on facial information through facial recognition technology collaboration with DID

Functional Excellence

- Solution launched on the basis of DID jointly developed with ETRI since 2018, functional excellence secured through solution upgrade based on continuous R&D until 2023
- Upgrading the functions of Universal Resolver for interworking with other blockchain platforms, zero knowledge proof for anonymity of user and transaction information, delegator to delegate one’s identity information to another, etc.

Applications

Category	Description
Online Login	• Online login through VC
Mobile identification	• Used online and offline as mobile ID to replace plastic ID card (user authentication, door opening/closing, device control, etc.)
Financial Transaction	• Financial transactions including user authentication and account certificate request
Certificate Management	• Certificate management including document issue and submission, history management, etc.

Implementation Case

Period	Project	Owner
2020	• Establishment of wage guarantee portal with zero downtime and new technology application • Establishment of platform for joint blockchain use	National Health Insurance Service Daegu Metropolitan City
2021	• Blockchain-based general REC management system establishment and diffusion • Blockchain platform and service development for KEPCO • Establishment of blockchain-based contactless National Pension recipient identification system • Smart-Pass service development for Busan Eco Delta Smart Village	Korea Southern Power Korea Electric Power Research Institute National Pension Service K-water
2022	• Health insurance eligibility system upgrade • DID-based identification and contactless civil service platform development • Establishment of blockchain-based integrated learning history management platform • Integrated eco-friendly mobility service platform	National Health Insurance Service Government Employees Pension Service Korea Education and Research Information Service Daegu Metropolitan City
2023	• Illegal benefit prevention system establishment	Teachers Pension

Handbook of Blockchain
Solutions & Companies
2023

Blockchain DID-based mobile employee card, “MetaPass”

Solution Information

Name of Solution	MetaPass	Developer	CPLABS (www.cplabs.io)
Solution Category	Digital signature/authentication, DID/digital ID, document/content authentication	Inquiry	contact@cplabs.io 1899-9942
Core Technology	Metadium 2.0, DID (complying with W3C DID recommendations)		

About Solution

MetaPass is a mobile employee card solution based on decentralized ID (DID) authentication using smartphone.
This solution enables contactless user authentication with personal data protection function through introduction of the DID authentication-based mobile employee card system. It is a safe system for access control conveniently used on smartphones to eliminate the need for conventional plastic ID card. Supporting both NFC and BLE, the employee and ID cards issued can be used in not only Android, but also iOS devices. In addition, the MetaPass QR can be used in access control.
2FA (2-factor authentication) is also provided using the QR code recognition function for groupware login, training attendance, etc. to ensure stability and convenience.

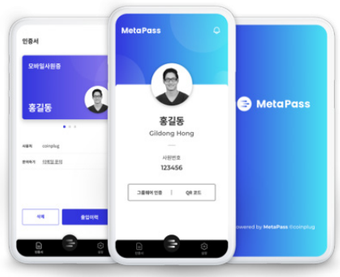
Issuing contactless employee card and access pass	Entering office using mobile device	Certification and digital signature	2FA	Managing issuance status and history

Features

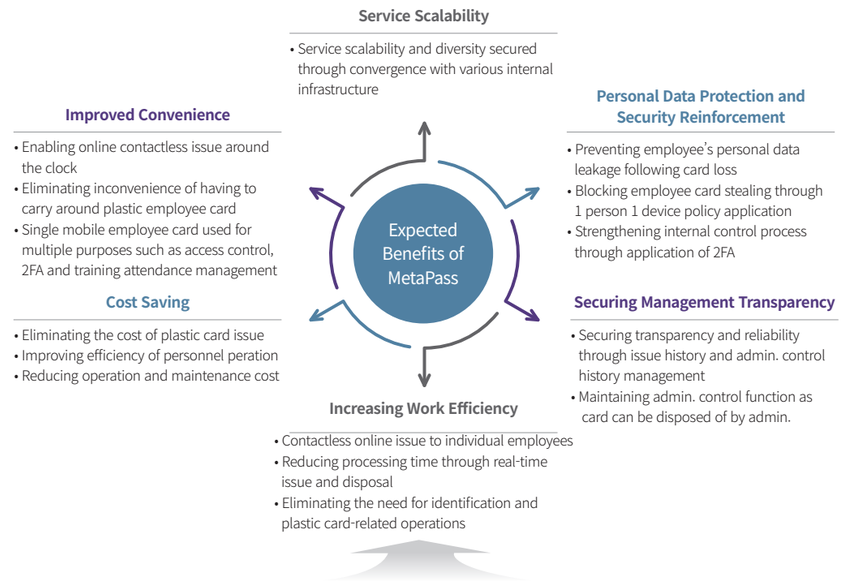
▸ **Further Strengthened Security**
- Addressing forgery/tampering and stealing issues through management on user’s own mobile device
- 2FA application to admin. system for illegal user account access prevention and secure management of the saved data

▸ **Compatibility Secured according to Smartphone Model (NFC & BLE simultaneously supported)**
- Diverse additional services based on mobile employee card
- Simultaneously supporting Android (NFC) and iOS (BLE)

▸ **Scalability to Various Services**
- Applicable to various services such as digital signature, system integration and training attendance including identification



#Blockchain #DID #Personal Data Protection #Identification #Mobile Employee Card #Mobile ID Card



Scope of use expanded through application of blockchain DID technologies including digital signature and electronic approval

Applications

Category	Description
Employee Card Issue	• Contactless online employee card issue to mobile device • Addressing forgery/tampering and stealing issues through management on user’s own mobile device
Office Access Control	• Employees entering office with mobile card, not plastic card
2FA	• Groupware login and operation approval processed through mobile card QR code scanning and employee identification
Digital Signature	• Used for various operations requiring identification and signature (training attendance, employment/ annual salary agreement, book loan, etc.)

Implementation Case

Period	Project	Owner
2020	• Blockchain DID-based mobile employee card system establishment (first for public organization) • Busan Technopark employee card, CENTAP	Korea Internet & Security Agency Busan Technopark
2021	• Establishment of blockchain DID-based digital employee card system	Korea Technology Finance Corporation
2023	• Establishment of blockchain DID-based digital employee card system for Government Employees Pension Service	Public Procurement Service

DID-based cloud data management and security platform, “DID-based data platform”

#DID #Data Platform #MyData #Decentralized Data Hub Technology #Blockchain

Solution Information

Name of Solution	DID-based data platform	Developer	IBCT (www.ibct.kr)
Solution Category	DID-based data platform establishment/ management	Inquiry	dhkim@ibct.kr 02-6959-1250
Core Technology	LEDGIS blockchain MainNet, DID platform, decentralized data hub technology (DIDH), key backup and recovery system, asynchronous key algorithm-based data encryption technology		

About Solution

Based on the user’s DID, personal data are encrypted, and separately stored in the cloud personal storage. This platform with optimized data management and security functions provides access control for the data users who wish to have data shared. When a data user requests data, the data provider checks the details of the data request and approves partial or full data sharing. Then, the data user processes and combines the collected data, and provides a customized service to the data provider. As such, this data platform enables users to strengthen and create MyData service business using data.

DID creation/verification/ management

Separate storage/management of identification/de-identification data

Private key backup/recovery

Asynchronous key algorithm-based data encryption

Data search

Data request/approval/ transmission

- **Data Integrity Verification with Zero Knowledge Proof Technology**
  - Verifying integrity of original data with VC-based blockchain data record (structured/unstructured data)
- **Strengthened Security for Data Sharing**
  - Strengthening data protection from hacking and ransomware attacks by using data encryption technology for data sharing
- **DID-based User Identification/Credentials**
  - Excellent in preventing personal data loss caused by external hacking and management of objects permitted for access to various business systems through DID authentication
- **Data Management by Individuals**
  - Administering identification/de-identification data saving and management through DIDH and selectively sharing data (partially or fully) according to approval by data subject
- **Providing Data-based Customized Service**
  - Enabling data users to strengthen existing services and create new business by providing customized service based on customer data

Applications

Field	Description
DID-based Identification Service	• Issuing ID cards for various purposes, such as resident card of local governments, student ID and employee card of public and private institutes, based on DID for storage in digital wallet and use in identification
MyData Service	• The DID-based data platform enables users to conduct self-initiated data management, and data users to provide MyData service offering customized services by collecting and combining high-quality data through data search and request
Contactless Authentication/ Payment Service	• Approval, certification and payment services for identification, access control, etc. through integration between biometric authentication (face, iris, etc.) and DID-based data platform

Implementation Case

Period	Project	Owner
2021	• Community-based personal data relay service platform, Myselfdata	KOREA Data Agency
2022	• Ledgis NFT marketplace	Internal service
2023	• Establishment of intelligence dynamic system using AI and CCTV videos	National Information Society Agency

Solution for standardization and compatibility between decentralized Ids of heterogeneous domains, “Integrated decentralized ID multi-level interpreter”

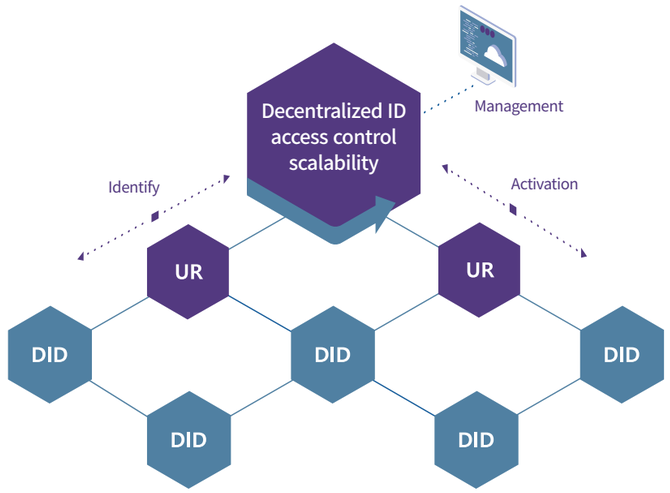
Solution Information

Name of Solution	Integrated decentralized ID multi-level interpreter (KSDID HUR v1.0)	Developer	K4SECURITY (www.k4-security.com)
Solution Category	DID digital wallet, self-sovereignty identity management	Inquiry	Contact@k4-security.com 1644-8384
Core Technology	W3C DIDs v1.0, W3C DID Resolution v0.3, DIF DID Registration(Pre-Draft), W3C DID Specification Registries		

About Solution

Managing information identification and verification information in relation to the interpreter to guarantee interoperability between decentralized ID systems, and providing scalability for mutual use of a multiple number of hierarchically structured interpreters through integration

Integrated Decentralized ID Multi-level Interpreter



Integrated DI standard interpreter (universal resolver/ registrar) access control

Integrated DI standard interpreter (universal resolver/ registrar) status management

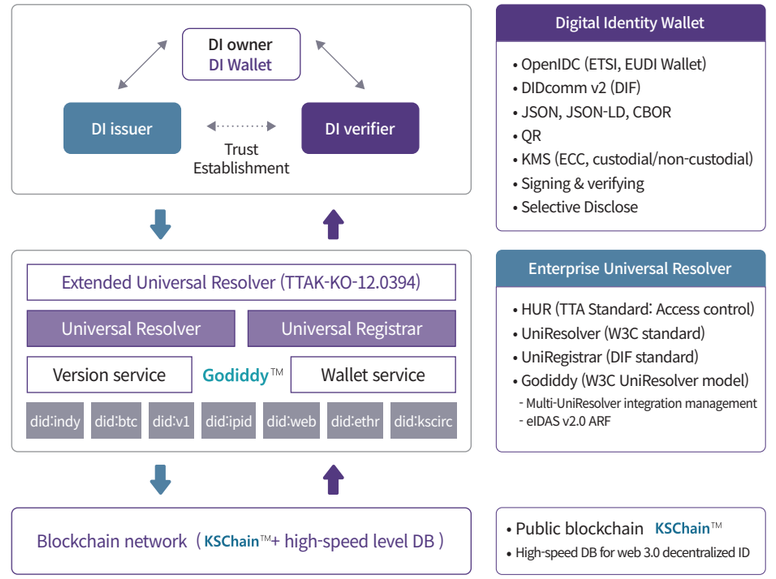
#Blockchain #Information Security #DID #Digital Wallet #Self-sovereignty Identification

Features

▶ **Unlike the existing integrated interpreter, the solution was developed in a structure enabling decentralized ID interpreter maintenance and access privilege setting by providing decentralized ID document return, registration management, and access control management and change information update functions for the decentralized ID interpreter**

- Interoperability
  - Managing information identification and verification information in relation to the interpreter to guarantee interoperability between decentralized ID systems, and providing scalability for mutual use of a multiple number of hierarchically structured interpreters through integration
- Access Control
  - Enabling decentralized ID interpreter maintenance and access privilege setting by providing decentralized ID document return, registration and access control management and change information update functions for the decentralized ID interpreter
- Scalability
  - Conducting management through expansion and integration of information of at least one identifiable decentralized ID interpreter, and controlling access to verifiable data storage through decentralized ID interpreter

Decentralized ID Self-sovereignty Identification



Applications

Field	Description
Finance	• Improving safety of financial transactions, such as digital asset trading, through decentralized ID interoperability technology, very useful in terms of security
Secure Authentication	• Used as technology to protect online identity, prevent data tampering and strengthen personal data protection for Internet users based on decentralized ID technology
Insurance	• Expected to play an important role in simplification of insurance contract and benefit processing operations, and digitalization of insurance industry based on decentralized ID interoperability technology
Government	• Simplifying certification process through integration of certificates issued by public institutes and those owned by individuals based on decentralized ID technology
IoT Security	• Checking device identity and strengthening security by using decentralized ID in interaction between IoT devices Applicable to various IoT fields including smart home, smart city and self-driving vehicle

Implementation Case

Period	Project	Owner
2022	• Blockchain POC integration technology verification analysis/design/development • Digital currency wallet key management system development	Shinhan Card Bank of Korea
2023	• KOMSCO integrated digital wallet development	Korea Minting and Security Printing Corporation

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MTWOKOREA

DID-based bonded transport vehicle simple mobile authentication service, “BTPASS”

#Blockchain #DID
#Mobile Authentication
#Bonded Transport
#Import and Export Freight

Solution Information

Name of Solution	BTPASS	Developer	MTWOKOREA (www.mtwokorea.com)
Solution Category	BaaS system	Inquiry	www.mtwokorea.com 051-937-1000
Core Technology	Hyperledger Fabric & Indy		

About Solution

This is a blockchain DID-based bonded transport vehicle qualification management and verification platform.

Online report/reception by bonded transporters, requirement review and registration	Mobile issue of bonded transporter/vehicle DID certificates	Mobile QRC authentication for bonded transporter/ vehicle DID certificates	Real-time bonded transport, DID issue/verification history monitoring

Features

- SaaS blockchain system provided in cloud environment, convenient use through mobile app installation
- The first blockchain-based credentials service applied to bonded transportation field
- Strengthening reliability of bonded transportation, creating contactless business environment and contributing to efficiency improvement based on the strengths of blockchain technology

Applications

Category	Description
Bonded Transport (import and export logistics)	• Used in credentials for bonded warehouse entry by bonded transporters and vehicles
Logistics Industry	• Universally applied to freight transport history tracking, certification, etc.

Implementation Case

Period	Project	Owner
2022	• Blockchain-based bonded transport management and mobile authentication service • Blockchain-based bonded transport management and mobile authentication service	DW Logistics Buwon Logis

Korea's first blockchain-IoT convergence DID service, "Object DID"

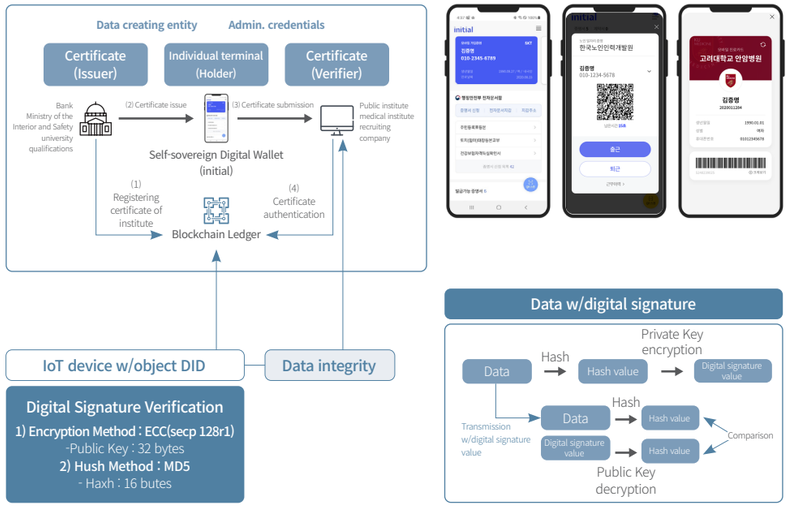
Solution Information

Name of Solution	Object DID	Developer	SK telecom (www.sktelecom.com)
Solution Category	Blockchain, DID	Inquiry	jeonbs@sk.com 080-011-6000
Core Technology	Hyperledger Indy v1.12, Hyperledger ARIES, Hyperledger Fabric v1.4, SKT Object DID SDK 1.0		

About Solution

In 2021, the object DID-based safety monitoring for dangerous buildings was implemented through a pilot project of the Korea Internet & Security Agency.
This technology verifies the qualification and integrity of IoT devices generating data along with data producer/admin. credentials by expanding human qualification/identification technology to objects (IoT).

- DID applied to object as the first in Korea
- No risk of data forgery/tampering at collection and transmission
- Convenient to identify data authenticity



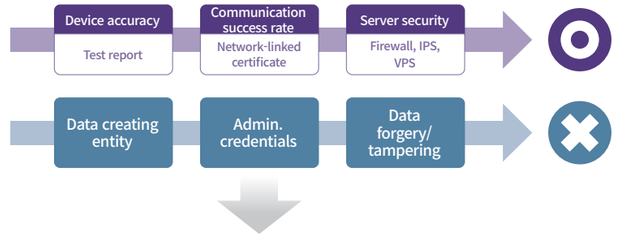
<SKT Blockchain-based Object DID>

#Blockchain #Object DID #Safety Monitoring

Features

▶ **Fundamentally preventing risk of quality certification violation/manipulation by human intervention through object DID technology application**

Blocking possibility of forgery/tampering by specific persons as quality information is saved and processed through dispersion in blockchain nodes



Reliable security technology **required for the** entire process of IoT data creation and distribution

Applications

Field	Description
Safety Monitoring of Old Buildings	• Blockchain-based hazardous structure safety examination platform, KISA pilot blockchain project in 2021 • Blockchain IoT-based intelligent urban safety platform, MoLIT smart city innovation technology development project in 2022
Open Field Digital Farming Standardization	• Open field digital farming activation through business agreement between SKT and National Institute of Agricultural Sciences" • Development of open field farming digitalization technology using data, RDA agricultural science and technology R&D project in 2022
Certification for Lab Practice	• Object DID-based lab practice equipment use certification for digital innovation sharing university hub LMS data portal system establishment project in 2022
New Areas (2023)	• Verification of cultivation environment using smart farm container • Blockchain-based safety inspection and verification for firefighting facilities • Medical cannabis cultivation and distribution management certification • Renewable energy production amount monitoring

Implementation Case

Period	Project	Owner
2021	• Blockchain-based hazardous structure safety examination platform	Korea Internet & Security Agency
2022	• Development of open field farming digitalization technology using data • Blockchain IoT-based intelligent urban safety platform	Rural Development Administration Ministry of Land, Infrastructure and Transport
2023	• Drone verification city development for Jeju-do	Ministry of Land, Infrastructure and Transport

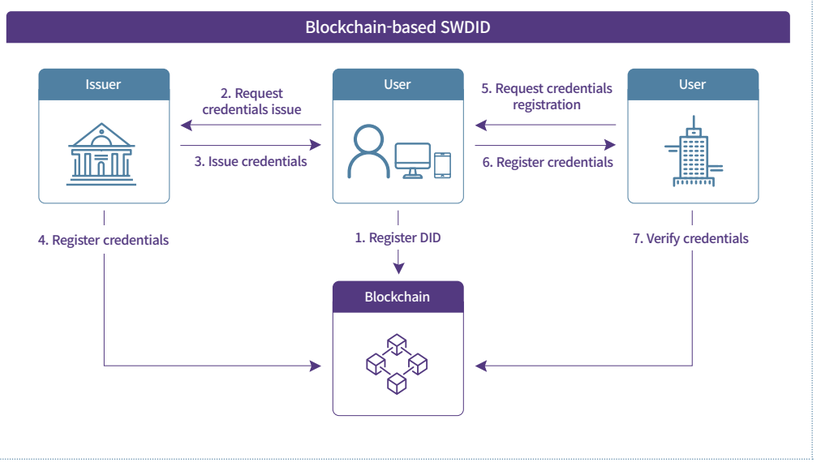
DID service platform providing self-sovereignty decentralized ID authentication based on blockchain, “SWDID”

Solution Information

Name of Solution	SWDID	Developer	SW Empire (www.swempire.co.kr)
Solution Category	DID service platform	Inquiry	cmsjjang@swempire.co.kr 031-972-0409
Core Technology	Hyperledger Fabric, W3C DID		

About Solution

This is a DID service platform offering blockchain-based credentials service, which has emerged in line with the transition from centralized identification system of the past to the self-sovereignty decentralized ID authentication system.



#Blockchain #DID #Identity Verification #Decentralized ID #FIDO-based DID

Features

- Providing SW Empire’s highly reliable blockchain platform-based DID service
- Comprehensive experiences, expertise and technological personnel for blockchain establishment - Reducing errors and shortening establishment period
- Supporting integrity verification using data token information in communication section
- Creating certificate key value as necessary and deleting it immediately without storing it in client (patented)
- Strengthening transaction security through encryption storage of authentication information, TSL security, HTTPS web communication, etc.
- Strengthening user authentication using various authentication means such as FIDO-based biometric authentication, security PIN, pattern, mOTP and browser security PIN
- Increasing reliability and scalability by complying with W3C DID global standard
- Enabling certificate submission through identity information and form management (patented)
- Supporting DID recovery service through cloud storage

Applications

Category	Description
Educational Institute - Mobile Student Card	• Student authentication and discount benefits, certificate management, certificate management and submission functions in mobile device, etc.
Private Enterprise - Mobile Employee Card	• Electronic pass, employee authentication and attendance record management, etc.
Credentials Management Agency - Mobile Qualification/Certificate Management	• Qualification/certificate issue and submission
Public Institute - Mobile Citizen Card	• Citizen access control, city hall information, reduction information
Medical Institute - Digital Vaccination Certificate	• Vaccination certification and history management
Financial Institute - Financial Application Account Management	• User authentication and account certification request

Implementation Case

Period	Project	Owner
2021	• Blockchain-based self-sovereignty DID service platform development	Ministry of Science and ICT
2022	• Integrated platform of biohealth innovation sharing universities • Identification service platform based on blockchain service platform with upgraded admin. function	Dankook University National IT Industry Promotion Agency

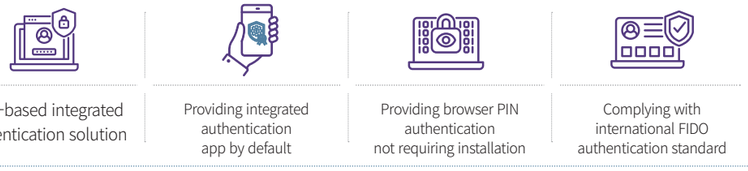
From FIDO biometric authentication to NAVER and Kakao simple authentication Blockchain-based integrated simple authentication solution, “SWPASS”

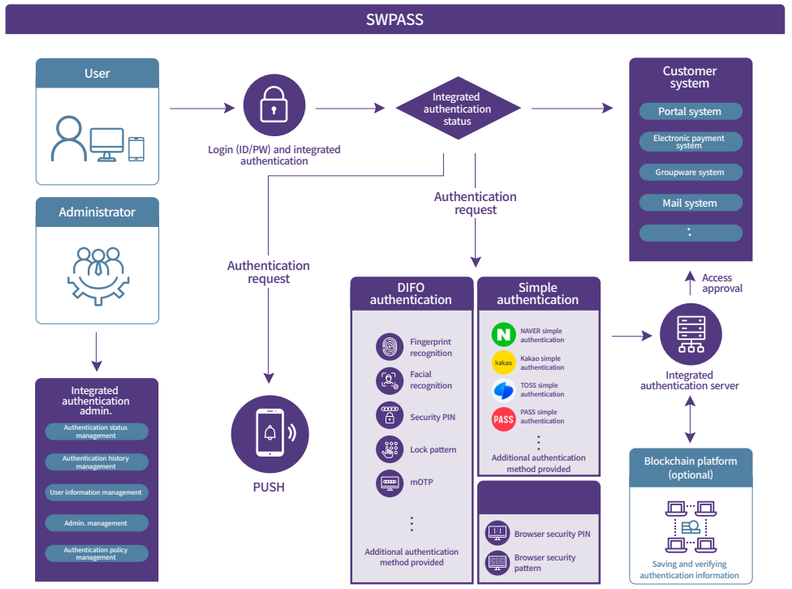
Solution Information

Name of Solution	SWPASS	Developer	SW Empire (www.swempire.co.kr)
Solution Category	Integrated authentication service platform	Inquiry	cmsjjang@swempire.co.kr 031-972-0409
Core Technology	Hyperledger Fabric, FIDO		

About Solution

The solution increases user convenience and security by reducing the inconvenience and risk of authentication information loss associated with the existing ID/PW method, provides integrated simple authentication service of NAVER, Kakao, etc. in addition to FIDO-based integrated authentication solution that provides/manages a variety of authentication means, FIDO-based biometric authentication, security PIN and pattern authentication, secures integrity of authentication information by storing it on blockchain, and improves the effect of non-repudiation.





#Blockchain #DID #Identity Verification #Decentralized ID #FIDO-based DID

Features

- Provided as an integrated authentication app combining various authentication means to eliminate the need for a separate authentication app development, used as an in-app as necessary with SDK provided
- Simply linked and applied using integration API
- Providing diverse authentication means including FIDO biometric authentication, security PIN, pattern, mOTP, browser security PIN and browser security pattern
- User selecting a familiar and convenient authentication method
- Providing simple authentication functions such as of Kakao, NAVER, PASS and TOSS
- Providing browser authentication method not requiring installation for cases where app installation is difficult or user intends to use authentication function without an app installation
- Providing browser security PIN authentication and browser security pattern authentication
- Saving and verifying authentication information using blockchain service platform of SW Empire
- Saving authentication information in a safe space in user terminal, blocking personal information leakage as information is not saved in server
- Complying with international FIDO standard, using domestic and international standard encryption algorithm
- Providing standardized environment supporting Any OS and Any Browser

Applications

Category	Description
Financial/Payment Service	• Simply and conveniently using various financial services, such as login, transfer, account opening and payment, through biometric authentication • Providing convenient digital signature function for electronic contract, remittance, withdrawal, etc.
Second Authentication (MFA)	• Protecting information through second authentication at login for internal corporate, university and portal websites • Providing MFA (multi-factor authentication) environment that is most difficult to hack
Public Service, Identification	• Providing convenient public service by establishing passwordless environment • Ensuring simplicity and security at login by internal employees to company portal, groupware, email, etc. (SSO linked, closed network environment supported)
Simple Authentication	• Simple authentication systems of Kakao, NAVER, TOSS, PASS, etc. applicable to sign-up, login, payment, etc.

Implementation Case

Period	Project	Owner
2019	• Blockchain platform-based integrated authentication service	Ministry of SEMs and Startups
2021	• VPIN second authentication system establishment project • Integrated authentication security reinforcement project	KUMHO E&C Seoul National University
2022	• Seoul Credit Guarantee Foundation service app establishment • Development of blockchain platform and browser security PIN authentication system optimized to service diffusion and management • Authentication solution delivery to King Sejong Institute Foundation	Seoul Credit Guarantee Foundation National IT Industry Promotion Agency King Sejong Institute Foundation
2023	• Next-generation academic information system development	Induk University

Mobile ID-based integrated enterprise service platform, “ANYPASS”

Solution Information

Name of Solution	ANYPASS	Developer	ANA (www.a-na.me)
Solution Category	Mobile identification-based convergence service platform	Inquiry	Info@a-na.me 02-6253-1003
Core Technology	Hyperledger 2.2 Anyledger (independently developed technology)		

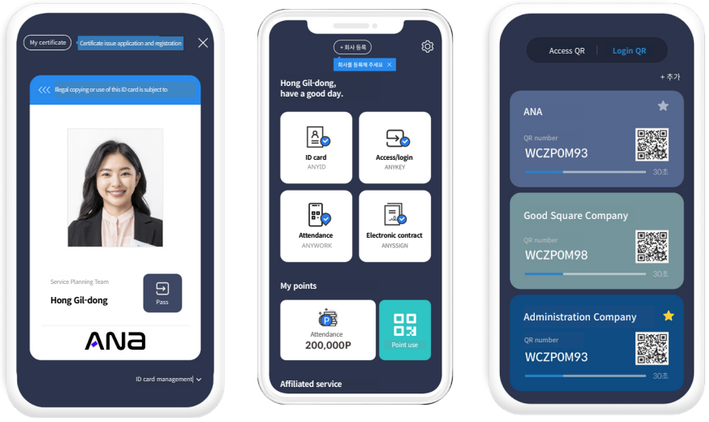
About Solution

ANYPASS is an all-in-one enterprise system that provides a range of combined authentication functions and services based on mobile ID. In addition, with security and reliability improved on the basis of the internally developed blockchain technology, Anyledger, it offers all services in a single integrated system.

Mobile ID issue and management	Providing secure login service	Access, attendance management	Providing services using mobile meal card, digital badge, etc.

- Mobile ID cards for organizations, such as schools and enterprises, can be issued and managed.
- A range of security services for an organization, such as access control, visitor appointment and secure login to online system, are provided.
- Services needed by an enterprise, such as attendance management, electronic contract and mobile meal ticket, are provided.
- A range of mobile ID card-based applied services, such as digital badge, mobile corporate transportation card (available in AOS only, service for iOS to be opened in 2024) and stress examination, are provided.

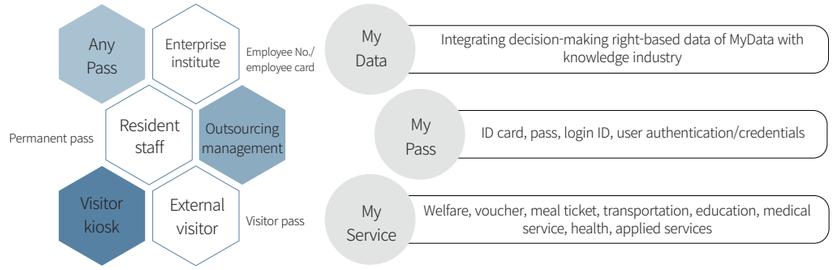
ID and Secure Login Service for Enterprises AnyPass



#Digital Badge #Mobile ID #Access Control #Secure Login #Attendance Management

Features

Convergence Service Segmented by User/Member



Providing Diverse Services through System Integration

- Link to legacy system and MyData use
- Real-time identification/credentials and data-based service
- Expansion to various services through service integration

Applications

Category	Description
Mobile Identification	• Mobile ID for enterprises, institutes, schools and organizations, and online/offline identification service
Secure Login	• Integrated online login system through FIDO and OTAC-based combined authentication
Access and Attendance Management	• Mobile ID-based physical access control (linked to facial recognition, QR, NFC, BLE and device), visitor appointment system, etc.
Electronic Contract	• Diverse contract formats, such as document, photo, voice, using blockchain-based encrypted digital signature
Applicable Services	• Digital badge, meal ticket, transportation voucher, stress examination and health check, other welfare services

Implementation Case

Period	Project	Owner
2021	• MILIPASS PDS platform and app development (operation and upgrade)	Korea Easy Payment Foundation, Republic of Korea Army, Korea Data Agency
2022	• Mobile ID-based integrated enterprise service platform, ANYPASS • Establishment of mobile system for Incheon International Airport smart pass system • Development of blockchain DID-based smart student ID app for specialized high schools in Seoul	ANA Incheon International Airport Corporation Seoul Metropolitan Office of Education
2023	• Mobile ID system establishment for the National Assembly • Upgrade and operation of High-Job High-Univ, the blockchain DID-based smart student ID card, for specialized high schools in Seoul • Upgrade of ICN SMARTPASS for Incheon International Airport	National Assembly Secretariat Seoul Metropolitan Office of Education Incheon International Airport Corporation

Handbook of Blockchain Solutions & Companies 2023

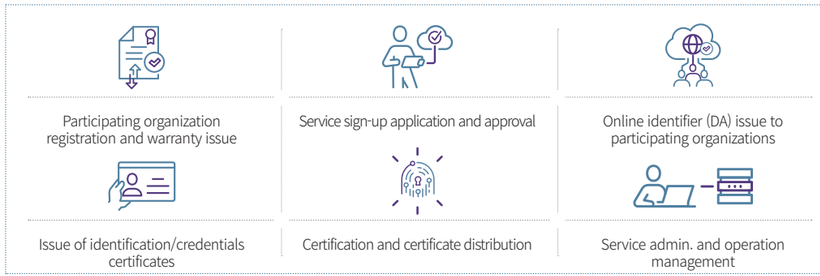
DID-based integrated SaaS platform for identification and credentials, “OmniOne Digital ID”

Solution Information

Name of Solution	OmniOne Digital ID	Developer	RAON Secure (www.raonsecure.com)
Solution Category	DID-based integrated SaaS platform for identification and credentials	Inquiry	serviceplan@raoncorp.com 02-561-4541
Core Technology	Hyperledger Fabric v2.2 LTS, DID v1.0, VC Data Model v1.1, PKI, OIDC, FIDO		

About Solution

This is a safe and reliable integrated SaaS platform for identification and credentials developed on the basis of blockchain DID technology. Organizations can provide the digital certificate issue service through mobile devices just by creating an “OmniOne Digital ID” account without having to establish a separate system, and individuals who wish to have mobile certificates issued can conveniently submit the issued certificates to various organizations using their mobile phones with the user ID provided at the first certificate issue.

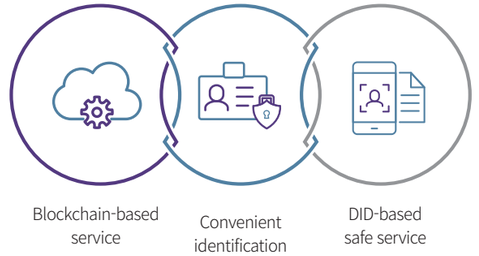


- **Participating Organization Registration and Warranty Issue**
  - Registering participating organizations (issuers, users, individuals) (forming trust chain - chain warranty for users on OmniOne platform)
  - Issuing warranty to participating organizations (issuers, users, individuals)
- **Service Sign-up Application and Approval**
  - Sign-up application for OmniOne Platform service use
  - Automatic allocation to service server upon sign-up approval
  - Cloud operation by service server for participating organizations
- **Online Identifier (DA) Issue to Participating Organizations**
  - Issuing domain identifier (digital address (DA)) to each participating organization
  - Multiple DA issue available for participants (DA consisting of unique values in domain)
- **Issue of Identification/Credentials Certificates**
  - Function to issue identification and credentials certificates (automatic eKYC execution and evidence storage at certificate issue)
  - Quick setting function based on standard template by certificate
- **Certification and Certificate Distribution**
  - Functions for identification certificate submission and credentials distribution
  - Login through decentralized ID-based simple biometric authentication
- **Service Admin. and Operation Management**
  - Separated admin. Access by issuer and user
  - Function for certificate template setting by issuer
  - Function to set list of certificates and attribute data by user

#Blockchain #DID #Identification and Credentials #SaaS #Digital ID

Features

- **Cloud SaaS**
  - Cloud-based service for identification and credentials
  - Fast and convenient use through simple sign-up process without having to install or develop system
- **Convenient Identification and Credentials**
  - Convenient online/offline use with single digital ID
  - Providing platforms for issuers, users and individuals
- **DID-based Safe Service**
  - Digital ID storage in smart phone safe zone
  - Authentication for DID issue through blockchain



OmniOne Digital ID is a customized mobile certification platform that helps various organizations including universities, enterprises and public institutes provide digital certificate mobile issuance service just by creating an account without the need to establish an internal certificate issuance system. In addition to university graduation and enrollment certificates, this solution can be applied to a wide range of certificates such as employment certificate, student ID, employee card, apartment tenant ID, membership card for specific organizations and certificate of activities.

Implementation Case

Period	Project	Owner
2022	• Mobile driver’s license service establishment	Ministry of the Interior and Safety Korea Minting and Security Printing Corporation
2023	• National digital ID design consulting for Indonesia • Joint project to issue OmniOne Digital ID-based ISIC IDs (ISIC international student card, ITIC international teacher card, IYTC international youth card)	Ministry of the Interior and Safety Keycess, Future & More

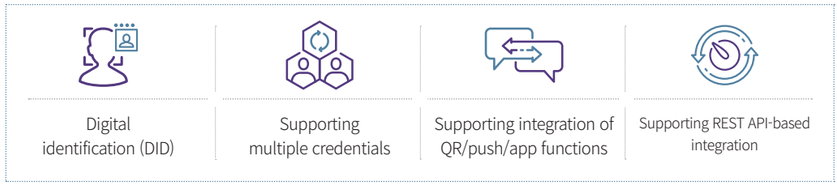
Decentralized identification infrastructure establishment solution, “WizID”

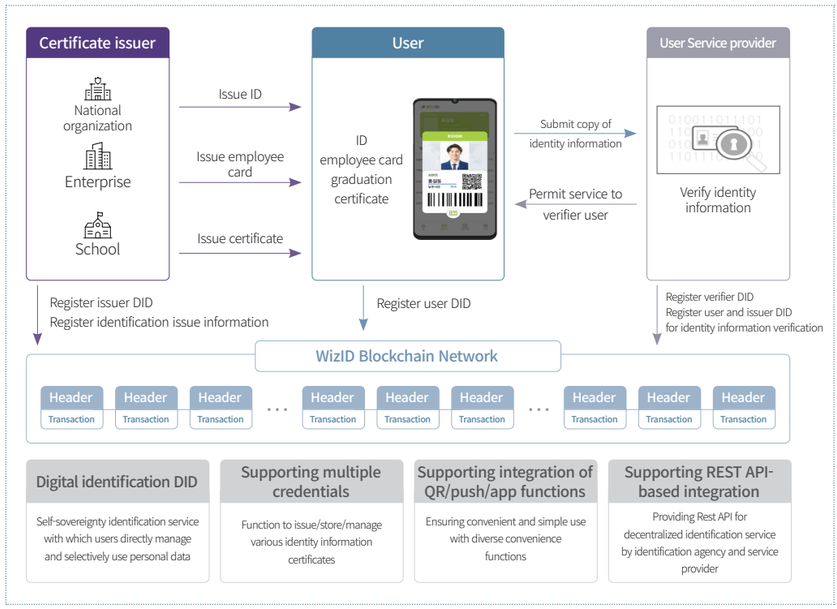
Solution Information

Name of Solution	WizID	Developer	KSIGN (www.ksign.com)
Solution Category	Decentralized identification infrastructure establishment solution	Inquiry	hyungjun.seo@ksign.com 070-7090-7819
Core Technology	Hyperledger Fabric v2.2-based		

About Solution

This is a blockchain-based decentralized identifier infrastructure solution that enables data subjects to have a complete control over their personal data by allowing them to manage their own personal data and selectively provide only the necessary information.





#Decentralized Identifier #SSI #DIS #Zero Knowledge Proof #Multiple Credentials

Features

- **Verified Reliability**
  - Secure data management through decentralized identifier complying with the W3C standard
- **Supporting Multiple Credentials**
  - Supporting issuance/management functions for various identification certificates and user identity information
- **High Security**
  - Eliminating the risk of personal data forgery/tampering through blockchain-based identification technology application
- **Providing Visibility for WizID Network Status through Web-based Admin. Tool**

Integrated dashboard for decentralized identifier infrastructure

Push/QR issue and verification

Diverse Credentials

Applications

Category	Description
Simple Authentication	• Simple user authentication through decentralized identifier (QR, NFC, authentication relay, etc.)
Digital ID Card	• Used in identification issue, such as ID card and employee card
Electronic Certificates	• Applied to the issue of various electronic certificats including employment certificate and zero knowledge proof-based certification processing

Implementation Case

Period	Project	Owner
2022	• 2021 Korea - Paraguay Digital Government Cooperation Center joint project	National Information Society Agency

Mobile identification and credentials solution, “Initial”

Solution Information

Name of Solution	initial	Developer	SK telecom (www.sktelecom.com)
Solution Category	Mobile identification and credentials	Inquiry	initial@sk.com
Core Technology	Hyperledger Indy v1.12, Hyperledger ARIES, Hyperledger Fabric v1.4		

About Solution

With this service, which uses the blockchain infrastructure and DID-based self-sovereignty identity technology, individuals can issue/check/submit their credentials and electronic documents.
Service applicants can securely save diverse electronic certificates in their own devices, and conveniently submit them to the respective institutes. Electronic certificates submitted by users can be securely verified by anyone without help from the issuing organization (forgery/tampering detection function included).
With mobile wallet implemented on open platform, the key services of initial (i.e. Credentials and electronic documents) as well as those of SKT PASS and other services can be conveniently used in other apps.

#Blockchain #Identification #Credentials #DID #Electronic Document

Features

- **Simple login through biometric authentication and blockchain without ID/password**
  - Using public key and private key infrastructure-based certificate
- **Creating different DIDs at each access to different services**
  - Eliminating privacy issues that can result from accessing a number of websites using single DID
- **Saving personal DID and certificate information in the personal device only**
  - Saving and managing information of the certificates issued in device, not on blockchain
- **Guaranteeing self-sovereignty of individuals**
  - Enabling individuals to submit only the necessary information from the certificate data issued

Applications

Field	Description
Mobile ID	• Mobile ID/student card issued with initial app and mobile wallet (PASS, Samsung Pay, etc.) and used online/offline for identification, access authentication, etc.
Device Damage Compensation Insurance Service	• initial app enabling users to conveniently have the statement of repair details and receipt necessary for mobile phone damage insurance claim issued and submit the documents to compensation center
Employment Certification Document Simple Submission Service	• Conveniently submitting required documents for job application, such as for verification of the content of resume and cover letter, to enterprise/institute using initial
Electronic Document Wallet	• Receiving electronic documents (certificates) of the Ministry of the Interior and Safety and submitting them to other enterprise/institute using electronic document wallet through initial app
Submission of Required Documents	• Enabling mobile/wired communication service subscribers to conveniently have the required documents issued and submitted using initial app and electronic document wallet during consultation with customer center (Wireless: 113, Wired: 1600-2000/080-816-2000)
Mobile Wallet	• With mobile wallet implemented on open platform, the key services of initial (i.e. Credentials and electronic documents) as well as those of SKT PASS and other services can be conveniently used in other apps.

Implementation Case

Period	Project	Owner
2019	• Blockchain ID/authentication network project led by the private sector • Mobile access control service	Korea Internet & Security Agency NH Nonghyup Bank
2021	• Blockchain-based hazardous structure safety examination platform development through blockchain pilot project in 2021 • DID-based COVID-19 vaccination certification service through intensive blockchain DID project in 2021 • DID-based certificate issue and attendance management for senior jobs through pilot project for operation efficiency improvement using blockchain-based DID technology	Korea Internet & Security Agency Korea Labor Force Development Institute for the Aged
2022	• ID issue service for students/faculty/alumni association of Korea University through blockchain DID student ID system introduction • Open field farming digitalization technology development using short-term open field digital farming technology advancement data • Blockchain IoT-based intelligent urban safety platform through enterprise-led smart city innovation technology development project in 2022	Korea University Rural Development Administration Ministry of Land, Infrastructure and Transport
2023	• National qualification/training digital badge service development project	Korea Internet & Security Agency

Blockchain DID-based integrated authentication and payment platform, “Jamongkumong”

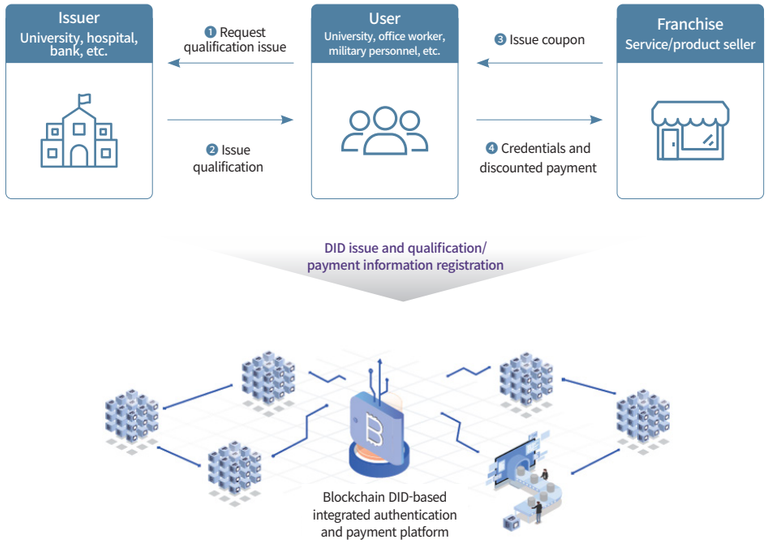
Solution Information

Name of Solution	Jamongkumong	Developer	DIGITAL ZONE (www.digitalzone.co.kr)
Solution Category	Blockchain DID-based integrated authentication and payment platform	Inquiry	doculink@digitalzone.co.kr 02-2132-0542
Core Technology	Ethereum v1.10.20-stable		

About Solution

Jamongkumong is an integrated authentication and payment platform developed on the basis of blockchain DID technology. Issuing student qualifications for approx. 200 universities, this solution enables users to manage their own data and selectively submit only the necessary information. Franchises can conduct target marketing even without customers’ personal data, manage discounted payment details using the blockchain-based audit log and prevent illegal distribution.

- Issuing qualification for universities students across the country
- Selecting and submitting only the necessary information
- Mobile DID-based credentials and payment
- Marketing targeting university students
- Audit log management through blockchain



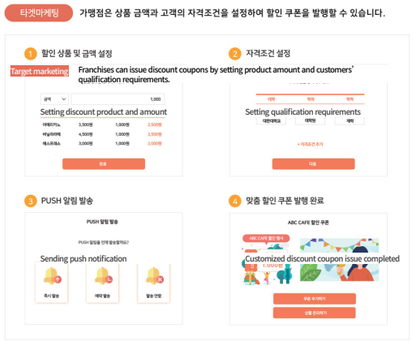
#DID #Student Authentication #Simple Payment #University Student #Target Marketing

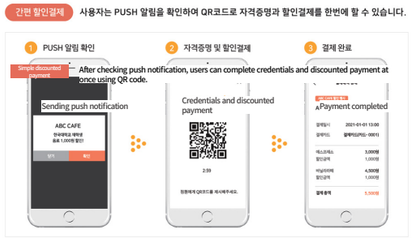
Features

▸ **Integration with Diverse Services Based on University Student Credentials**
- Issuing and updating student qualifications real-time through connection with approx. 200 universities
- Applicable to diverse student qualification-based services including youth welfare information recommendation service of public institutes and discount stores for university students of private enterprises

▸ **Powerful Privacy Protection**
- Verifying qualification in an environment where forgery or tampering is disabled by establishing a blockchain-based decentralized private authentication system
- Guaranteeing individuals’ decision-making rights for their personal data by allowing them to decide the scope of submission of the personal data saved in their devices
- Enabling franchises conduct target marketing by setting qualification requirements even when not directly posessing personal data

▸ **Blockchain-based Audit Log Management**
- Enabling audit log check and preventing illegal data distribution by storing discounted payment history in blockchain
- Real-time monitoring on transaction details





Applications

Field	Example of Use
Public	• Customized youth welfare fund recommendation service • Text message service by local governments according to residential information
Education	• Customized service by school/academic record/degree (promotion, content service, etc.) • Information recommendation service based on major/class details (qualification examination information, employment information, etc.)
Distribution	• POS-linked target marketing by franchises and small-scale stores • Service to provide various events based on personal information such as age, date of birth, employment status, etc. • Recording audit log and preventing illegal data distribution for discount details at discount stores for freshmen, etc.
Fintech	• Electronic bill-based payment receipt service • Discount/payment service for local residents through link to local currency system • Customized insurance and financial product recommendation service

Implementation Case

Period	Project	Owner
2020	• Blockchain technology verification (PoC) support project in 2020	National IT Industry Promotion Agency
2021	• ICT-based open innovation product and service development	Institute of Information & Communications Technology Planning & Evaluation
2023	• Mobile electronic certification service, SKT initial - Integration with university certificates • Services in integration with certificate for student information identification • Blockchain technology development for data economy	SK telecom Kakao Institute of Information & Communications Technology Planning & Evaluation

Light blockchain-based decentralized identifier solution, “GenID”

#Decentralized Identifier #DID #Blockchain #Credentials #VC

Solution Information

Name of Solution	GenID	Developer	BDGen (www.bdgen.co.kr)
Solution Category	DID platform	Inquiry	eddy@bdgen.co.kr 010-4258-4380
Core Technology	Hyperledger Fabric		

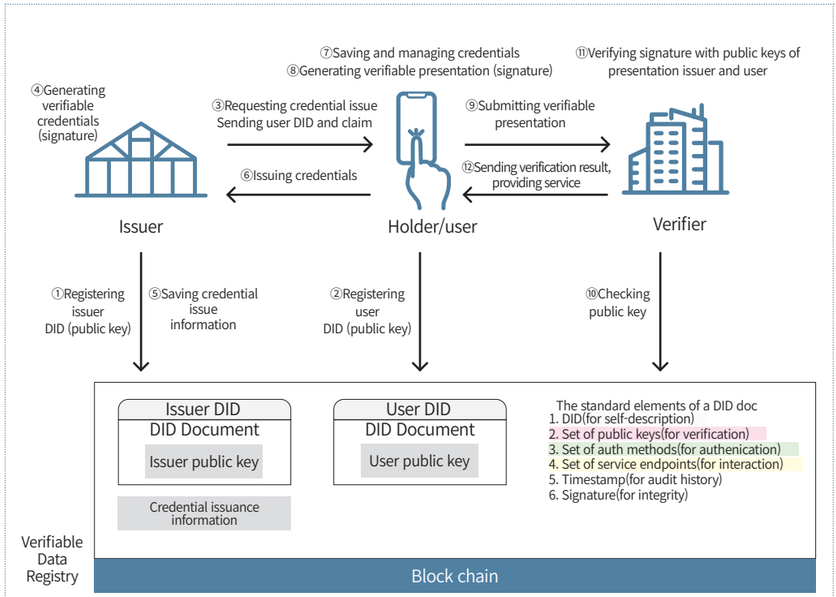
About Solution

In the web 3.0 era in which the sovereignty for personal data is strengthened, the method to prove the identity of oneself is continuously evolving.
GenID is BDGen’s DID solution for which “self-sovereignty identification” and “W3C DID standard” to securely save and manage identity information on blockchain have been faithfully implemented. Providing powerful security and processing performance, this solution is flexibly applied to and stably operates in various services.

VC issue/verification	Native and cloud-type wallet	SDK for issuer/verifier site development	Admin. system

▶ **Services Provided with Solution**

- Complying with global standard, W3C decentralized identification standard
- Monitoring VC creation/registration/verification Providing cloud-based integrated admin. that supports convenient operation of issuer and verifier
- Providing diverse SDKs, such as issuer, verifier and holder, for flexible application
- Supporting cloud wallet for application to diverse services
- Based on Hyperledger Fabric



Features

▶ **Ensuring service scalability based on Hyperledger Fabric and ACA-py**

▶ **Providing SDK supporting native and cloud wallet**

▶ **Providing SDK facilitating issuer/verifier site development**

Applications

Category	Description
Certificate Issue/ Verification	• To issue and verify various certificates, such as qualifications, degree certificates and membership certificates, necessary for various user services in digital format to eliminate the risk of personal data loss
User Authentication	• To check identity of a user with the minimum personal data for service use, such as membership status and access permission status

DID-based talent development platform, “PBT Platform”

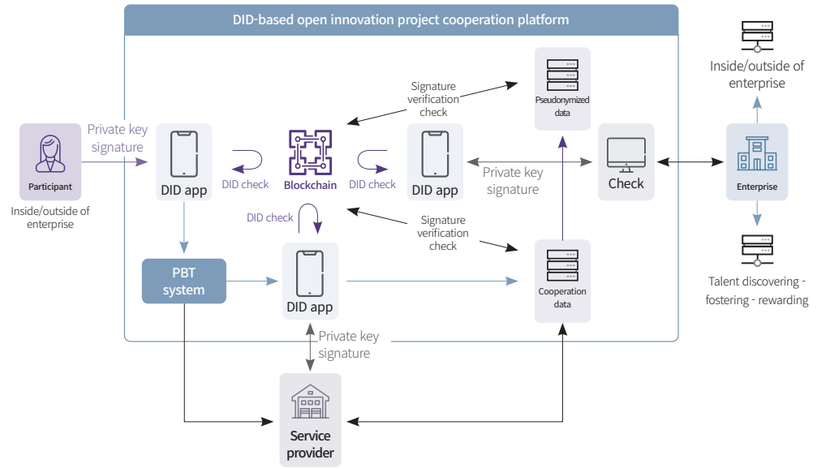
Solution Information

Name of Solution	PBT Platform	Developer	magicecole (www.magicecole.com)
Solution Category	DID authentication system introduction	Inquiry	makerjay@magice.com 02-6223-9167
Core Technology	Enterprise Ethereum V20.10, Metadium		

About Solution

PBT Platform is used to verify talents suitable for operations while conducting enterprise-customized projects. With PBT evaluation framework and PBT system, users’ learning details are recorded and evaluated, and their competency improvement reports are generated and managed. The rapid transition to DT as of late has led to a sharp increase in the demand for talents equipped capabilities for open innovation project cooperation inside and outside of enterprises. Accordingly, magicecole PBT, an open innovation project cooperation platform, intends to promote the implementation of a reliable process to discover, foster and reward talents desired by enterprises using blockchain technology.

Clearly defining DT competency evaluation goal	Simply and swiftly evaluating DT competency	Providing customized competency improvement report



#Blockchain #DID #Career #IT Education #DT

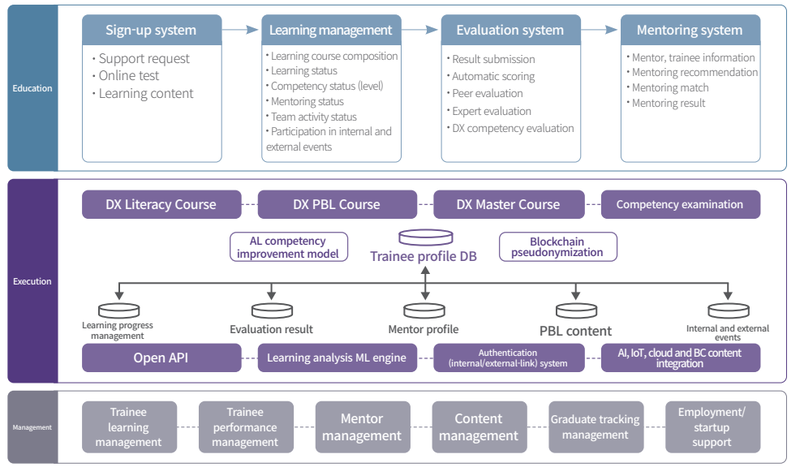
▸ **A-to-z Service to Discover and Foster DT Talents**

- DT Literacy Course: Providing online learning content to build the basic capabilities for ABCD technologies and examining and evaluating DT competency of users
- DT Course by Field: Providing advanced education on DT technology in the form of a project along with an environment to track DT competency evaluation results and cooperation history
- DT Master Course: Supporting project environment and tools to propose diverse alternatives for identification and addressing of issues in the field

▸ **Features of O PBT Collaboration Platform**

- Providing DX Literary, DX PBL and DX Master education processes to foster digital masters, competency examination to implement large-scale educational courses at low cost, and blockchain-based history management
- Providing educational content to identify differentiated cooperation competency together with the industry-leading ICT partners

▸ **magicecole PBT Platform**



Applications

Field	Description
Proof of Competency	• Trainees delivering their records to HR manager to prove competency and records
Headhunting	• HR manager discovering talents through search in jobseekers’ record market

Implementation Case

Period	Project	Owner
2022	• PBT application to NAVER Cloud digital leader academy project • PBT application to Baekseok University K-digital platform project	NAVER Cloud Baekseok University Industry - University Cooperation Foundation

NFT Issue/ Management

PART 2. About Solution

95. Painting Archiving Solution
96. DAMOINDA
97. Drops Partners Tool
98. REVITU
99. MAKEDROP
100. MetaGalaxia
101. trust-chain
102. Moove
103. BAMI-EDU
104. babidiba
105. BiO CON
106. BowlNFT
107. Storichain NFT studio
108. ssnipani
109. Eco Circle
111. Xclusive
112. NFT ticket booking service
113. Ojirapper
114. O2O NFT blockchain content authenticity verification solution
116. OmniOne NFT
117. JIGPU
118. Klip Drops
119. Klip Partners
120. TAMTAM
121. 2R2.io
122. FAVORLET

Blockchain-based integrated artwork management service platform, “Painting Archiving Solution”

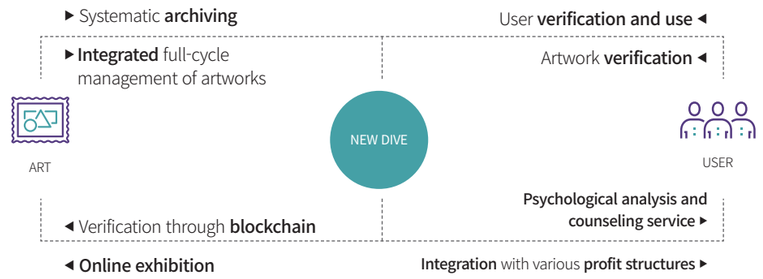
Solution Information

Name of Solution	Painting Archiving Solution	Developer	NEW DIVE (www.newdive.io)
Solution Category	Blockchain-based integrated artwork management service platform	Inquiry	newdive00@gmail.com 051-731-5830

About Solution

This service system integrates and manages full cycles of public artwork development into resources. It provides an exhibition hall management system to manage exclusive exhibition areas and event halls for individuals, groups and artists, and also creates a community space necessary for exchange among stakeholders including artists, users, community members and curators.
In addition, a 2D and 3D virtual gallery system to exhibit artworks is also available. This system also provides edit function to open exhibition halls and designate artworks for display, and a 3D virtual exhibition hall service to display public artworks.
The NFT conversion and management system is aimed at generating profits from real and non-real artworks. For this, a solid NFT trading and distribution history management system is established. In relation to artworks for sale in connection with those produced by artists of the profit-making artist group or original artworks, NFT conversion and distribution service is provided.

Private online exhibition hall and artwork archiving management service	Minting and drop automation service for NFT trading	API implementation necessary for NFT blockchain MainNet link	Integrated management system for user groups (all classes of people using artworks)



#Integrated Full-cycle Management #Virtual Exhibition Space #Archiving #NFT #Virtual Art Gallery

Features

▸ **Blockchain-based painting archiving using virtual exhibition space**
- Verifying artworks using blockchain technology
- Providing diverse 3D virtual exhibition spaces
- Providing propensity analysis by child psychology experts
- Ensuring connection to various profit structure through NFT issue

▸ **System for integrated full-cycle management service to develop public artworks into resources**
- Providing public work room, archiving space, virtual exhibition hall and exchange, and process for integrated authentication

Applications

Category	Description
Archiving Service Development for Children’s Paintings	• Enabling users to conveniently save and manage children’s paintings online • Providing consulting and treatment services according to children’s development stages and career paths
3D Virtual Spaces for Exhibition, Event and Festival, and NFT Archiving	• Creating high-quality 3D online spaces for events • Producing and archiving full-cycle event posters, photos and videos as NFT
Copyright Profit Model Platform Using NFT	• Producing artworks as NFT and connecting them to licensed profit model • Establishing exhibition areas at unique venues in Busan • Implementing global art, fashion and eco-friendly projects using NFT license

Digital asset content platform, “DAMOINDA”

#NFT #Metaverse #DID #Local Currency Blockchain

Solution Information

Name of Solution	I DAMOINDA	Developer	I MORPHING I (www.morphingi.com)
Solution Category	I Marketplace	Inquiry	I joonyeop@morphingi.com 010-2550-9840
Core Technology	I Chain: Ethereum, Polygon, Klaytn, ERC:ERC-20, ERC-721, Contract : Solidity 0.8.4		

About Solution

Through convergence between blockchain and big data technologies, MORPHING I provides an AI service to share information of and profits with micro enterprises and startups. The solution contributes to creating new business models based on the transparency and security of blockchain.
In addition, it provides a settlement system for digital artworks using NFT, a matching platform between original artists and creators for secondary creation and an NFT trading platform for secondary artworks. Supporting fair trading of digital art and intellectual property right, DAMOINDA creates a new digital transaction environment where trust between creators and users is guaranteed.
DAMOINDA promotes online economic revitalization, NFT ecosystem activation and art industry activation, and enhances the usability of NFT exhibition and subscription platform.

Digital content exhibition and promotion platform

Supporting NFT issue

Supporting NFT creation and secondary creation

Features

- Comprehensively utilizing diverse blockchain networks
- Providing AI service to share information of and profits with micro enterprises and startups through convergence between blockchain and big data technologies
- Creating new business models based on transparency and security of blockchain
- Pursuing scalability and diversity of NFT use
- Proposing new ways to use NFT and contributing to NFT market growth

Applications

Category	Description
NFT Project	• Gold club membership/medical service + tourism voucher, etc.
Gold NFT	• MINI GOLD voucher service jointly developed with the Korea Minting and Security Printing Corporation
NFT Streaming/ Subscription Platform	• Web 3.0 content platform exhibiting and promoting contents owned by creators, individuals and enterprises for enjoyment anytime, anywhere

Implementation Case

Period	Project	Owner
2022	• Blockchain exhibition and subscription platform establishment • Digital asset reliability verification service platform establishment • MINI GOLD voucher	Korea Internet & Security Agency Korea Minting and Security Printing Corporation

One-stop NFT issuing tool, “Drops Partners Tool”

Solution Information

Name of Solution	Drops Partners Tool	Developer	GROUND X (www.groundx.xyz)
Solution Category	NFT issue solution	Inquiry	biz.klipdrops@groundx.xyz
Core Technology	Klaytn		

About Solution

Drops Partners Tool provides a service to help creators with diverse ideas from various field create, introduce and sell their digital creations without the hurdle of blockchain technology, and also establish brand stores. Using the service, creators can freely express their ideas in the digital world, not the conventional and limited offline spaces, and meet with fans, which serves as an opportunity for them to gradually grow into famous and influential creators.

Providing high-quality UI/UX based on Kakao DNA

Mobile-centric service with customer accessibility improved unlike other computer-centric blockchain services

Features

- Enabling users to issue NFT and establish brand stores without the need for understanding of blockchain technology or blockchain development
- Trading and distribution of digital art and collectibles with legal stability secured based on transfer agreement
- Supporting mobile phone payment, account transfer, payment in Korean currency (KRW), etc. for convenient purchase

#NFT #Blockchain #Klip #Digital Asset #Digital Certificate

Applications

- Digital art
- Digital ticket
- Digital gift voucher
- Digital coupon
- Digital certificate

Implementation Case

Period	Project	Owner
2022	• Legends Never Die: The return of Voltron! • Artist special cover for the 32nd anniversary of Livingsense • Jello Pet Town “Sazzi” collection • The Seoul Illustration Fair • KIAF Incheon Airport Special Exhibition	GMU Livingsense Cheil OCMAKERS KIAF

Blockchain-based real asset NFT management service, “REVITU”

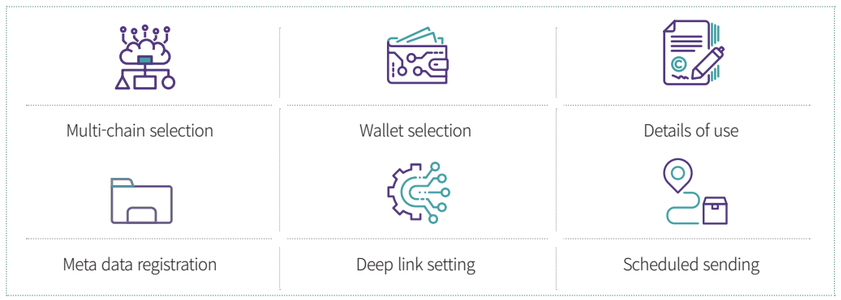
#NFT #Multi MainNet #Digital Ownership #Real Asset

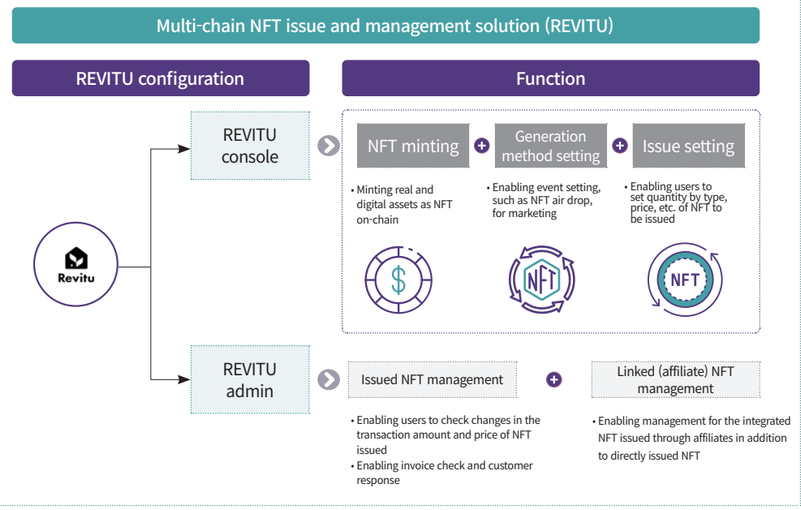
Solution Information

Name of Solution	REVITU	Developer	Block Odyssey (www.blockodyssey.io)
Solution Category	MainNet and content type desired by customer Convenient issue/payment for recipient	Inquiry	contact@blockodyssey.io 02-2088-6042
Core Technology	Klaytn, Ethereum, Polygon		

About Solution

REVITU is a NaaS (NFT as a service) of Block Odyssey. This solution supports users to conveniently issue NFT and manage the issued NFT based on multiple blockchain MainNets or layers.
REVITU consists of the REVITU console for NFT minting and REVITU Admin. to manage the issued NFT.
With REVITU Console, users can mint their real and digital assets as NFT anytime, and set airdrop status, quantity by type, price, etc. of the NFT to be issued without a separate coding process. In addition, NFT minting is possible not only on a single blockchain, but also blockchains supported by REVITU.





Features

- The blockchain MainNets currently supported by REVITU solution include Ethereum, Polygon and Klaytn, which are both public and private chains. Block Odyssey is continuously adding MainNets suitable for use by carefully examining universality and functional implementability of the blockchains newly introduced to the market, such as Aptos.
- Blockchain wallets linked to the solution include Kaikas, Klip, MetaMask, HAECHI LABS and hexlant. Block Odyssey is preparing for integration with additional wallet solutions to stably store and check NFTs purchased by end consumers as well as convenience functions for users, such as simple login support.

Applications

Category	Description
Digital certificate	• Issuing digital certificates, such as certificate of education and certificate of course completion
Digital Warranty	• Replacing offline warranties of products to ensure transparent secondhand trade

Implementation Case

Period	Project	Owner
2021	• Shinhan Play NFT	Shinhan Card
2022	• MOONO PFP NFT • Donation-linked NFT • Gift NFT for cosmetics brand, LA PRAIRIE	LG U+ Korea Investment & Securities The Shilla Duty Free
2023	• Graduate School of Business (MBA) graduation certificate NFT	Yonsei University

Solution for ticket use and authentication based on variable QR code, “MAKEDROP”

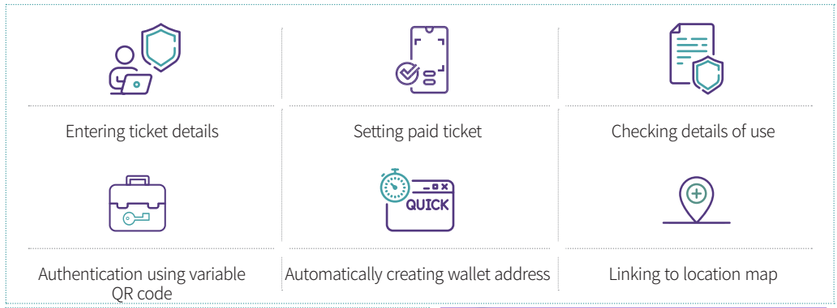
#NFT #Ticket #Gathering #Ownership Authentication

Solution Information

Name of Solution	MAKEDROP	Developer	Block Odyssey (www.blockodyssey.io)
Solution Category	NFT-based ticket issue and user authentication	Inquiry	contact@blockodyssey.io 02-2088-6042

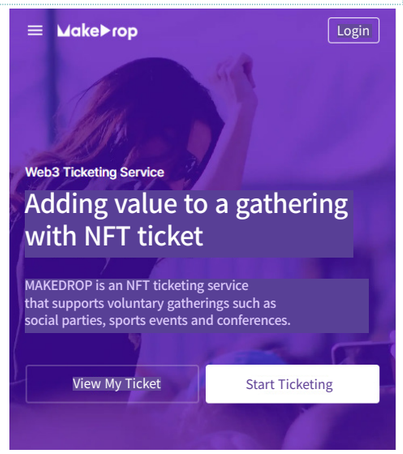
About Solution

This solution helps users conveniently issue the tickets, vouchers, etc. for offline movies, performances, sports events, etc. as NFT tickets on blockchain, and authenticate the tickets using the linked variable QR code that is implemented on mobile devices.
With MAKEDROP, the issue of scalp tickets that is wide spread in the ticket market can be easily resolved, and consumer lock-in is possible through differentiated benefits provided in connection with the tickets issued.
In addition, it eliminates the need to spent time on ticket inspection, improves consumer satisfaction with improved convenience based on the link to marketplace and NFT wallet, and therefore creates an environment without no customer churn that ensures stable ticket supply and distribution by users.



Anyone can simply issue ticket as NFT

Every gathering and experience is worthy to be recorded and preserved.
Check out how other people have enjoyed which gatherings with NFT ticket..



Features

- MAKEDROP largely consists of a customer page where customers buy tickets and collect the purchased tickets, a management page used by field managers who inspect tickets on-site for performances, etc. and management admin. for overall ticket management, such as for ticket issue and sale.
- Each module comprising MAKEDROP is linked real-time based on the ticket information recorded on-chain. Therefore, ticket sellers can instantly respond to customers using the solution.

Applications

Category	Description
Performance, Exhibition and Concert Tickets	• Ensuring convenient authentication for ticket possession/use and preventing illegal scalp tickets
School and Institute Events	• Used in the checking of target people and for paid gatherings (participation fee deposit, etc.)

NFT platform for differentiated branding, “MetaGalaxia”

Solution Information

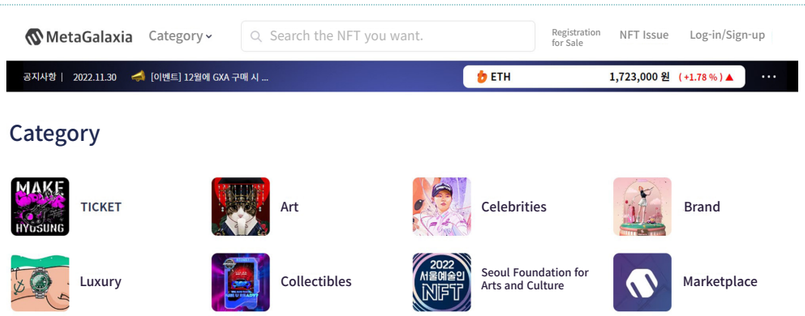
Name of Solution	MetaGalaxia	Developer	galaxiaNEXT (www.metagalaxia.com)
Solution Category	Digital art NFT and utility NFT issue and management platform	Inquiry	metagalaxia@galaxia.co.kr 02-1533-0353

About Solution

MetaGalaxia is a curation-based NFT marketplace with the largest number of IPs in Korea. Providing a wide range of rare and high-quality contents including digital art, sports, luxury items and collectibles, this marketplace is expanding to the trade of utility NFTs, such as tickets, gift vouchers and memberships, in addition to art-type NFTs.

Copyright registration system using blockchain technology

Enabling copyright information check and and tracking of illegally distributed contents



Features

▸ **NFT Platform Providing the Largest Number of IPs in Korea**

- Dominating market with the largest number of IPs in Korea, such as for artworks, celebrities, luxury items, collectibles and brands

▸ **Blockchain Technology-based System**

- Securing reliability and stability of transactions
- Supporting first transaction and Nth transaction among users, providing authentication NFT
- Accurate and transparent settlement

#NFT #NFT Market #Branding #NFT Marketing Solution #Utility NFT #Coupon-type NFT

▸ **Introducing Authentication Solution (invisible code)**

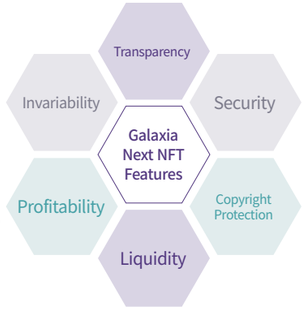
- Fundamentally blocking illegal NFT use

▸ **Providing Diverse Payment Means and Securing User Accessibility through Integration with External Apps**

- Digital Currency: Galaxia (GXA), Ethereum, Klaytn
- General Payment Means: Mobile phone micro-payment applied as the first in Korea, account transfer
- Link to external simple payment apps such as MONEY TREE, KB Liiv Mate and WMPO

▸ **Convenient Wallet Function**

- Wallet with coupon function as the first in Korea, optimized to utility NFT

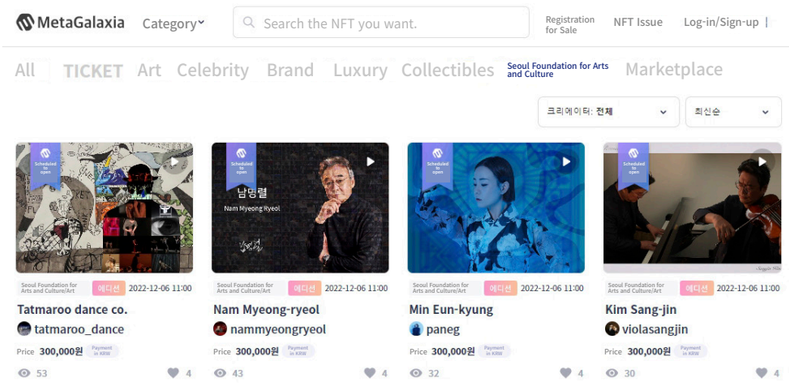


Applications

Category	Description
Digital Warranty for Artworks	• Digital warranty for artworks purchased
Brand NFT (marketing)	• Expanding marketing fields using corporate brand
Utility NFT	• Enabling expansion to various NFT businesses such as memberships, tickets, gift vouchers, coupons and real products
Compatible with Metaverse	• Enabling users to collect/resell items on other blockchain platforms • Establishing virtual world exhibition system

Implementation Case

Period	Project	Owner
2022	• NFT series issue for the Superrace Championship • WMPO character NFT and coupon-type NFT issue and application of Nth transaction • COCOMONG NFT series issue and application of Nth transaction • External link of KB Kookmin Card Liiv Mate app • NFT issue for artworks of Suseong Artpia • NFT launching for artists in the fields of fine art • NFT concert ticket issue	CJ OliveNetworks WMPO E LAND KB Kookmin Card Daegu Metropolitan City Seoul Foundation for Arts and Culture Hyosung Advanced Materials



BIGPICTURELAB

Solution providing virtual economic infrastructure in metaverse, “trust-chain”

Solution Information

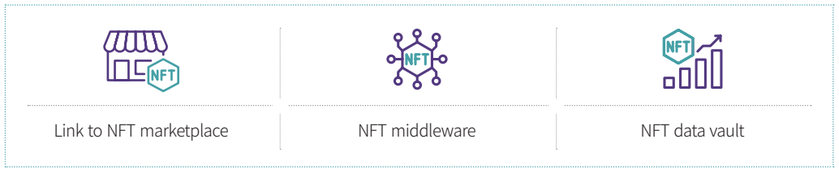
Name of Solution	trust-chain	Developer	bigpicture labs (www.bigpicturelabs.io)
Solution Category	Blockchain platform	Inquiry	cskeum@bigpicturelabs.io 042-710-6787
Core Technology	NFT marketplace integration technology, NFT middleware technology, NFT data vault technology		

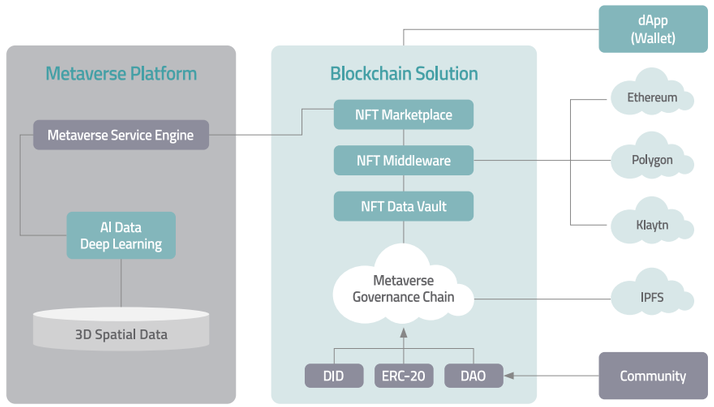
About Solution

For activities or services on metaverse to be generalized, safety and security of data distributed in metaverse and transparent governance must be guaranteed.

trust-chain, a blockchain metaverse solution, applies decentralized consensus algorithm and smart contraction to guarantee data safety and security, and transparent government in metaverse. It provides DID (decentralized identifier) for identification of participants, DAO smart contract for autonomous organizational operation, NFT (non-fungible token) to improve content value, token for value exchange within the system, and wallet for digital asset storage.

In metaverse, all data services are provided on a platform where blockchain and AI data technologies can be used. Therefore, safety and anonymity, the merits of blockchain, are guaranteed. In addition, blockchain ensures integration with other blockchains to resolve inconvenience and provide middleware for convenient app development. Moreover, a marketplace for trade using tokens is established, which can be used to accelerate activation of distribution.





#Blockchain #NFT #Metaverse #Middleware

Features

- **Users can perform economic activities safely in metaverse as marketplace link is possible**
  - NFT marketplace is where all items traded on a metaverse platform are sold and bought using tokens. Through integration with various blockchains, the cost of blockchain use can be reduced and stability is improved according to the characteristics of the NFT items.
- **Users can simply develop and conveniently use services with NFT middleware**
  - NFT middleware provides NFT service APIs that help users conveniently develop DApps targeting a number of blockchain networks. This reduces development time and cost for network moving in the future. In addition, through integration with Ethereum, Polygon and Klaytn blockchains, service APIs for NFT information registration, check, change detection, etc. are provided, ensuring link and compatibility among services using different blockchains.
- **Users can safely and conveniently manage data using NFT data vault technology**
  - NFT data vault service can provide an interface to safely manage data inside a system through a link to the governance chain for important NFT data. This minimizes integration with external blockchains and, as a result, reduces cost and increases data security.

Applications

Category	Description
Metaverse Marketplace	• Turning assets traded in virtual world to NFTs and providing them in marketplace
Blockchain-linked Service in Metaverse	• Providing interface to conveniently link various blockchain networks

Implementation Case

Period	Project	Owner
2020	• SH citizen shareholder group mobile app development • Trust data escrow system verification platform development • Advancement of startup support platform based on blockchain	Seoul Housing & Communities Corporation Electronics and Telecommunications Research Institute
2021	• Identification-based trust data transaction platform development • Onmaeul village community platform development • Blockchain reward platform development	Electronics and Telecommunications Research Institute Daejeon Metropolitan City Hanbat National University
2022	• Heterogeneous blockchain link software solution development • Establishment of trust base for public My Data through blockchain application	Korea Minting and Security Printing Corporation KSIGN
2023	• Advanced heterogeneous blockchain link solution development • Integrated trust data transaction platform and PoC development • Development of decentralized identifier-based digital asset link solution supporting heterogeneous metaverse platforms	Korea Minting and Security Printing Corporation Electronics and Telecommunications Research Institute

NFT-linked solution and history management platform, “Moove”

Solution Information

Name of Solution	Moove	Developer	GUARANTABLE (www.guarantable.com)
Solution Category	NFT platform establishment	문의처	info@guarantable.com 02-6925-2428

About Solution

This solution provides NFT-related application technologies, such as customer authentication, NFT issue and NFT ownership transfer, as API-based plug-ins to the existing web 2.0-based business service products. NFTs can be conveniently linked to the customers’ online stores, in-apps and third-party environments.
It also provides an integrated wallet solution for convenient payment using cryptocurrency following user authentication. With this solution, users can track the information of NFT ownership, authentication, transaction records, etc. from the beginning.

Real asset tagging NFT

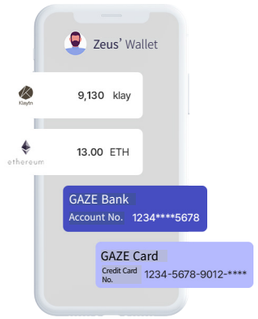
Domain-specialized NFT

Product authentication

Product transaction history management

NFT solution by business

Real asset-linked NFT solution



Multi-chain Integrated Wallet

NFT History Management

#NFT #Real-world Asset NFT #RWA #NFT Marketplace #Proof of Ownership
#Authentication #Transaction History Management

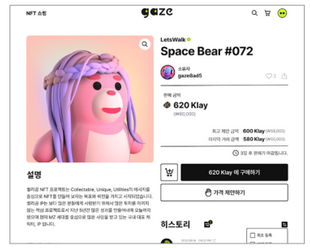
Features

▶ **Moove NFT API**
- Supporting NFT issue and linked UI kit for products in web 2.0-based website
- Supporting NFT environment specificied to domain by business such as financial bond, real estate, fashion and food
- Concurrently issuing and managing offline certificates by giving NFT tags in the process of real product manufacturing
- Securing transparency of transaction through integrated management of ownership transfer and transaction records

▶ **Moove Wallet API**
- Supporting link to integrated wallet API and UI kit in web 2.0-based website
- Supporting integration of transactions using approx. ten types of coins including Ethereum, Klaytn and Polygon

▶ **Supporting Transaction Using Global Currencies Including KRW and USD**
- Moove authentication API
- Determining authenticity of real assets with rarity, such as real estate properties and luxury items, using NFT
- Controlling access to some services of website targeting NFT holders
- Allowing access to discount events of online stores for NFT holders
- Designating exclusive access to community participation channel

▶ **Marketplace with Moove Solution Applied**



Applications

Category	Description
NFT Link to Web 2.0-based Platform	• Developing NFT marketplace function on existing platform using Moove
Digital Asset Exchange	• Establishing integrated wallet system with diverse payment means such as digital asset, account and credit card
Proof of Real Asset Ownership	• Issuing and managing NFTs linked to real assets
History Management	• Tracking and managing transaction history containing records of NFT check and ownership transfer

Implementation Case

Period	Project	Owner
2022	• Wine NFT issue and management service development • Beauty NFT membership platform and NFT authentication service development • Financial bond NFT issue and transaction service development • Real-world asset NFT marketplace establishment	CWC (Singapore) labgrace TRUST FUND Internal platform

EduTech solution & platform, “BAMI-EDU”

Solution Information

Name of Solution	BAMI-EDU	Developer	MORPHING I (www.morphingi.com)
Solution Category	EDU-TECH	Inquiry	yejin@morphingi.com 010-2816-3568
Core Technology	Chain: Ethereum, Polygon, Klaytn, ERC : ERC-20, ERC-721, Contract : Solidity 0.8.4, GPT-3, Unity		

About Solution

MORPHING I strives to implement an open, HyFlex-type foreign language learning metaverse using ChatGPT, the universal artificial intelligence model, and NFT. After creating a metaverse educational institute providing remote learning courses and building a shared test platform of a foreign language institute for contactless learning, customized foreign language learning content is provided in metaverse through the application of big data analysis and conversational AI technologies.

Foreign language learning content ChatGPT	Foreign language standard test in metaverse	NFT for question security	Test result reliability verification with NFT

- Implementing natural conversational AI and producing foreign language learning content using ChatGPT generative AI based on the hyperscale AI model, GPT-3
- Developing standard foreign language test using AI that enables users to select test questions according to their propensities, learning progresses and evaluation results, and take the test in metaverse
- IPFS address and textbook encrypted by institute prior to their uploading using the hybrid central control system, storing the created keys in the central institute, protecting digital copyright for the question of nested insertion of access control smart contract which is NFT contract with DRM (digital rights management) applied

#Generative AI #Metaverse #GPT

Features

- For mathematics subject, real-time and contactless learning content is provided by escaping the conventional method that required a large amount of time and cost to receive and understand the problem solving process. This contributes to lowering private education expenses and alleviating educational gap according to regions and income levels.
- With AI technological power applied to the high-quality learning data and educational content accumulated in Korea, an educational powerhouse, Korea can advance to a leading educational exporting country by developing a new export item and securing upper hand in export competition.
- Enterprises generating profits and discovering a new business item based on an extensive AI learning data set establishment will contribute to job creation, and improved competitiveness of Korea’s AI industry through technological growth.
- This solution can provide an innovative educational service as it offers problem-solving guidance real-time for variation questions or new questions not saved in the data using a new AI learning tool. This will lead to reducing the demand for private education and establishing the self-directed learning culture.

Applications

Category	Description
Question Search and Addition	• Providing tool for platform users (teachers, instructors, etc.) to conveniently search questions from the established data and add them to their workbooks or textbooks Improving diversity and quality of textbooks with functions to automatically search “similar questions” and create or add new variation questions
Textbook Analysis	• Providing textbook analysis function to help users understand difficulty levels of questions, correct answer rates, range of questions,
Student Feedback Analysis	• Automatically scoring and analyzing students’ answers to identify their correct answer rates, time required to answer questions, academic achievement levels, understanding of each lesson, weaknesses, etc. Teachers and instructors providing customized feedback to students, and effectively developing teaching plans

Implementation Case

Period	Project	Owner
2022	• Metaverse gallery for Egypt, Land of Discoveries exhibition in 2023	Korea Internet & Security Agency, The Dong-A Ilbo
2023	• Metaverse platform for firefighting/safety training and fostering of future automotive professionals • Development of foreign language/mathematics learning metaverse using generative AI	Ministry of SMEs and Startups, Ministry of Education Ministry of SMEs and Startups

NFT creation platform, “babidiba”

Solution Information

Name of Solution I babidiba

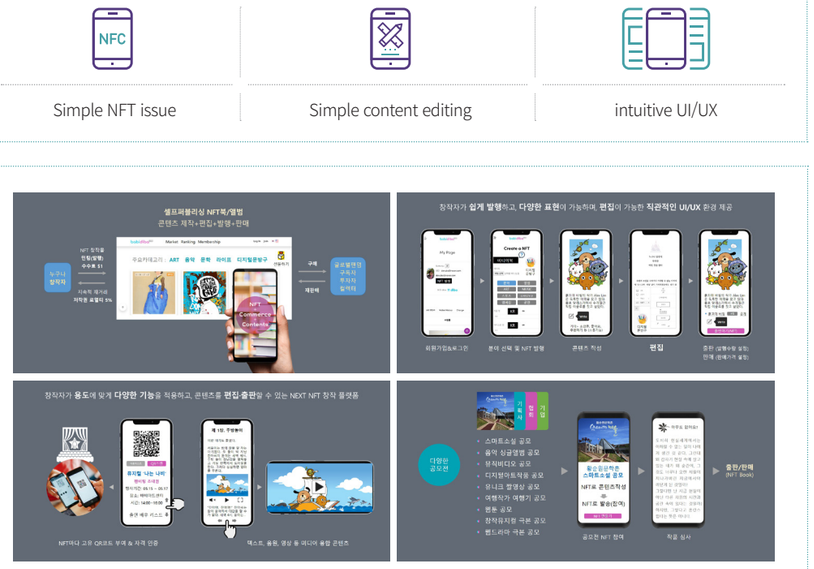
Developer I 바비디바(babidiba.com)

Solution Category I Cultural content NFT issue and management platform

Inquiry I denubo@gmail.com
02-585-8844

About Solution

This is a creator-centric platform that enables users to issue, edit, sell, own and monetize cultural and digital contents based on NFT. Applicable to a wide range of fields including digital art, performance contents, music album, limited merchandises, performance tickets, admission tickets and memberships, babidiba is expected to help purchasers (owners) collaborate with creators and generate profits through convenient resale, community participation, joint content editing, etc.



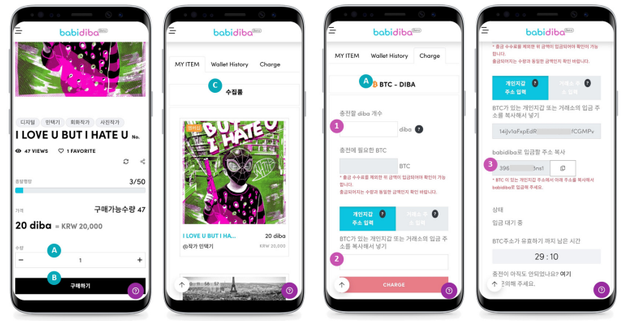
#NFT #NFT Marketplace #NFT Media Book #NFT Album #NFT Creation

Features

▸ **NFT-based Editing Solution Enabling Creation**
- Enabling everyone to simply issue NFT and apply it to content
- UI/UX for extremely simple NFT sale and resale
- Advantageous for additional issue and sale in bulk, such as of books or albums, rather than NFT with rare value

▸ **Creative Digital Album Production through Combination of Digital Contents (Text + Music + Art)**

▸ **Royalty Provided to Creators for Sale and Every Re-transaction**
- Very low cost of issue and sale
- Representative digital asset, simply exchanged with blockchain points for NFT purchase
- Additional NFT expansion expected based on Polygon and Solana from the current system focusing on BSC chain



Applications

▸ **Target Market and Key Customers**

Category	Description
Music Market	• Singer-songwriters, new signers, singer aspirants, musical actors, applied music students, classical musicians, Gugak composers
Publishing Market	• Rising authors, professional authors, amateur authors
Art Market	• Digital artists, pop artists, crypto artists, fairy tale illustrators, webcomics artists
B2B Market	• Entertainer management companies, musical planning companies, music labels, publishing companies

Implementation Case

Period	Project	Owner
2021	• babidiba NFT marketplace	Internal development and operation
2022	• NFT project for Saemangeum Country Club and Casino under planning • NFT booking project for Saemangeum Spa World in progress • NFT project for Cheorwon Meta Farm Town in progress	Saemangeum Development Corp. Issac Holdings

NFT marketplace providing the first customized cosmetics marketing channel, “BiO CON”

Solution Information

Name of Solution	BiO CON	Developer	whatcon (www.whatconn.com)
Solution Category	NFT marketplace	Inquiry	whatcon.itmaker@gmail.com 064-805-9700

About Solution

This is an NFT marketplace where data, products, experiences, etc. in bio fields can be minted and traded. BiO CON is Korea’s first NFT marketplace providing a marketing channel for customized cosmetics. Customized cosmetics has come into the limelight as a new industry in the cosmetics market. It is an area where sharing of the experiences of consumers and producers is keenly needed. Through the NFT marketplace establishment in this field, the solution users can lead the cosmetics industry, and create and expand various services based on the personal life-logging.

Securitizing bio information through link to skin and environmental information based on personal life-logging	Providing marketing channel based on the cosmetics producer and consumer membership Providing marketing channel based on the cosmetics producer and consumer membership	New concept NFT real asset integration service to encrypt personal data and link them to purchasers	Full-cycle service connecting between cosmetics producers and consumers through integration with DApp

Features

The First NFT Marketplace for Customized Cosmetics

- Securitizing skin analysis, cosmetics formulation recipe and customized cosmetics assets
- Preemptively managing customer data, and planning products and providing promotional benefits considering connection to recipes
- Functioning as tool for domestic and international consumers through marketing channel expansion to customized cosmetics field

Expanding Service Areas for Customized Cosmetics Using DApp

- Supporting individually customized cosmetics formula service (PoC and simulation functions to provide recipe and sample)
- Supporting individually customized subscription service (consumer information collection based on digital history taking and cosmetics matching subscription program design)
- Personal skin information distribution service (securitization with history taking data, and through formulation recipe NFT minting and rewarding)

#NFT #Blockchain #Bio IP #Bio Data Transaction #Life-logging

Applications

Category	Description
Cosmetics Branding	• Supporting commercialization through customer segmentation and grouping in relation to IPs owned by cosmetics suppliers and target customers • Enabling recipe IP segmentation through the use of raw materials, content adjustment and mixing in relation to specific skin elements, lesions, etc.
Cosmetics Marketing	• Providing membership-based item development and design service for use in customized care, rewarding, new product launch, etc. by NFT holders • Conducting clinical skin test and promoting it as a service to use the data of existing customers and customers under management
K-Beauty	• Collecting big data to secure skin IPs with the characteristics of skin information, which varies widely by gender, age and race, reflected • Expanding service areas through marketplace and DApp which can provide the foundation for excellence of and scientific grounds for Korean cosmetics leading K-beauty

Implementation Case

Period	Project	Owner
2022	• NFT membership-based cosmetics marketing channel service • Biohealth service supporting metaverse with NFT technology applied • Production of DB platform for skin diseases based on Dicom format	National Information Society Agency Korea Institute of Startup & Entrepreneurship Development Electronics and Telecommunications Research Institute

Universal NFT marketplace development solution, “BowlNFT”

Solution Information

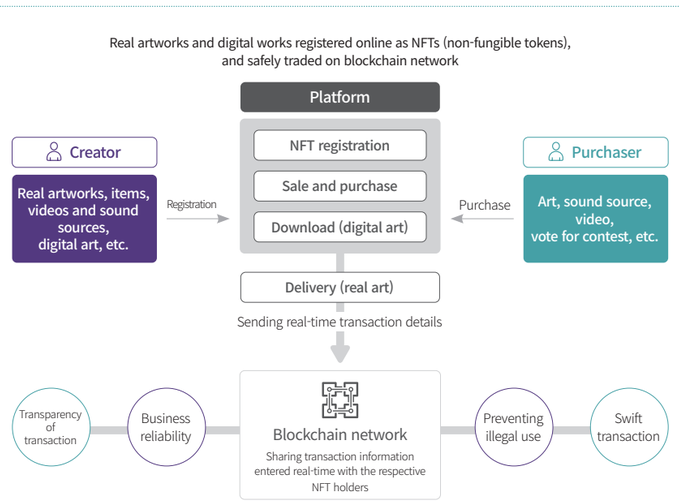
Name of Solution	BowlNFT	Developer	BIGSTER (www.bigster.co.kr)
Solution Category	NFT exchange establishment	Inquiry	lee.hj@bigster.co.kr 02-6274-6661
Core Technology	Hyperledger Fabric		

About Solution

BowlNFT is an NFT exchange establishment solution that enables convergence and collaboration business through the establishment of multi-party consortium blockchain network. Optimized to not only digital media, such as art, music and video, but also NFT trading in the specialized fields of fashion, architecture, etc. and ticket and membership service, this solution can be used as a marketing tool among various entities.

Authenticating files registered as NFTs
International patent application completed for technology

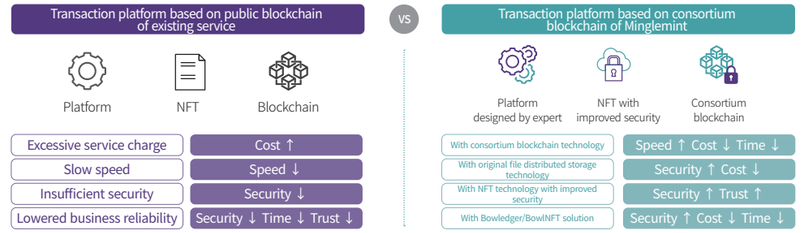
Consortium blockchain and Bowledger-based platform



#NFT Exchange #Blockchain Network #Consortium Blockchain #Payment in KRW #Title Sale
#Sale of Right to License Use #Free NFT Registration #Digital Art

Features

- NFT transaction based on payment in KRW (transaction possible without cryptocurrency)
- Selling right to license use in addition to NFT title
- Free NFT registration, suitable for public institute service
- Automatic NFT ownership proof in relation to external marketing service



Applications

- **Trade of Real Artworks and Luxury (Pre-owned) Item**
  - Trading luxury goods as well as real artworks based on digital NFT registration
- **Digital Media Copyright Protection**
  - Activating copyright production and distribution for digital media such as artworks, sound sources and videos
- **Ticket Sale and Membership Service**
  - Selling NFTs to provide added value in relation to one-time tickets and providing membership service based on the NFTs
- **NFT Creation Contest System**
  - Providing NFT contest and competition system that can be used online and for free by anyone
- **PFP NFT and Metaverse NFT Project**
  - NFT project marketplace enabling NFT holding and trading on metaverse platform

Service Operation Team providing support around the clock

Independently developed solution, Bowledger & BowlNFT
- Blockchain operation and management solution, Bowledger!
- NFT registration and management solution, BowlNFT!
- The solutions directly developed by Minglemint can be conveniently applied to and integrated with various services.

Blockchain operation, management

NFT registration, management

Implementation Case

Period	Project	Owner
2021	• Blockchain-based digital art marketplace development	National IT Industry Promotion Agency
2022	• NFT marketplace, Minglemint	Bigster (internal service)

Contract protocol solution for fair trade in story industry, “Storichain NFT studio”

#NFT #Movie
#TV Show #Web Novel
#Intellectual Property

Solution Information

Name of Solution	Storichain NFT studio	Developer	SCOWORKS (storicha.in/company)
Solution Category	Content IP creation, contacting, distribution	Inquiry	contact@storicha.in
Core Technology	Luniverse 2.0, Ethereum		

About Solution

This is a solution for content enterprises. For literary works to be developed into videos, such as from web novels to drama scripts, it segments the rights to help the enterprises conclude contracts.

Contactless trust creation protocol resolving unfairness in story industry

Platform providing work/collaboration environment, contract and reward optimized to creators

Features

- Enabling multi-layered management of content IP contracts
- Managing content fee imposition schedule and criteria
- Managing literary work versions
- Managing creation history
- Managing content creation trading history

Applications

- Managing copyrights for films and TV shows abroad
- Managing contribution of creators in cooperation for web novel and webcomics production
- Issuing additional copyright for web novels, webcomics, etc.
- Visually managing the complicated licenses for using intellectual property rights

NFT-based real-time accommodation voucher trading and booking service, “ssnipani”

#NFT #Accommodation #Booking #Blockchain #Membership

Solution Information

Name of Solution I ssnipani

Developer I RJ CRYPTO (www.rjcrypto.io)

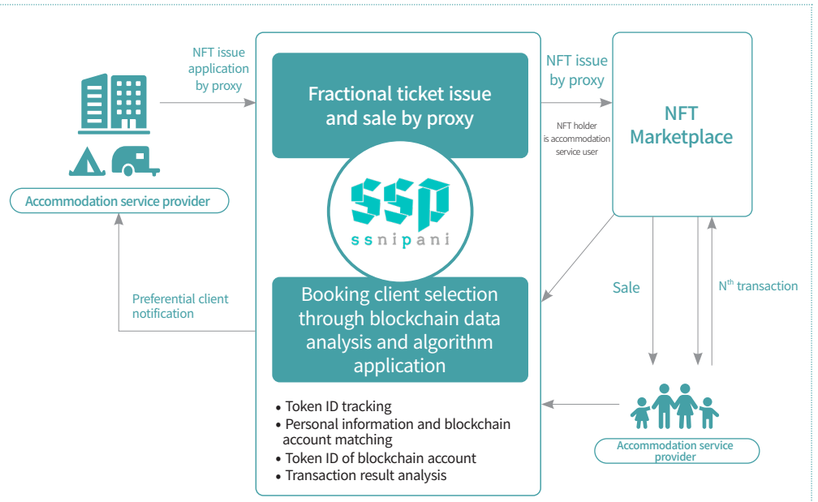
Solution Category I Booking and other integrated services through tracking of NFT transaction details

Inquiry I ceo@rjcrypto.io
010-4011-1690

About Solution

This solution is used to issue accommodation vouchers as NFT, analyze transaction on-chain data, and provide booking management service through user matching.

Tracking NFT transaction data	Selecting booking client through algorithm application (under development)



Features

- Booking client matching and booking integration system through NFT transaction data tracking
- NFT-based contactless access control system
- Preferential booking client selection through algorithm application

Applications

Category	Description
Accommodation Voucher	• Rental home, hotel, resort, campsite
Service Ticket	• Camping car, yacht, cruise ship
Membership	• Golf club, ski resort, fitness club

Solution to protect the environment with rewards trusted by all, “Eco Circle”

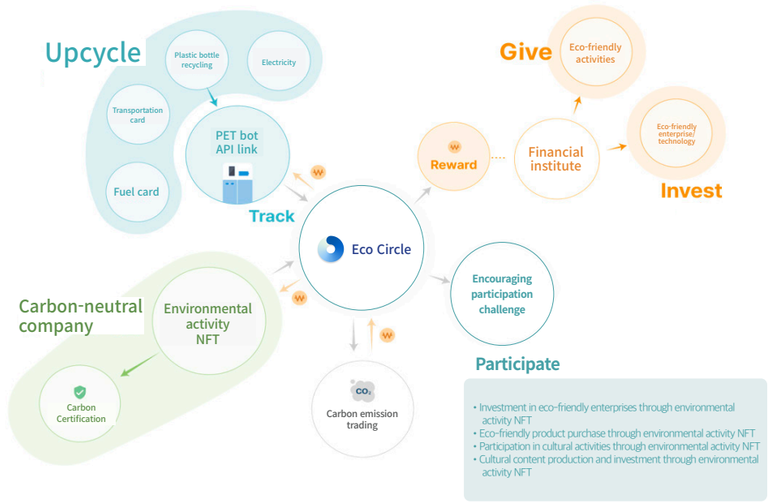
Solution Information

Name of Solution	Eco Circle	Developer	AO2 (ao2.co.kr)
Solution Category	Blockchain-based environmental practice social platform	Inquiry	dev@ao2.co.kr 032-851-0201
Core Technology	Polygon, EthereumJS, ethers.js, Web 3.0		

About Solution

Eco Circle is a platform on which various entities can promote environmental protection together.
Anyone can issue NFT based on Polygon containing benefits that can be provided within the service. This plays the role as a reliable reword to support various environmental activities performed in the app, encouraging people to participate in environmental activities on the platform while enjoying rewards for their contributions.

Plastic bottle and disposable cup collector	Carbon emission reduction and data statistics and ranking	Social networking for various environmental activities	Free NFT sponsoring



#Environment #Social Platform #NFT #RecycleToEarn #Eco-friendliness

Features

- Function to create NFT for participant sponsoring upon environmental goal creation
- Function to support NFT reward for environmental goal fulfillment
- NFT wallet to store NFT rewards won
- Function to trade NFTs between participants

Applications

Category	Description
-	• Checking effective information - checking information on NFT held
-	• Enjoying various benefits implemented on NFT (i.e. One free cup of coffee)
-	• Selling NFT collected by performing environmental activities

NFT total service, “FS-NFT”

Solution Information

Name of Solution	FS-NFT	Developer	FUTURE SENSE (www.futuresense.dev)
Solution Category	Marketplace, linked API development, PFP development	Inquiry	info@futuresense.co.kr 02-868-9672

About Solution

Providing diverse NFT services according to purpose

Friendly NFT marketplace

Promoting popularization of NFT by combining NFT to daily living categories including ticket, companion animal culture, environmental protection, art, celebrity and authentication

DAO incubating service

Providing comprehensive support from website configuration and planning and white book production to tokenomics design and strategy development

PFP NFT all-in-one service

Providing functions for not only generative art creation and minting page design, but also wallet integration and community promotion

API development & integration

Enabling NFT event by providing the necessary APIs, such as for NFT minting and title transfer, to the existing web 2.0 web/app services

Features

- **Enterprise NFT solution supporting NFT projects, technologies and commercialization to meet the needs of various enterprises and artists**
- **Technological support for NFT marketplace development**
- **PFP NFT project all-in-one service**
- **DAO incubating service**
- **API development and integration service**

Select a plan according to your purpose

Plan A

Open market for promising creators

Creator of the month application
Supporting brand development through Plan C
Annual literary contest, etc.

Plan B

Closed market for PFP project companies

Contract import
Enabling duplicate listing with OpenSea and Pala
Supporting MKT in official social network account of market

Plan C

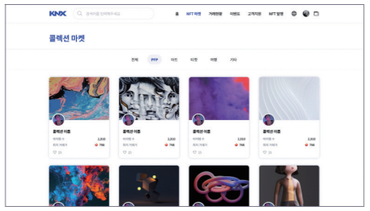
PFP all-in-one service for enterprise NFT

Planning for NFT marketing
Generative art creation and test
Minting site development and wallet link
Smart contract creation
Revealing according to minting schedule, etc.
- Community marketing guidelines, etc.

#NFT Marketplace #NFT-linked API Development #PFP Project

Applications

Category	Description
KNX Platform	• Establishing internal NFT platform, KNX (Korea NFT eXchange)
PFP Project	• Developing PFP project for K-pop artists
API Integration and Development Support	• Developing NFT integration with other platforms and service apps



Implementation Case

Period	Project	Owner
2021	• Public safety big data platform data authentication NFT the Korean National Police Agency	National Information Society Agency
2022	• NFT for Kimchi production history certification • KNX (Korea NFT eXchange) platform	National IT Industry Promotion Agency Internal service

Web 3.0 content distribution hub, “Xclusive”

Solution Information

Name of Solution	Xclusive	Developer	Finger Labs (www.fingerlabs.io)
Solution Category	Web 3.0 content distribution hub	Inquiry	xclusive@fingerlabs.io 02-552-9515
Core Technology	Tokenizing streaming content title and access privilege using distributed ledger technology, NFT (ERC-721)		

About Solution

Xclusive is a web 3.0-based content distribution hub. It proposes a new way for those who create contents and those who enjoy them.
Using tickets issued in Xclusive, users can enjoy digital contents, and rent or resell them to others. In this process, the rights of creators and consumers are more transparently and fairly recognized than before.
In addition, escaping the platform-centric content distribution method, Xclusive expands fan community culture by directly connecting creators and consumers, and producing contents in diverse genres.

Issuing limited viewing right per individual content	Enabling users to rent or resell viewing rights owned	Providing contents in diverse genres	Promoting direct communication between creators and consumers

Xclusive: Web 3.0 content distribution hub

- Xclusive intends to evolve into a web 3.0-based content distribution platform in addition to providing functions as an NFT marketplace
- Unlike the existing platforms that are dependent on the central server, Xclusive directly connects creators and consumers, and creates diverse values by using blockchain technology.

Xcluisve

Limited viewing right
Viewing right per content limited, enabling users to rent and resell their rights
- Issuing limited viewing right (access) per individual content
- Selective consent consumption rather than membership-based consumption

Secondary transaction and rental
Profit of original creator ontinuously settled for secondary transaction and resale
- Enabling users to rent or resell viewing rights owned
- Resale charges settled for creators at every transaction

Content diversification
Activating non-mainstream contents and those for small-scale fans
- Spin-off or limited versions of the existing contents
- Content of unique concept for mania group of which demand is limited

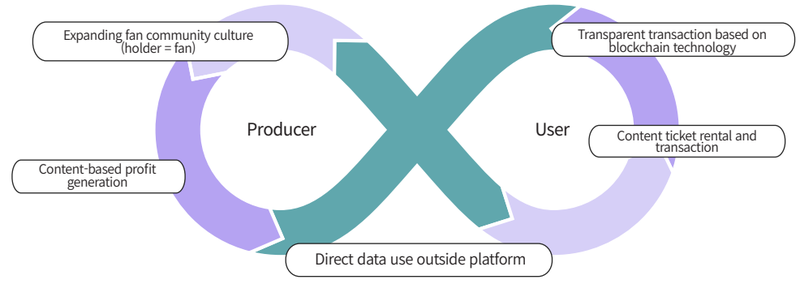
Direct connection between producers and consumers
Participation in production process and content funding as prosumers
- Enabling direct communication between creators and consumers
- Increasing consumer satisfaction and improving content production environment

#Fandustry #Blockchain #Mass Adoption #Streaming #Content Distribution

Balance in Content Titles
- Ensuring transparency in content transaction details and purchasing process
- Verifying consumers’ title to content viewing right
- Supporting direct communication between content producers and purchasers

Content Diversification
- Activation through mania content production and distribution
- Establishing independent content production environment for creators
- Secondary content reproduction led by consumers

Profit Model Expansion
- Profit generation for both content producers and consumers through C2C resale and rental
- Profit generation through online/offline integration
- Activating creator - fan communities
- Strengthening connectivity with external economy through link to secondary industry



New Economy

Applications

Category	Description
Content Distribution	• Content distribution in a format to ensure continuous resale and rental profit generation based on limited viewing rights
Content Production	• Content production based on clear demand through direct connection between producers and consumers
Fan Community	• Establishing powerful fan community beyond that for simple content consumption using governance and funding functions축

Implementation Case

Period	Project	Owner
2023	• Exclusive distribution of Begins Youth (TV series based on the BTS’ The Most Beautiful Moment in Life Universe)	CHOROKBAEM MEDIA, HYBE

NFT ticket booking/admission platform based on SK planet's independent blockchain net (UPTN), "NFT ticket booking service"

Solution Information

Name of Solution	NFT ticket booking service	Developer	SK planet (www.skplanet.com)
Solution Category	NFT ticket issue/management	Inquiry	namyeonjoo@sk.com

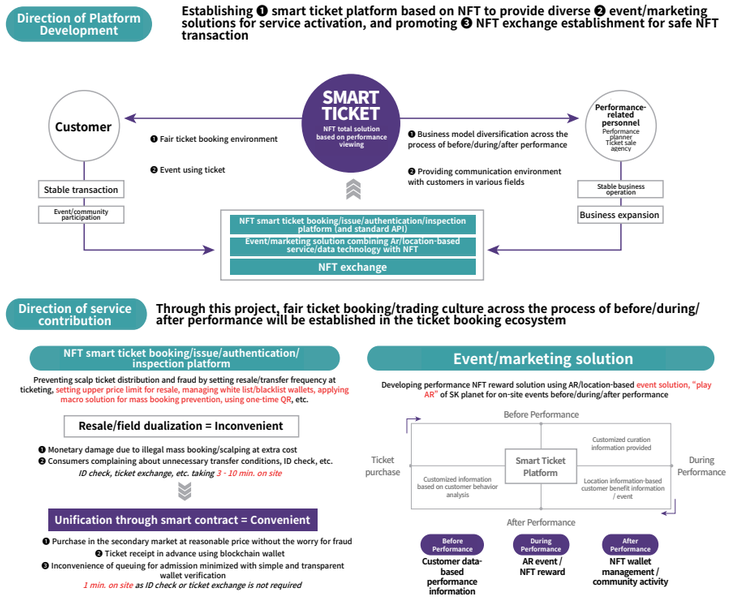
About Solution

This blockchain-based NFT ticket booking and admission platform prevents scalp ticket distribution/fraud through smart contract application and enables transparent reselling and merchandise trading at the NFT exchange. NFT ticket exchange and event/marketing solution will be developed/established in 2024.

Smart ticket platform establishment

Event/marketing solutions

NFT exchange establishment



NFT ticket exchange and event/marketing solution to be developed/established in 2024

#Blockchain #NFT #Ticketing #Scalp Ticket Prevention #Smart Contract

Features

- NFT ticket booking and minting through smart contract application
- Limiting booking frequency per wallet and managing blacklist based on NFT wallet
- Setting upper price limit for ticket trade and limiting selling frequency based on smart contract
- Blocking illegal transactions through transparent and simple ticket verification

Applications

Category	Description
NFT Ticket/Artist Card/ Merchandise Collection and Trade market	• NFT ticket/artist card/merchandise collection and trade after performance based on smart contract
NFT Ticket Booking for Sports/Movie/Exhibition/ Transportation	• Expansion to sports/film/transportation fields to which NFT ticket sale is applied

Implementation Case

Period	Project	Owner
2023	• Ticket booking service launch in OKcashbag app	Internal development and operation

App service brand to prevent real estate rental scam, “Ojirapper”

#Blockchain #NFT #AI

Solution Information

Name of Solution	Ojirapper	Developer	OKYC (www.okyc.kr)
Solution Category	AI real estate information service	Inquiry	okyc@okyc.kr 051-710-2695

About Solution

Ojirapper provides a risk evaluation report on a building based on the AI analysis of information such as actual transaction price of the building (40 years), building register, certificate of registry, official housing price, etc. (index calculation for each item, rating from A to D).

Ojirapper tracks the rental price rate of a building based on the actual transaction data.

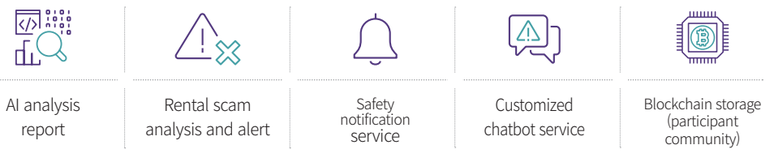
It informs the risk of rental scam by investigating details of the collateral security setting.

When a change occurs in the building registry during lease, it is notified through app (collateral security setting, title change).

It provides customized information according to the user’s level of understanding of real estate.

The real estate agent, lessor and lessee establish a community and exchange the contract-related information (details saved on blockchain, blockchain storage wallet service).

AI continuously whispers to the lessee for advices to check the compulsory items.



Features

- Precisely analyzing registry before rental contract
- Analyzing rental price rate based on actual real estate transaction data
- Providing risk evaluation report for buildings through AI analysis
- Changes in registration during lease notified through app

Technology to authenticate various online/offline contents, “O2O NFT blockchain content authenticity verification solution”

Solution Information

Name of Solution I O2O NFT blockchain content authenticity verification solution

Developer I KOUNOSoft (www.kounosoft.com)

Solution Category I NFT issue, authenticity verification

Inquiry I info@kounosoft.com
02-3291-2200

About Solution

▶ **Providing NFT-based content verification function to authenticate paper certificates, test reports, etc. in O2O environment**

Requesting original content registration in user device

Converting original metadata extracted from video created by photographing content for registration to NFT

Requesting authentication in user device

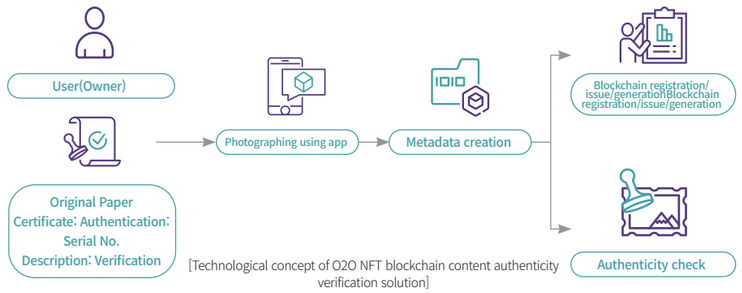
Comparing metadata for verification extracted from video created by photographing content for verification against the original metadata

Verifying authenticity of content

Registering content and extracting metadata	Acquiring token ID and identifying target content	Providing NFT-based content verification method

O2O NFT blockchain content authenticity verification solution - Overview

As in Fig. 1, register the data of offline paper certificate (or digital document) in registration stage. Then, pre-treat the original data to metadata, and load the pretreated metadata to the payload of blockchain for registration (online). In verification stage, request metadata to the blockchain where the data are registered. Then, check authenticity of the data using payload data of the blockchain.

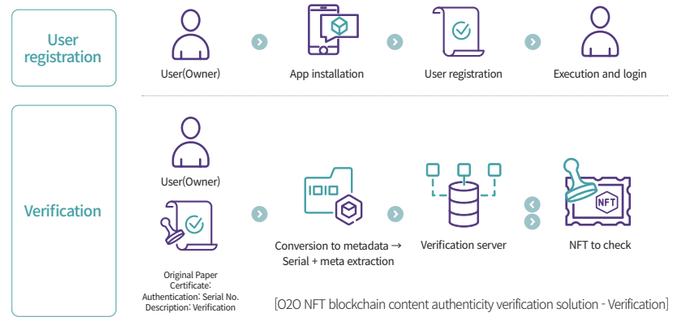


[Technological concept of O2O NFT blockchain content authenticity verification solution]

#NFT #O2O #Content #Verification #Authenticity

O2O NFT blockchain content authenticity verification solution - Registration and verification

The NFT-based O2O paper certificate registration and verification process is as shown in Fig. 2 below.
For paper certificate (or digital document) verification, extract the encrypted metadata and verify integration and conduct integration and mutual authentication between the paper certificate and target NFT. User installs application to conduct verification.
Proceed with user registration through the installed application. The user information must be the same as that registered in the registration process for O2O paper certificate verification. User photographs paper certificate in offline environment using the application, and delivers the content online. For the content of the delivered paper certificate, metadata pretreatment conversion is implemented and the pretreated data are delivered to the verification server. Then, authentication is conducted using the target NFT.



[O2O NFT blockchain content authenticity verification solution - Verification]

Features

▶ **Extracting original metadata from paper certificate, the target of registration**

- Registering the contents of paper certificate, video, picture, photo, etc.
- Implementing NFT-based content verification method in O2O environment
- Enabling users to authenticate various contents produced offline

Applications

Category	Description
Asset Data Management	• Establishing database of assets owned, and efficiently managing assets and admin. information through NFT minting
O2O Certificate Verification	• Connecting online and offline verifications using this technology

Implementation Case

Period	Project	Owner
2022	• Smart energy Net Zero system establishment	SKT

Public-private blockchain linked solution, “openGuardNFT”

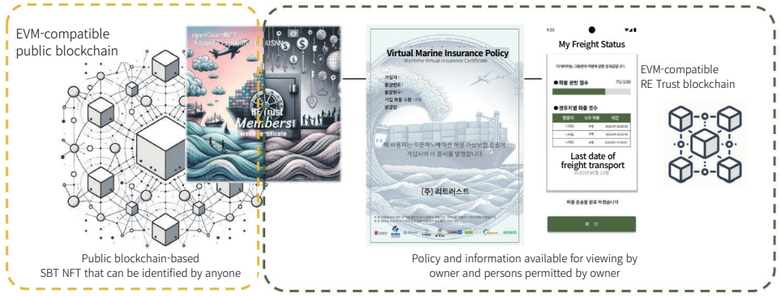
Solution Information

Name of Solution	openGuardNFT	**Developer**	RE Trust (www.retrust.world)
Solution Category	Certificates and securities using NFT	**Inquiry**	ceo.retrust@gmail.com 010-2740-8802
Core Technology	NFT, public blockchain, private blockchain		

About Solution

This solution is integrated with Klip wallet based on public blockchain (Klaytn). The issued NFTs can be identified by anyone.
It helps users store and share policies that only the respective owners can access, personal data and certificates requiring verification.
Only those permitted by the owner can access sensitive information (policy information, freight tracking history, etc.).

Public blockchain-based NFT issue	NFT re-issue in private area	Owner permitted content



#Public Blockchain #Private Blockchain #NFT #Owner Permitted #Policy

Features

▶ **Solution integrating benefits of public blockchain with private blockchain, effective for industrial application**

Applications

Category	Description
Insurance Company	• Issuing insurance policy as NFT, insurance claim through reissue, etc.
Membership	• Providing membership benefits to NFT holders

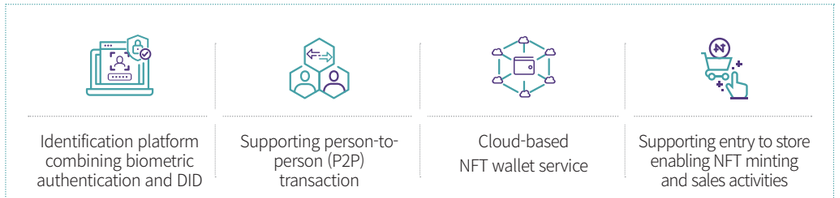
Korea's first utility NFT marketplace, "OmniOne NFT"

Solution Information

Name of Solution	OmniOne NFT	Developer	RAON Secure (www.raonsecure.com)
Solution Category	Utility NFT marketplace	Inquiry	serviceplan@raoncorp.com 070-8240-7158
Core Technology	EOSIO v2.0.3, cloud wallet, NFT (non-fungible token), Core Contract 1.8.X, eip-721		

About Solution

"New value of blockchain, better NFT experience" OmniOne NFT is Korea's first utility NFT marketplace. It enables merged NFT miniting, direct purchase from creators and transaction between users.



- Preventing forgery/tampering as NFT is stored in OmniOne App, an identification platform combining FIDO biometric authentication and blockchain DID technologies, guaranteeing security and reliability as personal data are controlled/managed by users only
- Supporting person-to-person (P2P) transaction through "market" service
- Providing cloud-based NFT wallet service
- Supporting store entry so that individual creators can freely mint NFTs for and sell their artworks

#NFT #First in Korea #Utility NFT #Real Asset-based NFT #NFT Marketplace

Features

- Guaranteeing safe transaction based on DID
- Providing real asset-based NFT
- Supporting convenient NFT transaction

Applications

Category	Description
Merged NFT	• OmniOne NFT, which combines digital art and real gold, can be used as the NFT for various utilities, such as ticket NFT and membership NFT, in addition to merged NFT

Implementation Case

Period	Project	Owner
2022	• Real asset-based gold NFT launch	Korea Minting and Security Printing Corporation
2023	• Exclusive launch of three varieties of SMATh World Gold Collection • Exclusive launch of three varieties of ANIKOON Artwork	Korea Minting and Security Printing Corporation

Music content platform based on copyright integration, “JIGPU”

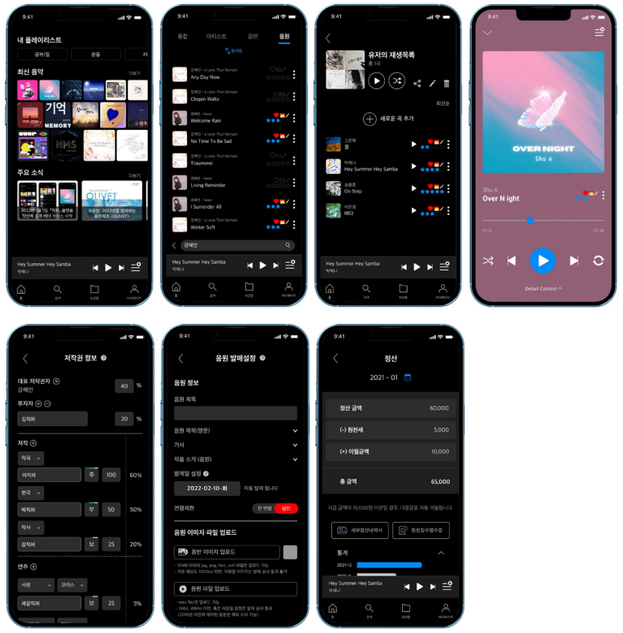
Solution Information

Name of Solution	JIGPU	Developer	KEISER (www.keiser.kr)
Solution Category	Ownership/copyright integrated NFT system	Inquiry	metalfocus@naver.com 010-9960-0640
Core Technology	Copyright integration content platform JIGPU v0.9, title and copyright integration NFT system v0.7, sound watermark technology specialized to music use and NFT v0.1		

About Solution

This is a second-generation content platform enabling free use of commercial music.

- Fundamentally addressing issues in copyright ecosystem (especially, copyright fragmentation), providing function for profit distribution contract according to internal consensus
- Integrating music release, artist management, settlement, etc. on single platform
- Sound source supply, use, automatic settlement with system linked to all external platforms including metaverse
- Integrated copyright/title NFT system, copyright management and trading

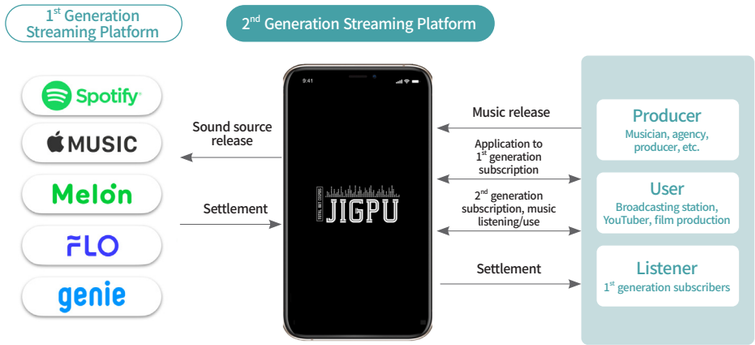


#Content Platform #Music Use #Music Search #Copyright Management/Transaction #NFT

Features

▶ **Differentiation**

- Internal planning, development and operation of JIGPU platform, integrated copyright system (Android, iOS and web supported)
- INNOBIZ, Copyright OK and GS Level 1 certifications, 7 government awards (pre-verification in legal, technological and business aspects)
- Securing authority for direct copyright control and management
- Creator subscription for free music use (Grand Prize, Contents Startup Challenge of the Ministry of Culture, Sports and Tourism)
- Profit distribution, copyright management and automatic settlement based on internal consensus
- Supporting direct music release by musicians/agencies and blockchain NFT and metaverse link
- NFT system integrating copyright and title
- Realizing the lowest service charge in the industry through reasonable system without intermediate contract/distribution



Applications

Category	Description
Music Release	• Direct music release in JIGPU service
Copyright Transaction/ Management	• Copyright management and transaction with integrated copyright NFT system
Settlement	• Automatic settlement on JIGPU platform
Music Use	• Music use without having to worry about copyright

Digital art and NFT distribution platform, “Klip Drops”

Solution Information

Name of Solution	Klip Drops	Developer	GROUND X (www.groundx.xyz)
Solution Category	NFT exhibition and distribution platform	Inquiry	biz.klipdrops@groundx.xyz
Core Technology	Klaytn		

About Solution

This is a service to exhibit and distribute digital art and collectibles in Klip, a digital asset wallet. Users can conveniently purchase artworks from dFactory, which introduces the merchandises and collectibles of various creators, and 1D1D (One Day One Drop), which focuses on the works of artists, and trade them in Market. In addition, Drops Partners Tool has been developed to help enterprises directly register, and autonomously exhibit, sell and distribute NFT works. Klip Drops creates a healthy environment where everyone can conveniently enjoy and own digital art, and establishes a foundation for creator economy to actively support artists.

ONE DAY ONE DROP - Unveiling works of only one creator per day	Famous artists for fine art, media art, illustration, etc. selling digital artworks	Selling digital collectibles based on utility using famous enterprises, brands and IPs of Korea

Features

- Providing high-quality UI/UX based on Kakao DNA
- Mobile-centric service with customer accessibility improved unlike other computer-centric blockchain services
- Trading and distribution of digital art and collectibles with legal stability secured based on transfer agreement
- Supporting mobile phone payment, account transfer, payment in Korean currency (KRW), etc. for convenient purchase
- Providing online/offline linked utility service together with digital collectibles marketing event planning

#NFT #Blockchain #Klip #Digital Asset #Digital Art

Applications

- Digital art
- Digital ticket
- PFP
- Digital certificate
- Digital collectibles
- Digital gift voucher
- Digital coupon

Implementation Case

Period	Project	Owner
2022	• 10th anniversary digital collectibles for Naul’s first regular album [Principle of My Soul]	PANIC BUTTON
	• Characteristic digital collectibles of seven webcomics artists	media22c
	• Art Busan 2022 <Digital Art NFT Special Exhibition>	Art Busan X Graywall
	• Neo Brain Tiger Club, the generative art of AI artist KARLO	Kakao Brain
	• Seoul Illustration Fair <My Digital Art Library, SIFTing>	sweetmonday
	• 2022 Hodori Returns PFP project	Graphique
	• Ticket for Everland Bomb Bomb Man summer digital collectibles	Samsung C&T Everland Resort
	• KIAF and Incheon Airport special NFT exhibition <We Connect Art & Future>	Galleries Association of Korea
	• BUD X CONNECT NFT project with five artists and Budweiser supporters	FIG
	• Virtual architecture project	Wobistdu Q 7 Architects
	• NEXT MUSEUM opening exhibition <Fruit Island> digital art	Lotte Department Store X M Contemporary

NFT digital card issuing tool, “Klip Partners”

Solution Information

Name of Solution	Klip Partners	Developer	GROUND X (www.groundx.xyz)
Solution Category	NFT issue and management platform	Inquiry	klip-partners@groundx.xyz
Core Technology	Klaytn		

About Solution

This is a tool for NFT digital card issue. With simple UI and UX, it helps partners conveniently issue and manage TFT cards. Partners can issue NFT cards according to various purposes, and conveniently manage them in the digital asset wallet, Klip. Currently, Klip Partners has secured approximately 110 partners including Shinsegae Department Store, Shinhan Bank and GS Retail.

Service enabling large-scale NFT card issue and transmission to customers without programming

Klip, NFT card storage wallet

Online store for partners

Features

- **Enabling everyone to conveniently issue NFT card**
- **Ensuring use without the complicated smart contract distribution, management and operation**
  - Enabling users to issue and manage NFT card immediately after sign-up without the need for IT development in the admin. page for partners
- **Issued NFT cards conveniently checked through Klip**
- **Supporting escrow function not requiring separate wallet address or user information**
  - Function to send an issued card to user by generating an individual link for the card

#NFT #Blockchain #Klip #Digital Asset #Digital Certificate

Applications

- **Certificate of authenticity for luxury items**
- **Game items**
- **Certificate for event participation**
- **Certificate for donation participation**
- **Supply of paintings (art) for event and promotion**

Implementation Case

Period	Project	Owner
2020	• Certificate for donation event participation	Good Neighbors
2021	• Supply of authentication certificate • Supply of mobile game items	SSG NOD Games
2022	• Certificate for event participation • Certificate for participation in marathon race	Korea Internet & Security Agency Ilsong Foundation

Blockchain-based NFT marketplace supporting digital content title and copyright transaction, “TAMTAM”

Solution Information

Name of Solution	TAMTAM	Developer	LSware (www.lsware.co.kr)
Solution Category	Digital content marketplace	Inquiry	roland@lsware.com 02-6919-0321
Core Technology	Ethereum NFT, copyright use permission transaction technology		

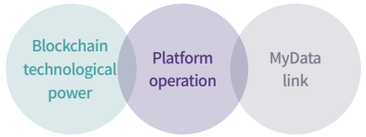
About Solution

This is a platform for digital art title (NFT) issue and transaction based on POLYGON chain. It also enables the purchasers of all rights associated with digital art including copyright (license, user permission) to trade the rights according to their purposes of use. Aiming to become a total management platform, TAMTAM protects the creators’ rights to their works and guarantees secure transaction for purchasers.

Service Concept

TAMTAM is a safe marketplace for digital work-based NFT artwork title transaction

[Gateway to success for rising digital artists, incubating platform for young creators]



- Project exhibition for young artists
- Education to improve awareness of license (use permission)
- First case of NFT use permission sale
- Supporting sustainable profit structure for young artists

Service Flow

NFT Token Minting
Issuing tokens for digital contents according to ERC-721 standard

Title/Copyright Transaction
Providing function to trade permissions for title and copyright use

Copyright Check
Providing function to check copyright information of content for token issue

▶ **Registration Authentication** Registering and managing transaction details for the titles and copyrights of NFT art based on digital works

▶ **Transaction Authentication** Trading titles and copyrights of NFT art based on digital works through transfer or use permission contract within the platform

#NFT #Blockchain #Web3.0 #Copyright #Content

Features

▶ **The One and Only NFT Copyright Trading**
- Enabling transaction of copyrights and use permissions as approved by artists according to the purchaser’s purpose of use in addition to NFT work (title) transaction
- Ensuring transparent management of title and copyright use permission transaction details by recording them on blockchain

▶ **Supporting Sustainable Profit Structure for Creators**
- Providing royalty system through which proceeds from the N^{th} sale of an NFT work are partially paid to the creator to create a sustainable profit structure
- Enabling profit generation through transaction of copyrights in addition to sale of works

▶ **Low Service Charge (Gas Fee)**
- Service charge lower than that of other companies as Ethereum Layer 2 Polygon network is adopted (for NFT issue and transaction)

▶ **Reliable Service**
- Checking copyright registration status of NFT from the pre-minting stage
- Enabling only verified artists to mint and trade NFTs

Applications

Category	Description
Converting Real Artworks to NFTs and Trading Intellectual Property Rights	• Enabling title and copyright transaction for real artworks through NFT issue, transparently managing all transaction details
Use as Financial Information	• Ensuring reliability of financial transaction information of artists and creators who lack financial transaction information in relation to royalty income for which electronic transactions hardly take place, or have difficulties providing the income, and providing it in a structured format
Use in Metaverse Environment	• Copyright NFT platform technology applied for transparent copyright transaction and distribution in relation to contents used in metaverse environment

Implementation Case

Period	Project	Owner
2022	• TAMTAM https://tamtam.art/ • Participation in open metaverse asset platform development for digital copyright management • Participation in blockchain-based work protection and use technology development supporting large-scale virtual performance platform • Participation in trust-guaranteed metaverse media service platform technology development	LSware Korea Creative Content Agency Institute of Information & Communications Technology Planning & Evaluation

Blockchain-based digital art & NFT platform, “2R2.io”

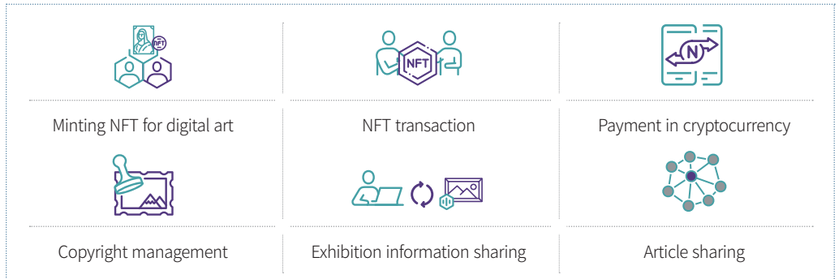
#NFT #Platform #Reward System #Digital Content #2R2

Solution Information

Name of Solution	2R2.io	Developer	ARTTOKEN (arttoken.ai)
Solution Category	NFT transaction platform establishment and management, personal contact, voting reward protocol	Inquiry	info@arttoken.ai 02-556-1880
Core Technology	22R2-point system Beta V.2.05.22, patent applications in relation to the method of rewarding for ERC20 and ERC721 token balancing, method of NFT voting and rewarding using ERC20 token and method of rewarding for NFT holding by NFT purchasers		

About Solution

Using blockchain technology, this solution protects copyright of digital art by issuing NFT and provides NFT transaction function.



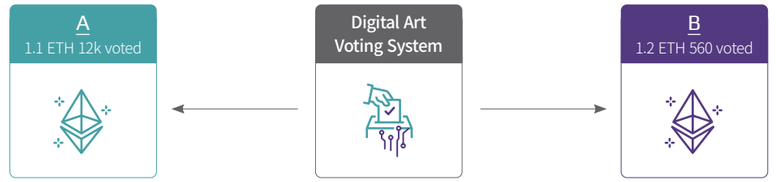
Features

▶ **Digital Art Information**
- Regenerating digital art in image and video formats
- Providing information on digital art price, exhibition history, etc.
- Providing information on artist’s portfolio, exhibition history and social network account
- Creating and sharing digital art articles

▶ **NFT Transaction**
- Minting NFT for digital art Function
- Registration for NFT sale and purchase offer
- Payment in cryptocurrency
- NFT transaction history

▶ **Digital Art Voting System**
- Users voting real-time on their favorite works
- Convenient to understand value of work
- Assisting artists to perform creative activities with collectors’ needs reflected
- Attracting users’ attention to the works and artists they have voted for
- Encouraging artists’ creative activities

▶ **Reward System**
- Providing points that can be used in service as reward
- Paying reward when user participates in a beneficial activity



Applications

Category	Description
Digital Art	• Copyright protection and trading using digital art NFT
Digital Content	• Copyright protection and trading using digital Content NFT for movies and webcomics, etc.
Fashion	• Providing o2O service by binding fashion items as NFTs
Entertainment IP	• Providing content service using IPs of celebrities, etc.

This solution can be applied to platforms designed for artists and creators to directly distribute their contents and more safely generate greater profits. Providing a contract to continuously earn transaction fees from the Nth sales, users can also use a function to distribute profits to various accounts at fixed rates upon a contract generation. As such, this solution is designed and serviced in a way to activate online collaboration with artists, and achieve convenient profit distribution through on-chain transaction history management.

The reward system, which promotes market participation, encourages fans to vote for their favorite works and receive reward through the voting process. For collectors and investors holding NFTs, a collector-first protocol was developed to provide reward just for holding NFT works.

Implementation Case

Period	Project	Owner
2022	• Klaytn-based art NFT marketplace	ARTTOKEN
2023	• 2R2.io - blockchain-based digital art NFT marketplace	ARTTOKEN

NFT-based online/offline customer management solution, “FAVORLET”

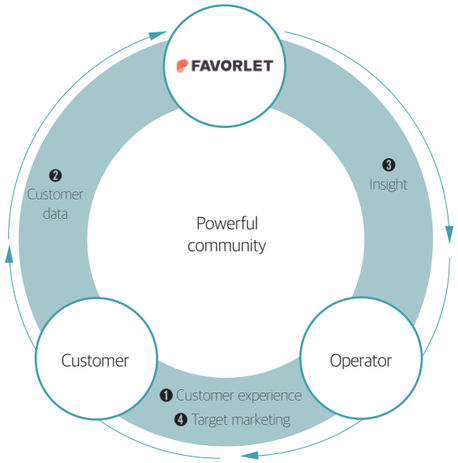
Solution Information

Name of Solution	FAVORLET	Developer	Finger Labs (www.fingerlabs.io)
Solution Category	NFT-based online/offline customer management solution	Inquiry	favorlet@fingerlabs.io 02-552-9515
Core Technology	NFT(ERC-721, ERC-1155)		

About Solution

FAVORLET is an NFT-based online/offline customer management solution.
With FAVORLET, users can achieve more powerful brand loyalty by issuing and operating NFT-based memberships, tickets and commemorative cards. Through this process, customers can experience the brand without having to provide their sensitive personal data and receive various benefits.

Forming NFT-based MOTs through membership, ticket, commemorative card, etc.	Providing communication tool to holders	Function to link online/offline benefits	Dashboard for data of holders



#Blockchain #NFT #Business Infrastructure #Customer Management #Marketing

Features

▶ **Customer Data Collection Based on Areas of Interest**
- Completing customer ID collection through three stages; app installation, login and QR scanning
- Collecting customer data with high reliability through collection of performance tickets, poster cards, etc.

▶ **MOTs Created with Diverse Scenarios**
- Business scenarios generated according to purpose such as commemoration/authentication card, ticket, membership and stamp tour
- Designed for online/offline experiences using QR scan function

▶ **A Variety of Communication Tools Making Customers to Come Back**
- Private news provided only to the authenticated customers
- Push notification to customers according to specified conditions
- Simple offline customer authentication using dedicated scanner app

▶ **Mutual Marketing Not Requiring Personal Data Use**
- Using wallet address, the unique ID of customer, to replace CI
- Mutual use of diverse customer data among businesses without the need for separate API development
- Mutual marketing targeting customers visiting different events

Applications

Category	Description
Marketing	• Achieving successful mutual marketing through online/offline integrated data collection which does not require separate API development
Membership	• Exclusive business membership operated at low cost without the need to establish a separate server
Offline Event	• Ensuring successful event operation through participation eligibility check and online/offline linked benefits

Implementation Case

Period	Project	Owner
2023	• Web 3.0-based festival visit authentication and hackathon voting system • Official wallet for membership, authentication of membership mission completion and receipt of benefits • Digital poster issue and membership management • UMF Abu Dhabi official wallet, admission and receipt of benefits	Seoul Metropolitan City Grand Walkerhill K Museum of Contemporary Art Fellaz

Digital Wallet Establishment/ Management

PART 2. About Solution

123. Gate3
124. D'CENT
125.ByWallet Framework (decentralized social wallet technology)
126. Basic Finance
127. Blockchain PKI security solution
128. ABC WaaS
129. MPC wallet solution
130. OHI Wallet
131. Octet
132. WELLDONE Wallet
133. zkWallet
134. KLAATOO
135. kiwi3
136. Decentralized data hub technology (DIDH)-based digital wallet
137. Hi-cWallet
138. Hi-pWallet

Social authentication-based blockchain digital wallet, “Gate3”

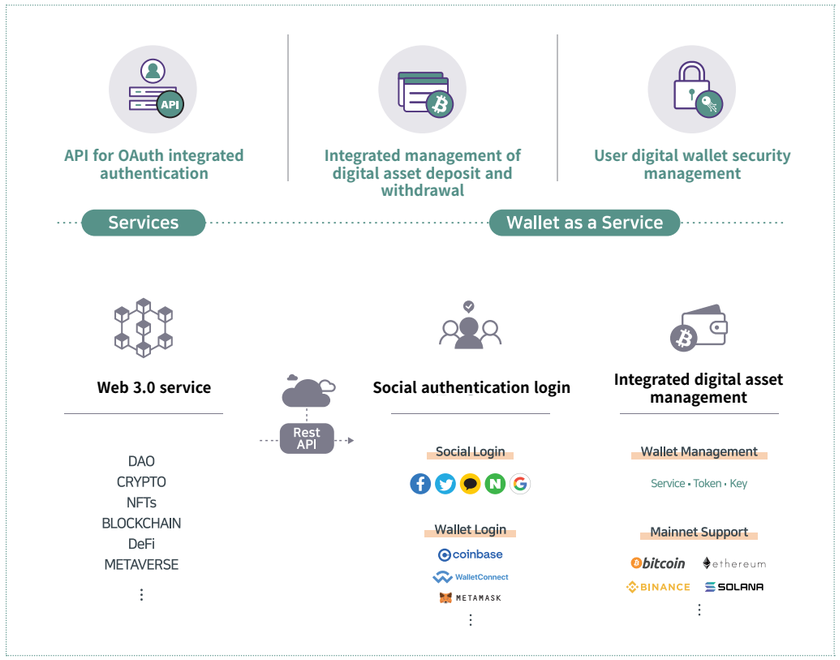
Solution Information

Name of Solution	Gate3	Developer	JIRANSECURITY (www.jiransecurity.com)
Solution Category	Integrated wallet management platform service	Inquiry	gate3@jiran.com 02-2006-6994

About Solution

This is a blockchain wallet service used through social authentication that guarantees high convenience and safety for enterprises experiencing difficulties in web 3.0 service infrastructure establishment and users finding the service access difficult. Enterprises can conveniently and safely provide various NFTs and new utility tokens to the user’s wallet through API that is provided by Gate3 without the need for separate infrastructure establishment. Users can conveniently create an integrated digital wallet and safely manage their digital assets through social login even if they do not know the MainNet and wallet type.

- Supporting various MainNets with single wallet
- Minimizing risk in personal wallet management security
- Using web 3.0 service through social login



#Blockchain #Social Login #Web Wallet #Integrated MainNet Management

Features

▶ API for OAuth Integrated Authentication

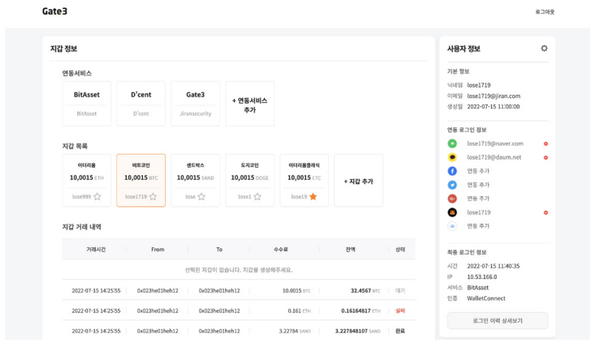
- Using APIs provided by Gate3, enterprises can provide MOT service without the need for separate infrastructure establishment, and users can conveniently access the service through social authentication.

▶ Integrated Management of Digital Asset Deposit and Withdrawal

- Users can comprehensively search the dispersed digital asset (Bitcoin network, Ethereum MainNet, etc.) deposit and withdrawal details and asset information in Gate3.

▶ User Digital Wallet Security Management

- The digital wallet keys automatically created upon Gate3 membership sign-up are safely distributed in the cloud system. Therefore, the issue of difficult wallet management by individuals is resolved.



Applications

Category	Description
Authentication Outsourcing	• Used for authentication outsourcing of services intending to concurrently provide web 3.0 authentication
Web 3.0 Infrastructure Development	• Enterprises providing web 3.0 services can provide digital asset or digital certification service through connection to the service for issue without having to establish separate infrastructure
Integrated MainNet Management	• Web-based service from user’s perspective enabling integrated transaction and MainNet management

Implementation Case

Period	Project	Owner
2022	• Integration with digital asset management project bitAsset service • Integration with web wallet service WePin for digital asset management	ubiWare IoTrust
2023	• Service integration for project to verify exhibition participation of B, a company specializing in information security, under development	

Mobile-linked hardware wallet solution, “D’CENT”

Solution Information

Name of Solution I D’CENT

Developer I IoTrust(www.dcentwallet.com)

Solution Category I Digital asset management solution

Inquiry I contact@IoTrust.kr
02-1833-4022

About Solution

- Named after decentralization, which is the background of the birth of blockchain, D’CENT was launched in 2018 as the world’s first hardware wallet supporting fingerprint authentication and Bluetooth functions.
- To maximize user convenience, digital assets are managed through three different types of wallet using D’CENT mobile app.

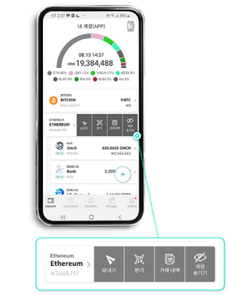
ETRI Wallet, Biom

Card type Wallet

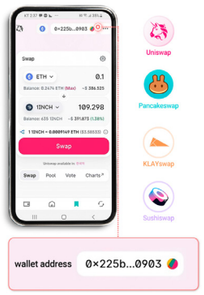
App Wallet

- In NFT tab, a total of six network-based NFTs including Ethereum network are managed.
- In Discovery tab, DApp service based on over 40 MainNets can be used.
- In Account screen, a function to purchase, exchange and swap digital assets has been added.

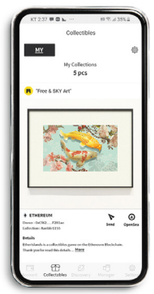
Exchange



Swap



NFT Management



#D’CENT #Digital Asset Wallet #Cold Wallet #Fingerprint Authentication
#Decentralized Finance #Blockchain #Digital Asset

Features

▶ **Providing hardware wallet, which is essential for wallet security, with industry top-level security technology**

- [Hardware Design] Security chip set separately mounted, fingerprint authentication button adopted to increase security
- [Internal Firmware] Security software enabling stable operation of two chips, MCU and Secure Element, is the key technology. OS implemented in hardware device is uses TEE technology of IoTrust and smart card OS technology applied to Secure Element.
- [Digital Signature Protection] When the stages before digital signature are implemented and digital signature is completed in the hardware device and smart card, the signature is sent to mobile app.
- [Hardware Production] The security information of product cannot be decrypted externally upon leakage. However, for improved security, automated minting equipment has been introduced for production to implement this process within a limited on-premise space.

▶ **Providing mobile-centered interface along with app with high user convenience for customers using DeFi**

- [Supporting OS] One of two products supporting iOS among the industry top-ranking products (the other is Ledger Nano X)
- [Integration with Various DeFi Services] Prioritizing fastest integration with the newly launched DeFi service, the number of supported MainNets larger than that of other companies
- [Increasing User Convenience] Enabling users to check the assets deposited in various DeFi services at once on D’CENT app, processing of DeFi services in partnership possible on D’CENT app

Applications

▶ **Digital asset management and decentralized financial service**

▶ **Digital identification**

Framework for decentralized wallet creation and management, “ByWallet Framework”

Solution Information

Name of Solution	ByWallet Framework	Developer	Biyard(Biyard.co)
Solution Category	Non-custodial wallet management	Inquiry	miner@biyard.co 010-4460-4709
Core Technology	Not dependent to blockchain network, currently supporting EVM-type account management		

About Solution

▸ **Problem Set**

- For most decentralized wallets, such as MetaMask, mnemonics (seed phrase) need to be managed and, when password and mnemonics are lost, it is difficult to recover the account.
- Each of these wallets requires separate input by equipment, such as computer or mobile device.
- To address this weakness, wallet services with key management in the central server similarly to the existing web 2.0 were launched. However, there have been a number of hacking accidents causing users to unintentionally exploit the keys.
- As the wallet management entity manages the user’s personal data for wallet management, there is a risk of personal data loss.

▸ **Solution**

- Integration with Social Login: The inconvenience of having to manage mnemonics is resolved.
- Social Login-based Decentralized Wallet: Users can conveniently create the same blockchain account even without mnemonics.
- Resolving Issue of Personal Data Loss: No information with which users can be identified is saved in the server.

Convenient non-custodial wallet management	Wallet recovery function

This is a social authentication-based decentralized wallet management framework. When a user logs in through web 3.0 social service, such as Kakao Talk or Google, and enters the password for wallet management, a non-custodial wallet is created. The wallet information is saved and managed only in the user’s web browser or mobile device.

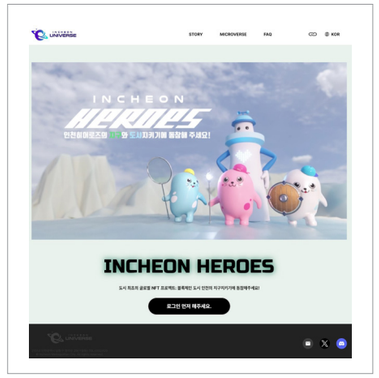
#Non-custodial Wallet #Social Login #Wallet Recovery

Features

- Enabling users to create and manage non-custodial wallets through social login without having to go through the process to enter mnemonics
- Enabling users to manage wallet in browser without installing an extension, such as MetaMask or Kaikas
- Enabling users to conveniently create and use non-custodial wallets through social app, such as Kakao Talk and Google

Applications

Category	Description
Blockchain Service	• Applicable to blockchain and web 3.0 services using wallet



Currently, the simple wallet management framework is applied to Incheon Universe (incheon.world), a digital citizenship project of the Incheon Metropolitan City.
In fact, more than 70% of NFT holders have conducted their first minthing by using simple wallet of Google or Kakao Talk.

Implementation Case

Period	Project	Owner
2023	• Incheon Universe Platform planning/establishment for urban branding	Incheon City Hall

Secure and reliable virtual asset custody solution, “Basic Finance”

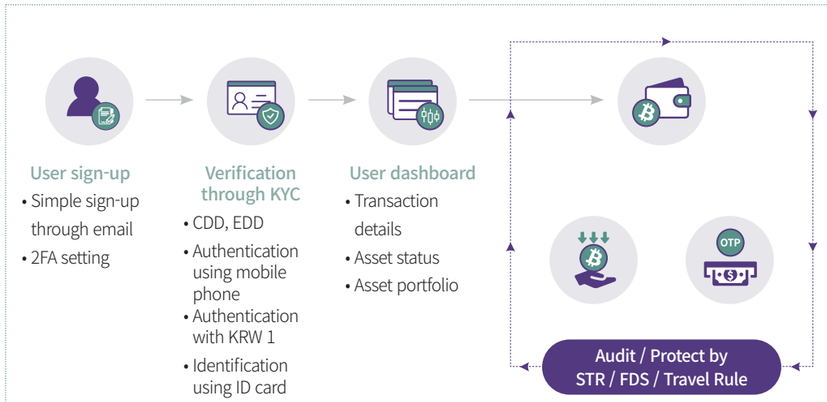
Solution Information

Name of Solution	Basic Finance	Developer	mind shift (www.basic.finance)
Solution Category	Virtual asset storage service	Inquiry	support@mindshift.co.kr, support@basic.finance, 02-543-6216
Core Technology	Multi-signature, private key management		

About Solution

Basic Finance provides virtual asset deposit/withdrawal and storage management service using cold wallet and multi-signature wallet.

Free deposit and withdrawal	Dashboard	2FA



#Virtual Asset Storage #Virtual Asset Wallet #ISMS Authentication #Multi-signature Technology #Cold Wallet

Features

▶ **Regulatory Compliance**
- Strictly complying with regulations to provide customer identification, travel rule, suspicious transaction report and safe storage service

▶ **Security**
- Safe transaction approval system established through multi-signature technology application
- Preventing unapproved asset leakage by establishing fraud detection system (FDS)
- Information security management system (ISMS) authentication

▶ **Cold Wallet**
- Protecting assets by limiting cold wallet access and conducting periodic inspections
- 80% of total customer asset securely stored in cold wallet with network disconnection

Applications

Category	Description
Virtual Asset Management Company	• Secure storage of assets held
Exchange	• Wallet to separately store customer’s asset or support asset deposit/withdrawal
Individual	• Wallet service for free deposit and withdrawal

PKI storage algorithm and card-type wallet for safe digital asset storage, “Blockchain PKI security solution”

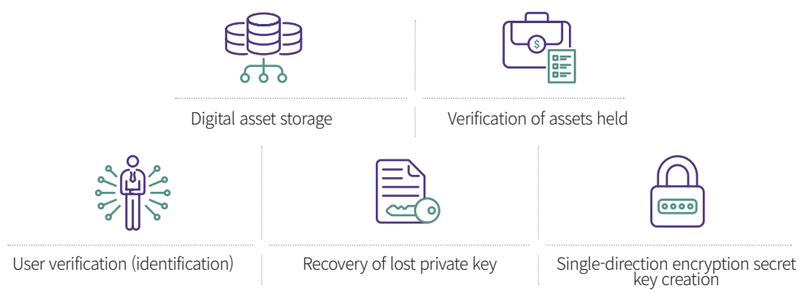
Solution Information

Name of Solution	Blockchain PKI security solution	Developer	RealCheck (realcheck.co.kr)
Solution Category	Secure digital asset storage	Inquiry	contact@event-club.co.kr 010-7193-7235
Core Technology	Bitcoin core 25.0, blockchain private key, address QR generation program (v1.0), digital asset storage wallet (v0.9)		

About Solution

▶ **This is a card-type wallet solution with PIK storage algorithm applied for safe storage of digital assets.**

- Ghost-PKI private key storage and management technology
- Blockchain PKI security algorithm QR design
  - GPA optimization and system framework configuration, QR design algorithm development
- Ownership identification system
  - Protection through email SHA-256 encrypted storage
- Security strengthened with secondary authentication, such as to use Google OTP for pharming prevention



▶ **Digital Asset Storage**

- Safely storing digital assets to prevent hacking, and enabling users to check their digital asset holding by scanning QR code printed on the real card

▶ **Verification of Assets Held**

- Enabling users to verify their digital asset balance in blockchain to a third party and provide digital assets as collateral, preventing withdrawal of digital assets provided as collateral during the collateral period and verifying asset balance concurrently with the guaranteeing of the collateral function

▶ **User Verification (Identification)**

- Encryption key issuing server certifying the asset holder’s identity information and verifying balance using the identification certificate issued by a certification agency

▶ **Recovery of Lost Private Key/Single-direction Encryption Secret Key Generation**

- Comparing the newly created encryption secret key with the saved secret key and recovering user’s private key if the encrypted secret key matches the hidden secret key

#Encrypted Storage #Digital Asset #Security Solution #Card-type Wallet #PKI Technology

Features

▶ **Eliminating the need to pay expensive cost for cold wallet (offline digital asset wallet) or store mnemonic (private key) (online digital asset wallet) codes for digital asset storage, the wallet address, public key and private key are issued together and provided in the form of a printed QR code.**

▶ **Printed in the same weight and shape as those of credit card**

▶ **Free from the risk of hacking, unlike online wallet (exchange), although app and online login (OTP, etc.) is used**

Applications

Category	Description
Digital Asset Storage	• Safely storing digital assets
Digital Asset Transmission	• Transmitting assets by scanning card or QR code on card
Verification of Digital Asset Holding	• Enabling users to verify their digital asset holding by scanning the QR code provided, issuing digital asset balance certificate containing the identified user’s digital asset balance and identity information
Identification	• Login to digital asset storage wallet using authentication means, such as secondary login

SaaS wallet to use blockchain technology with RESTful API, “ABC WaaS”

Solution Information

Name of Solution	ABC WaaS	Developer	AhnLab Blockchain Company
Solution Category	B2B SaaS-type blockchain secure wallet		
Core Technology	EVM Compatible	Inquiry	jackson@ahnlab.com 031-722-8000

About Solution

An SaaS-type security blockchain wallet infrastructure is provided to help users add blockchain wallet to their web 2.0 services or enterprises intending to start web 3.0 services conveniently add MPC blockchain wallet without mnemonics using API.

Supporting Social Login

- Conveniently integrating solutions held by customer using the social network login function

Wallet Management

- Simply restoring lost key because a private key is not separately created

Wallet Statistics

- Providing statistics of a wallet for an account linked by customer in a dashboard format

Providing Blockchain Security Intelligence

- Providing diverse security functions through connection with the blockchain security intelligence of AhnLab Blockchain Company

#Blockchain Wallet #B2B2C Wallet #Service-type Wallet #Cloud Wallet #SaaS Wallet

Features

This is an SaaS wallet that effectively supports domestic enterprises. It supports blockchain networks of various scales in Korea that are not supported by wallet companies overseas. In addition, it enables effective identification of user needs and characteristics as only one wallet address is provided per social network account.
Ensuring swift introduction of web 3.0 wallet at a low cost, ABC WaaS assists in rapid business growth.

Applications

Category	Description
Web 2.0 Service	• Collective wallet creation and connection for existing service users
Web 3.0 Service	• Supporting web 2.0 login for existing service users

The only wallet infrastructure for enterprises, “MPC wallet solution”

Solution Information

Name of Solution	MPC wallet solution	Developer	inbl.io
Solution Category	Digital wallet API	Inquiry	contact@inbl.io 02-538-2374
Core Technology	MPC-based digital wallet solution		

About Solution

In the world of blockchains, wallet has become a basic infrastructure. MPC wallet solution will be the best partner for enterprises in need of a wallet for internal blockchain service development.

- MPC wallet offers improved security because the participants split their private keys for storage, and combine them only when needed. Therefore, it is safe from the single point of failure.
- With the existing key storage method, the title to all assets can be lost once the private key is lost. With MPC, however, users can access their assets using other key fragments even when they loss a single fragment.
- In addition, it generates a transaction through single signature, as opposed to multi-signature that requires several signatures, and therefore can lower the service fee and reduce processing time.
- inbl.io’s wallet solution APIs help users focus on service development without the burden for wallet development.

Flexible key management

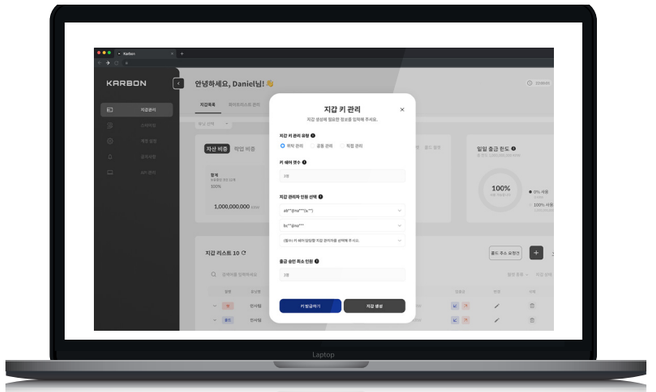
Simple authentication using app

MPC-based secure key storage

#Electronic Wallet #Blockchain #MPC #API #Digital Asset

Features

- Allowing users to establish internal wallet system according to their needs using API
- Advanced security compared to the conventional key creation method
- Wallet enabling asset title recovery upon key loss
- Faster transaction at lower cost
- Simple, convenient and customer-friendly UI/UX



Applications

Category	Description
Key Signature	• MPC key signature for withdrawal following authentication using app
Digital Wallet API	• Providing functions necessary for electronic wallet system establishment as APIs
Admin. App	• Safely storing and managing electronic wallet keys using app

WebView wallet service easily mounted on financial, retail and NFT market apps, “OHI Wallet”

Solution Information

Name of Solution	OHI Wallet	Developer	Hexlant (www.hexlant.com)
Solution Category	Digital wallet link, NFT issue and management, virtual asset deposit and withdrawal management	Inquiry	contact@hexlant.com 070-7711-2733
Core Technology	CIF (connecting information)-based wallet creation technology		

About Solution

▶ **OHI Wallet Digital Wallet Conveniently Linked by Developers**
- OHI Wallet is a digital wallet solution developed in the form of WebView.
- OHI wallet creates and provides customers’ digital wallets through customer CI information matching.
- Customers can provide digital wallets by registering and integrating the WebView domain in their apps without the need for a wallet development.

▶ **OHI Wallet Digital Wallet Assisting in Regulatory Response**
- Having obtained the ISMS and VASP licenses, OHI Wallet complies with the Act on Reporting and Using Specified Financial Transaction Information.
- Using this service, the wallet management and supervision entities can lower the customers’ regulatory burden through Hexlant.

Convenient WebView link	Virtual asset deposit/withdrawal/storage	NFT deposit/withdrawal/storage
NFT issue and payment	NFT coupon insertion and use	Response to the Act on Reporting and Using Specified Financial Transaction Information

Features

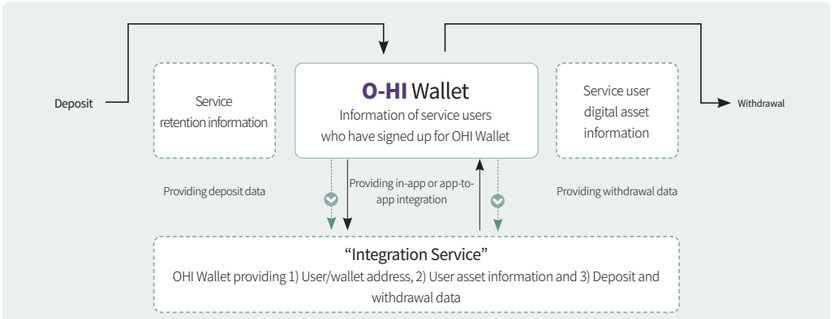
▶ **Digital Wallet Complying with the VASP License Criteria**
- Implementing customer due diligence
- Implementing CDD, EDD, WFL, AML and FDS policies
- Conducting deposit and withdrawal security management

▶ **NFT Wallet for App Users, Target Marketing Wallet for App Companies**
- Ensuring NFT issue/payment and coupon insertion, providing benefits, enabling coupon use
- Conducting target marketing using online/offline NFT data generated in WebView

#Digital Wallet #NFT #VASP #Travel Rule #WebView

▶ **WebView Wallet for Integration with Financial Sector and Legacy Systems**
- Supporting CI-based wallet creation management system
- Monitoring transactions occurring in WebView
- Securing scalability to NFT and STO wallets

Regulatory Response as Virtual Asset Business Operator, **OHI Wallet for Deposit and Withdrawal Management**



Customer due diligence | CDD/EDD/WLF | AML | FDS | Multi-signature | Withdrawal security | Deposit and withdrawal

Applications

Category	Description
Financial Industry	• Providing NFT for the purpose of increasing app retention by establishing WebView in app, subsequently expanding digital wallet to STO wallet
Retail Industry	• Providing badge-type NFT for customer activities, conducting user-targeted marketing based on badge acquisition data
Game Industry	• Establishing WebView in game service to issue and store item NFTs, providing NFT transaction service through gift function between wallets
Cultural (Entertainment) Industry	• Issuing ticket NFTs and providing NFT ticketing function for exhibitions, concerts, etc., conducting target marketing following ticket NFT data monitoring

Implementation Case

Period	Project	Owner
2019	• OHI Wallet in Syrup Wallet	SK planet
2023	• NFT wallet for SOL Banking • NFT wallet	Shinhan Bank Jeonbuk Bank

Blockchain wallet solution, “Octet”

#Digital Wallet #Multi-signature #ISMS #API #NFT

Solution Information

Name of Solution	Octet	Developer	Hexlant (www.hexlant.com)
Solution Category	Digital wallet creation and management, NFT issue and management, custodial/non-custodial wallet management	Inquiry	contact@hexlant.com 070-7711-2733
Core Technology	Multi-signature TSS, multi-signature SSS, on-chain data parsing, Tx transmission and management, etc.		

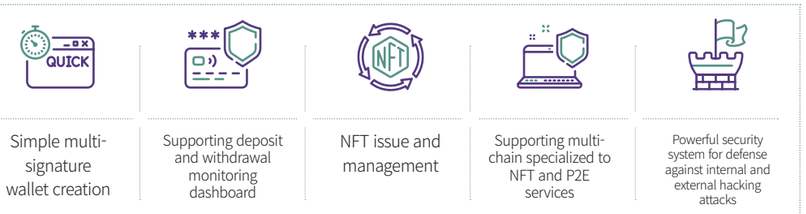
About Solution

▸ **Octet API service essential for blockchain companies**

Octet is an API solution providing essential functions for blockchain infrastructure development including digital wallet creation, digital asset storage and deposit and withdrawal. For services handling digital assets such as exchange, NFT and P2E game, blockchain wallets can be created and deposit/withdrawal system can be applied using Octet.

▸ **Octet SaaS creating the maximum web 3.0 service with the minimum development resources**

Using approximately 100 APIs, a stable system can be created even with few development resources. The solution also supports a number of MainNets (2), and therefore ensures fast business expansion for customers.



Features

▸ **Providing All-in-one Infrastructure for Wallet Development through Compliance with Legal Regulations and Security Requirements**

- First wallet solution to win ISMS certification
- Complying with security standards for response to travel rule according to the Act on Reporting and Use of Specified Financial Transaction Information
- Establishing asset stripping prevention system with multi-signature function
- Separating admin. privilege for internal hacking prevention and providing monitoring system
- Providing file on asset settlement details necessary for accounting/tax processing

▸ **Convenient Structure for Service Link without Burden on Developer**

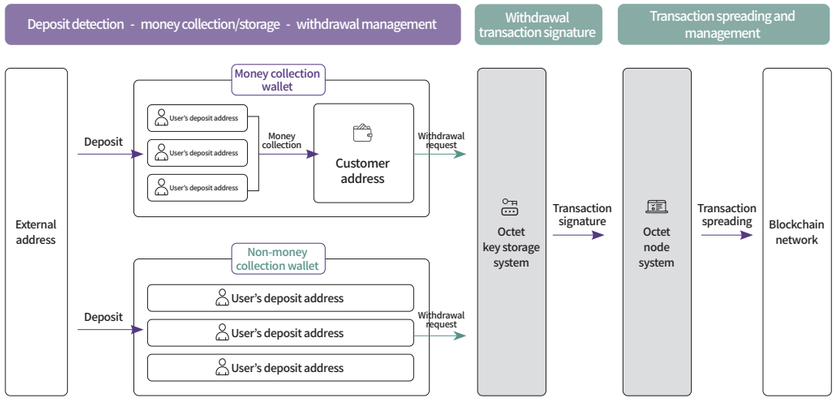
- Supporting the largest number of MainNets (20) in Korea through single unified API
- Supporting response to hard fork and new function update according to market situation
- Supporting multi-chain, NFT issue, staking, wallet connection, etc.

▸ **Deposit/withdrawal Monitoring for Service Admin. And Dashboard for Security Setting**

- Monitoring: Wallet balance, deposit/withdrawal details, details of service fee use, admin. activity log, etc.
- Security Setting: API key management, IP white list, withdrawal address white list
- Withdrawal Setting: Withdrawal manager separation, withdrawal approval setting, double withdrawal prevention, etc.

Applications

Category	Description
Financial Industry	• Securing user wallet data for CBDC and STO based on digital wallet creation technology
Marketplace	• NFT issue and deposit/withdrawal, NFT transaction detail management, settlement management for creators
Game and DApp	• Expanding to payment infrastructure based on management of ledgers generated from in-game NFT exchange, etc.
Development and Educational Industry	• Supporting token creation and transmission, and NFT creation for blockchain technology learning
Public Industry	• Providing wallet management system in relation to certificates including certificate of career for public projects



Implementation Case

Period	Project	Owner
2018	• Digital asset wallet service (Syrup Wallet)	SK planet (IT)
2019	• Blockchain key management service application • KlaytnPhone wallet service	Shinhan Bank (finance) Samsung Electronics (IT)
2020	• Support for blockchain node application to Coinone, a digital asset exchange	Coinone (exchange)
2021	• Participation in Cardo, a digital asset custody project	NH Nonghyup Bank (finance), etc.
2022	• Participation in digital warranty service development	Shinsegae I&C (IT)
2023	• Octet API application to NFT marketplace, kottonseed • Octet API application to NFT marketplace KONKRIT • Support for NFT certificate issue in educational service, iScream edu	Lotte Innovate Company (IT) MODERN LION (IT) i-Scream edu (education)

Multi-chain wallet supporting various types of blockchain, “WELLDONE Wallet”

#Multi-chain #web3.0 #dev #web3dev #Development

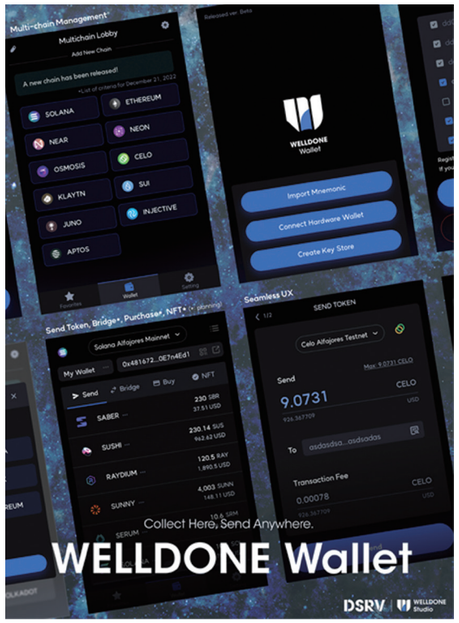
Solution Information

Name of Solution	WELLDONE Wallet	Developer	DSRV LABS(www.dsrvlabs.com)
Solution Category	Multi-chain wallet	Inquiry	welldone_cs@dsrvlabs.com 070-4267-3108
Core Technology	Establishing flexible and highly reliable wallet system using @dsrv/kms, a multi-chain signature open source package developed by WELLDONE Studio		

About Solution

WELLDONE Wallet is an integrated non-custodial wallet to freely manage assets in all networks. Freely explore between chains and the functions provided by web 3.0. Put all your eggs in one basket.
Currently, WELLDONE Wallet is supporting nine industry leaders such as Aptos, Celestia, Celo, Cosmos, Ethereum, Juno, Klaytn, NEAR, Neon, Solana and Sui.

Multi-chain wallet managed with 1 mnemonic	Multi-chain asset management	Supporting multi-chain DApp



Features

▶ **WELLDONE Wallet is a non-custodial wallet for asset management in all networks without being limited by chains. Decentralized asset management does not mean that your experiences are decentralized. If you have experienced difficulty checking your assets distributed across numerous blockchain wallets one by one, start the integrated web 3.0 experience with WELLDONE Wallet, the one wallet that supports various networks.**

Applications

Category	Description
Game and DApp	• Game play and multi-chain asset management

Implementation Case

Period	Project	Owner
2021	• Multi-chain digital asset wallet service development	DSRV LABS
2022	• Supporting Solana	The Solana Foundation
2023	• Supporting NEAR • Supporting APTOS • Supporting SUI	NEAR Foundation APTOS Foundation SUI Foundation

World's first digital asset transaction wallet app supporting anonymous transaction and audit in public blockchain, "zkWallet"

Solution Information

Name of Solution	zkWallet	Developer	ZKRYPTO (www.zkrypto.com)
Solution Category	Digital asset trading wallet	Inquiry	contact@zkrypto.m 02-2293-5423
Core Technology	zk-SNARK, library optimization, zero knowledge proof circuit design		

About Solution

Unlike other asset transaction systems using zero knowledge proof, zkWallet additionally provides an audit function for AML (anti-money laundering), and therefore guarantees anonymity of asset transaction and, concurrently, ensures audit execution by the admin. on transactions.

EVM-based public blockchain anonymous NFT transmission

EVM-based public blockchain anonymous token transmission

Audit function

▶ **Supporting FT (Fungible Token) and NFT (Non-fungible Token)**
- Creating digital wallet account, an essential function of web 3.0 wallet, and storing and transmitting digital assets
- Supporting Ethereum-based FT/NFT (ERC-1155, ERC-721)

▶ **Supporting Public and Private Transactions**
- Supporting transactions operated on public blockchain such as Ethereum and Klaytn
- Guaranteeing voters' privacy and supporting anonymous transactions on public blockchain using zk-SNARKs (zero-knowledge Succinct Non-interactive ARguments of Knowledge)

▶ **Supporting Audit Function**
- Providing audit function to comply with the anti-money laundering regulations

#Blockchain #Zero Knowledge Proof #Digital Asset #Anonymous Transaction #Audit Function

Features

▶ **Using Klaytn/Ethereum-based Public Blockchain, not Private Blockchain as in the Past**
- Reducing time and cost required in private blockchain establishment and management
- Increasing security, economic efficiency and reliability through public blockchain use
- Applying the latest zero knowledge proof technology (zk-SNARK) to public blockchain as the first in Korea

▶ **World's First Public and Anonymous Transaction Audit Function**
- Establishing digital asset transaction system with anonymity and audit function supported
- Development of world's first service prototype supporting audit function completed

▶ **World's Best Zero Knowledge Proof (ZKP) Technological Power Applied**
- Competitive edge over overseas companies in terms of technological power, blockchain application development (commercialization) and reliability
- Improving verification speed with library optimized with zk-SNARK-based high-speed verification technology
- Technology Verified through Study Paper and Academic Association: Paper and international conference activities on digital asset transaction system (Azeroth)

Applications

Category	Description
Financial Institute	• Protecting and auditing personal data in digital asset transactions
Metaverse Environment	• Protecting personal data for digital asset transaction and distribution in metaverse environment
NFT Title	• Managing NFT transaction details and protecting personal data

Implementation Case

Period	Project	Owner
2022	• CBDC simulation	Bank of Korea

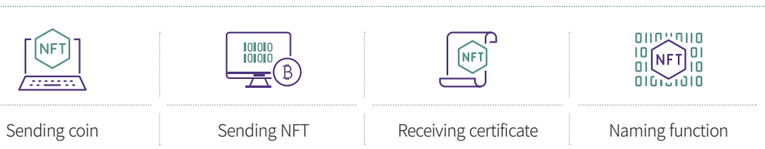
User-friendly multi-chain wallet to store diverse digital assets, “KLAATOO”

Solution Information

Name of Solution	KLAATOO	Developer	HESSEGG (niktonet.com)
Solution Category	Wallet	Inquiry	Jayden@hessegg.com 010-2272-9784
Core Technology	Multichain(iNAE MainNet, Niktonet, Ethereum, Tron)		

About Solution

KLAATOO is a multi-chain wallet to save, receive and send diverse digital assets issued on different blockchains in one wallet. Users can completely control diverse digital assets using the single private key of KLAATOO. Other than the user, no one including the developer can access the user’s wallet. Users can conveniently manage their digital assets through real-time monitoring on the value, and access KLAATOO from all devices with an Internet connection.



Sending coin | Sending NFT | Receiving certificate | Naming function

- Web 3.0 multi-chain wallet to save and send coins of various types (INAE, ATOM, TRON, BTC, ETH, etc.)
- NFT transmission and transaction details
- KLAATOO owner sets a unique name of his or her own, and sends and receives assets under the registered name

Features

- **Managing diverse digital assets in one wallet**
- **Designed to provide various functions including swap, exchange and auction, KLAATOO maximizes convenience of digital asset management**
- **The user-friendly design ensures intuitive app use by wallet holders, and improves usability of functions**
- **Based on the permissioned layer 1 blockchain developed by HESSEGG, KLAATOO provides fast processing speed of less than 2 seconds and service at cost and with improved stability**

#Multi-chain Wallet #Naming Service #Digital Asset One-stop Service
#User-friendly #Device-based High Security Function

Applications

Category	Description
Digital Asset Management	• Cryptocurrency, NFT and ST operation and management
Digital Identification	• Wallet holder authentication and access

Implementation Case

Period	Project	Owner
2023	• KLAATOO Wallet project	DSRV LABS

Enterprise-oriented digital asset wallet, “kiwi3”

Solution Information

Name of Solution	kiwi3	Developer	Fair Square Lab (www.fairsquarelab.com)
Solution Category	Digital wallet system establishment middleware solution	Inquiry	wallet@fairsquarelab.com 02-3445-9846
Core Technology	MPC, Multi-sig, HSM		

About Solution

kiwi3 is an enterprise-level wallet solution developed on the basis of Fair Square Lab’s blockchain technological power and information security expertise. Supporting various integration methods (on-premise, private cloud, embedded, etc.), this solution can be started immeditely in any operating environment through the use of a multi-adapter (TCP, EAI, ESB, API, socket, etc.).
kiwi3 wallet enables flexible response to the variable regulatory environment. A professional technology team equipped with extensive MainNet development and operation experiences applied multi-layered security protocol for private key management, which is a key vulnerability in digital asset management, and also established a user-centric security system for accident prevention.
With kiwi3 wallet, enterprises can conveniently, swiftly and safely implement blockchain services.

- Digital asset deposit and withdrawal
- Digital asset transaction/storage
- Supporting admin. operation
- Safe KMS
- Response to compliance

- **kiwi wallet, a middleware digital wallet technology service, obtained ISMS-P certification**
- **Multi-layered security protocol applied for private key management**
- **Secure KMS structure that can be linked to the third party key management security service ensuring defense against asset stripping and hacking**
- **Providing security function in compliance with the Act on Reporting and Use of Specified Financial Transaction Information and travel rule**
- **Providing admin. privilege management and monitoring system equivalent to internal control in the financial sector**

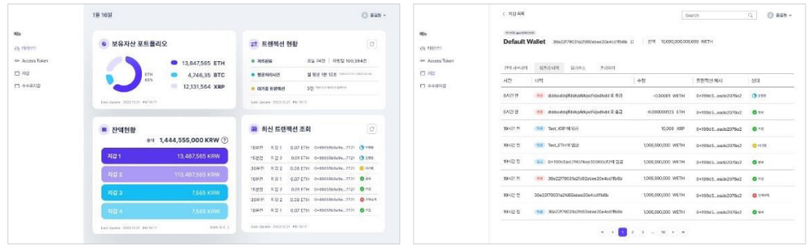
Providing Digital Wallet Infrastructure Customized to Regulatory Compliance

- ISMS-P certification obtained
- Meeting compliance response requirements including detailed account privilege management and identity mapping between accounts
- Strengthened key algorithms, such as Multi-Sig, MPC and DKG, applied
- Distributed key generation applied, physical separated hardware security module provided

#Digital Wallet #ISM Authentication #Digital Asset Management #Blockchain #MPC

Meeting Diverse Service Needs of Enterprises

- Providing diverse signature methods including single key, multi-signature and MPC
- Enabling hot/cold wallet turn-key establishment and integrated management
- Customizing basic components of kiwi wallet according to enterprise service model
- Providing diverse methods of use including on-premise and SaaS
- Supporting convenient link to the existing systems such as HSM and cloud HSM
- Providing user convenience functions including integrated API, admin. operation support and monitoring screen



Applications

Category	Description
Exchange	• Digital asset wallet creation, key management and exchange admin. operation system
Web 3.9 Service Provider	• Web 3.0 NFT wallet
Distribution Company	• Consulting for tokenomics model development
Custody	• Key management service complying with security requirements of the financial sector

Implementation Case

Period	Project	Owner
2022	• Exchange-type wallet application	Financial company K
2023	• NFT wallet application	Security company K

DIDH-based digital wallet solution, “decentralized data hub technology (DIDH)-based digital wallet”

Solution Information

Name of Solution	Decentralized data hub technology (DIDH)-based digital wallet	Developer	IBCT (www.ibct.kr)
Solution Category	Digital wallet service establishment/management	Inquiry	dhkim@ibct.kr 02-6959-1250
Core Technology	LEDGIS blockchain MainNet, DID platform, decentralized data hub technology (DIDH), key backup and recovery system, asynchronous key algorithm-based data encryption technology, digital Id-based data wallet		

About Solution

This digital wallet solution developed through the application of decentralized data hub technology (DIDH) is used to safely store and manage various personal data. Using the digital wallet, public institutes and private enterprises can provide a range of contactless convenience services for payment, healthcare, access security, etc. in addition to basic services, such as identification and certificate submission through ID card issue and storage of qualifications and various electronic documents.

Features

▸ **Data Management by Individuals**
- Administering identification/de-identification data saving and management through DIDH and selectively sharing data (partially or fully) according to approval by data subject

▸ **Simple Identification**
- Enabling users and persons in charge of institutes issuing and using various qualifications to conduct identification using public key in relation to certificate issue/request of certificate issue and certificate submission based on DID, providing excellent effect in the prevention of personal data loss and management of objects permitted of data access

▸ **Diverse Contactless Services**
- Ensuring safe and convenient contactless service as users can save and manage ID cards, qualifications and various electronic documents in digital wallet and provide the information through the wallet as necessary

▸ **Service Expansion**
- Providing various convenience services with one wallet, such as from identification to financial/payment, healthcare, credentials and access security services

#Digital Wallet #Decentralized Data Hub Technology #DID #Data Platform #Blockchain

Applications

Category	Description
DID-based ID Card Issue Service	• Issuing ID cards for various purposes, such as resident card of local governments, student ID and employee card of public and private institutes, based on DID for storage in digital wallet and use in identification
Simple Authentication (Service Login) Service	• Service for simple and convenient authentication using DID-based ID card QR code/authentication number at login to the website services of various public institutes
Electronic Document Issue/Distribution Service	• Convenience service for electronic document distribution to help users store various electronic documents issued by public institutes in digital wallet and submit them to the respective institutes as necessary
Convenience Service	• Enabling various convenience services including contactless payment, access security and healthcare

Implementation Case

Period	Project	Owner
2019	• Ledgis wallet service	Internal service
2022	• Ledgis NFT marketplace	Internal service
2023	• Community-based personal data relay service platform, Myselfdata	KOREA Data Agency

Safety wallet used on the basis of employees' consensus, "Hi-cWallet"

#MPC #Multi-party Computation #Consensus Wallet #Multi-party Consensus #Private Key Security

Solution Information

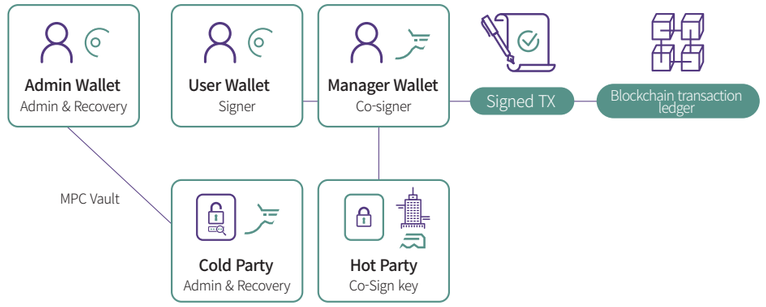
Name of Solution	Hi-cWallet (personal wallet)	Developer	HiFive Lab (hifivelab.io)
Solution Category	Safety wallet based on blockchain multi-party consensus	Inquiry	gihoon.kang@hifivelab.io 010-3268-4024

About Solution

Secure consensus wallet for which private key is managed and accessed by several users

Wallet used on the basis of consensus of internal employees, misuse by some employees prevented

- Consensus-based safe wallet for enterprises of which transactions take place through consensus of two or more employees or executives
- The commonly used private key of wallet cannot be leaked through the application of distributed password technology, and assets are kept in safe state even when individual wallet/safe loss or hacking accident occurs (no risk of internal accident)
- Even when some of the user wallet keys are lost, assets can be recovered using backup wallet
- Enterprise takes part in, and therefore can block or monitor all TXs (transactions)
- Blacklist and white list managed in relation wallets (accounts)
- Transaction suspension, transaction resumption, etc. applied real time to specific wallets (accounts)



Features

- Enterprise wallet where transactions take place based on consensus of employees/executives
- Secure custodial wallet preventing insider mistake and accident
- Safe wallet of which external hacking is disabled by distributed key

Applications

Category	Description
STO Platform Enterprise Wallet	• Internal large-scale consensus wallet of enterprise (preventing insider accident)
CBDC Platform Enterprise Wallet	• Internal large-scale consensus wallet of enterprise (preventing insider accident)

Implementation Case

Period	Project	Owner
2023	• Internal wallet of SKP service provider	SKY Play

Safety recovery wallet provided by enterprise enabling asset recovery in case of key loss, “Hi-p Wallet”

Solution Information

Name of Solution I Hi-pWallet (personal wallet)

Developer I HiFive Lab (hifivelab.io)

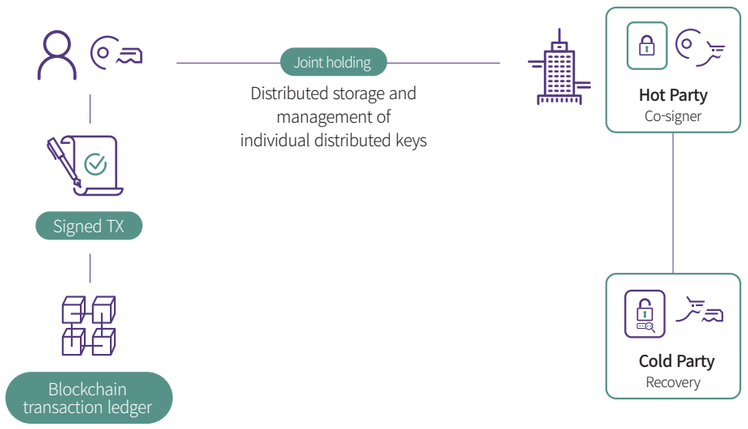
Solution Category I Blockchain multi-party recovery wallet

Inquiry I gihoon.kang@hifivelab.io
010-3268-4024

About Solution

Wallet for which customers do not need to manage private keys or mnemonics	In case of wallet change by customer (phone, app), customer’s assets are recovered through real name authentication	Enterprise takes part in customer’s transactions by holding partial private keys of the customer, but there is no risk of custodial key accident within the enterprise

- Users can recover their assets through the recovery safe server even when losing private keys
- Even when an individual wallet/safe loss or hacking accident occurs, assets are kept in safe state (no risk of internal accident)
- Enterprise takes part in, and therefore can block or monitor all TXs (transactions)



#MPC #Multi-party Computation #Recovery Wallet #Backup Institute #Private Key Security

Features

- Wallet enabling asset recovery even when user loses private key
- Secure custodial wallet preventing insider mistake and accident
- Secure safe that cannot be hacked from outside based on distributed crypto wallet

Applications

Category	Description
CBDC Platform User Wallet	• User wallet (no custodial burden inside business)
User Wallet for Mobile Carrier, Financial Sector and Platform Company	• Individuals starting transaction by holding distributed key • Enterprises conducting consensus signature using partial distributed keys • Upon distributed key loss, individuals recovering asset/distributed key through recovery service provider

Implementation Case

Period	Project	Owner
2023	• LG U+ private wallet PoC project	LG U+

PART 2. About Solution

139. DOFAMIN
140. Leverbit
141. Luniverse Asset Forge
142. Assetrum
143. FS-TRS(Token Reward System)
144. Yoshop
145. EZS
146. KODA
147. Funble
148. Plapay
149. Plutos
150. Hi-Vault

Blockchain-based donation platform, “DOFAMIN”

#Donation #Financial #Donation Platform

Solution Information

Name of Solution I DOFAMIN
Solution Category I Blockchain-based donation platform
Developer I BITCOTOP (www.bitcotop.com)
Inquiry I contact@bitcotop.com
070-4336-1831

About Solution

This is a digital asset (NFT) donation platform service independently developed by BITCOTOP using the patented technology for online product payment processing using blockchain (Patent Application No. 10-2022-0038681). Through cooperation with the world’s top-tier digital asset service providers, such as Binance and Changelly, and Simplex, Visa and Stripe FinTech companies, BITCOTOP providers high-quality digital asset services. At the same time, we support blockchains in a diverse volume as well as a greater number of coin types (at least 500) than that of other digital asset service providers.
Having introduced a payment system using digital assets and virtual assets, such as NFT, in addition to the traditional financial services including credit card payment through Visa and Master Card, we plan to expand the scope of our business from the initial target market of influencer donation to commerce and trade payment.

Supporting numerous types of coins and diverse blockchains
Enabling customized NFT donation to streamers across borders
Supporting convenient NFT minting and brokerage service
Supporting hacking-prevention wallet solution

▶ **Providing Service and Creating Community Customized to Digital Asset Management Beginners**
- Assisting digital asset management beginners to train for transaction skills by providing simulation transaction system that perfectly matches the actual transaction environment
- Creating an ecosystem for responsible investment based on skills by providing community service through which basic digital asset education and high-quality financial information are shared

▶ **Providing Highly Reliable Chart and Liquidity**
- Enabling users to conclude transactions at low quotation fluctuations
- Supporting stable transaction service based on alleviated quote volatility by sharing liquidity through corporate agreement with Binance, the world’s No. 1 exchange, and other global exchanges

▶ **Providing Excellent User Experience with Convenient and Intuitive UI**
- Enabling users to swiftly recognize amount and quantity conversions by providing a function to automatically correct the differences between estimated and actual transaction amounts and volumes, and therefore minimizing conversion recognition errors
- Providing intuitive UI for swift application of the “One-click Trade” function to conclude a deal with a single click, and “Clear All” function to collectively clear all open transactions
- Ensuring convenient transaction by providing isolated margin function for automatic clearing at the designated time
- Helping investors conduct transactions in small amounts by offering high leverage

Applications

Category	Description
Blockchain PG	• Supporting B2B payment service among domestic and international enterprises • Supporting payment for using domestic and international services (donation, education, financial, etc.) • Supporting payment for purchasing domestic and international products, etc. • Supporting trade payment processing service • Supporting B2C payment service among domestic and international enterprises and consumers
Blockchain Wallet	• Supporting wallet service separated between sponsor and streamer
NFT Solution	• Supporting independent NFT minting by sponsors and streamers, and collection registration, transaction and donation service

Risk management system applied to customer accounts, “Leverbit”

#Cryptocurrency (Virtual Asset) #Digital Asset #Blockchain #Loan #RMS

Solution Information

Name of Solution I Leverbit
Developer I finzeal (leverbit.io)
Solution Category I API-linked order, RMS establishment/management
Inquiry I support@finzeal.io, contact@finzeal.io 070-4336-2300
Core Technology I Risk management system (RMS) specialized to volatility handling and each regulation

About Solution

This is a risk management system (RMS) for supporting digital asset purchase loan.

Affiliation with reliable exchanges only

Providing UI/UX for swift and convenient digital asset purchase loan application

Providing stable risk management system (RMS) to minimize loss

Features

▸ **RMS Affiliation with Verified Exchanges**

- As-Is) Orders linked to the API of Binance, the global No. 1 virtual asset exchange
- To-Be) In Korea, affiliation to be promoted only with virtual asset exchanges that provide transaction service in Korean won and operate real-name bank account system

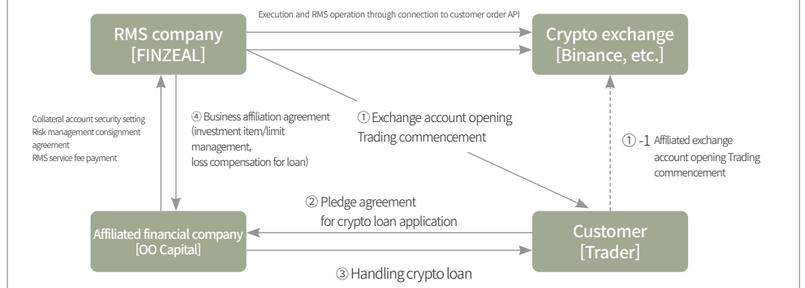
▸ **Handling Stable Digital Assets with High Liquidity**

- Operating RMS to allow digital asset purchase loan limitedly for digital assets with high liquidity and low volatility excluding stablecoins
- As-Is) Providing service only for the stable Bitcoin nicknamed digital gold

▸ **RMS Specialized to Volatility Handling and Each Regulation**

- Operated according to characteristics of each product and exchange
  - Back-end structure
  - Network status
  - Product volatility (price fluctuation)
  - Product liquidity (asking price)
  - Monitoring overall market situations in addition to affiliated exchanges
  - Collecting market data according to global economic situations, such as Nasdaq and oil price
  - Predicting future situations using AI and ML
  - Operating system according to characteristics of spot trading, futures trading, margin and all other products
- Customized RMS
  - KYC check
  - Asset and credit rating check
  - Transaction scale
  - Trade volume
  - Transaction propensity (conservative/speculative)
- Complying with Domestic and International Regulations
  - Customer assets stored separately
  - Sharing control over capital assets (loan)
  - 24-hour real-time monitoring through an accounting firm appointment and based on audit system
  - Complying with the regulations of AML, CFT, ABC, etc.
  - Equipped with system completely independent from exchange
  - FIU report through ISMS acquisition (under preparation)
  - Standardization of ISO, etc. with high security and software verification in progress

Crypto Loan Transaction Process



Applications

Category	Description
Smart Wallet Service	• Wallet creation and management for asset deposit/withdrawal control
Risk Management Service (RMS)	• Risk management system (RMS) establishment and management according to digital asset handling method

Implementation Case

Period	Project	Owner
2023	• RMS establishment for digital asset purchase loan-based transactions	TECHMATE KOREA

Asset tokenization issue and distribution platform, “Luniverse Asset Forge”

Solution Information

Name of Solution I Luniverse Asset Forge
Developer I Lambda256 (luniverse.io)
Solution Category I Security token minting and transaction
Inquiry I support@lambda256.io

About Solution

Providing large-scale traffic handling system necessary for the securities trading system as well as smart contract and service APIs for the recently institutionalized security token minting and transaction service Supporting blockchain-based security token minting, and providing functions for security token order, deal conclusion and payment processing

Providing API based on securities business process	Integration with core banking system	Providing scalability with other platforms for distribution of securities, etc.

Luniverse Asset Forge Functions

▸ Luniverse Asset Forge

Using APIs based on business process	Creating and managing key	Automatic security token creation
For link with core banking system	Data Sync alc settlement	Ledger check and monitoring
For global expansion	Multi-chain API	Multi-chain management

Luniverse Asset Forge Configuration

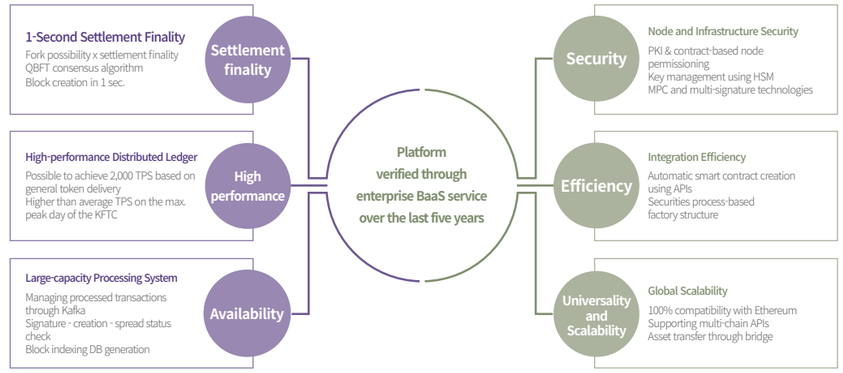
▸ Blockchain Security Token Infrastructure

Security Token Platform	Distributed Ledger
• Distribution/minting service • API • Key management • Check • Monitoring • Traffic handling	• Smart contract • Consensus algorithm • Node

Financial Cloud Zone

#Blockchain Platform #STO #STO Issue/Distribution #Distributed Ledger

Features



Applications

Category	Description
Security Token Platform	• Security token issue using blockchain and distributed ledger application

Implementation Case

Period	Project	Owner
2021	• Blockchain-based security tokenization function verification	Hanwha Systems
2022	• Consulting for STO function verification	Shinhan Investment & Securities
2023	• STO minting platform establishment	Eugene Investment

Total solution for security token minting and distribution, “Assetrum”

Solution Information

Name of Solution | Assetrum
Developer | Fair Square Lab (www.fairsquarelab.com)
Solution Category | Security token distributed ledger and minting/distribution solution
Inquiry | assetrum@fairsquarelab.com, 02-3445-9846
Core Technology | Quorum v22.7.6, Polymesh v5.4.1, Multi-sig, MPC

About Solution

Assetrum, a security token minting and distribution solution developed based on a high level of understanding on blockchain technology and financial industry ensures seamless external integrations as well as implementation of the entire process from security token issue to distribution.
With Assetrum, users can mint security tokens of various types for a range of asset groups. In addition, this solution supports convenient follow-up management with functions including product issue and distribution, dividend, capital fluctuation, clearing, digital wallet and community.

▶ **Public Officering**
- Public Offering is the admin. screen to raise fund from the many and unspecified This screen consists of “Subscription Status” page for product and subscription management through a link to the issuing platform, “Minting Management” page to mint and distribute tokens, and “Operation Management,” “Customer Wallet Management” and “Statistics” pages for token check and control.

▶ **Private Offering**
- Private Offering is the admin. page for private offering products for which fund is raised from a minor number of investors. This page consists of “Product Registration,” “Investor Management,” “Token Minting and Distribution,” “Token Operation Management,” “Conversion to Public” and “Statistics” pages.

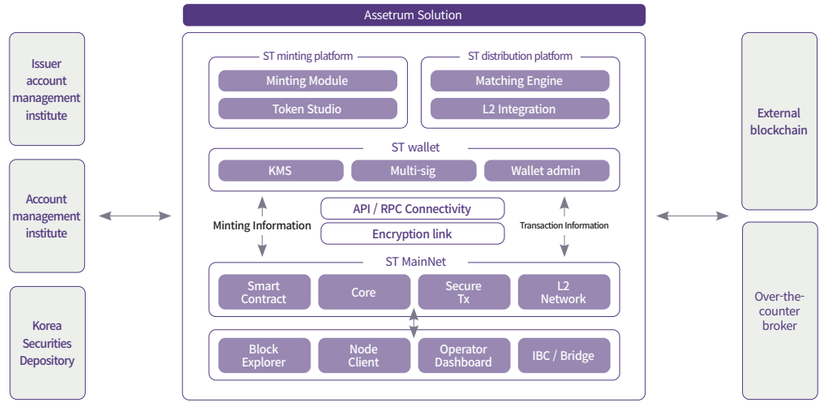
▶ **MainNet Manager**
- MainNet Manager consists of “Node Management” for node status monitoring through designation, activated validator management and new validator proposal, “Transaction Monitoring” to check multi-node and large-scale transaction data, and “Infrastructure Monitoring” to manage data and system-wise operation status.

▶ **Right Management**
- Approval processing status for Assetrum subscribers and privileges of each member are managed. This screen consists of privilege change/transfer/deletion pages and a page for checking the details.

Features

▶ **Developed based on a high level of understanding on blockchain technology and financial industry, all modules configuring solution ensuring seamless external integrations as well as implementation of the entire process from security token issue to distribution**

#Blockchain #Security Token #STO #Finance #Digital Wallet



▶ **Providing an issuing platform for account management institutes in addition to a link to the external issuing platforms, Assetrum helps account management institutes concurrently manage externally linked platforms as well as the internal platforms**

▶ **As a permissioned consortium blockchain that can be jointly operated by a number of financial institute, Assetrum is designed for response to the highest-level regulations and security requirements in line with legislations and standardizations to take place in the future**

▶ **Assetrum enables account/retirement/resale restriction/journal entry adjustment/freezing function/ shareholder list management, etc., which is the basic requirement of security token**

▶ **Assetrum is a product for which development and test have been completed through POC, and therefore can be provided within three months from contract**
(※ Subject to change depending on the range of customizing and legacy system development)

Assetrum(Future of Security Token)

Public Offering	Private Offering	MainNet Management	Rights Management
Public Offering is the admin. screen to raise fund from the many and unspecified This screen consists of “Subscription Status” page for product and subscription management through a link to the issuing platform, “Minting Management” page to mint and distribute tokens, and “Operation Management,” “Customer Wallet Management” and “Statistics” pages for token check and control.	Private Offering is the admin. page for private offering products for which fund is raised from a minor number of investors. This page consists of “Product Registration,” “Investor Management,” “Token Minting and Distribution,” “Token Operation Management,” “Conversion to Public” and “Statistics” pages.	MainNet Manager consists of “Node Management” for node status monitoring through designation, activated validator management and new validator proposal, “Transaction Monitoring” to check multi-node and large-scale transaction data, and “Infrastructure Monitoring” to manage data and system-wise operation status.	Approval processing status for Assetrum subscribers and privileges of each member are managed. Rights Management screen consists of privilege change/transfer/deletion pages and a page for checking the details.

Applications

Category	Description
Issuer Account Management Institute	• Issuer directly issuing ST by meeting the requirements
Account Management Institute	• Institute, such as securities company, issuing ST on behalf of issuer that does not meet the requirements
Over-the-counter Broker	• Business intending to mediate ST distribution

Blockchain-based organizational community activation system, “FS-TRS”

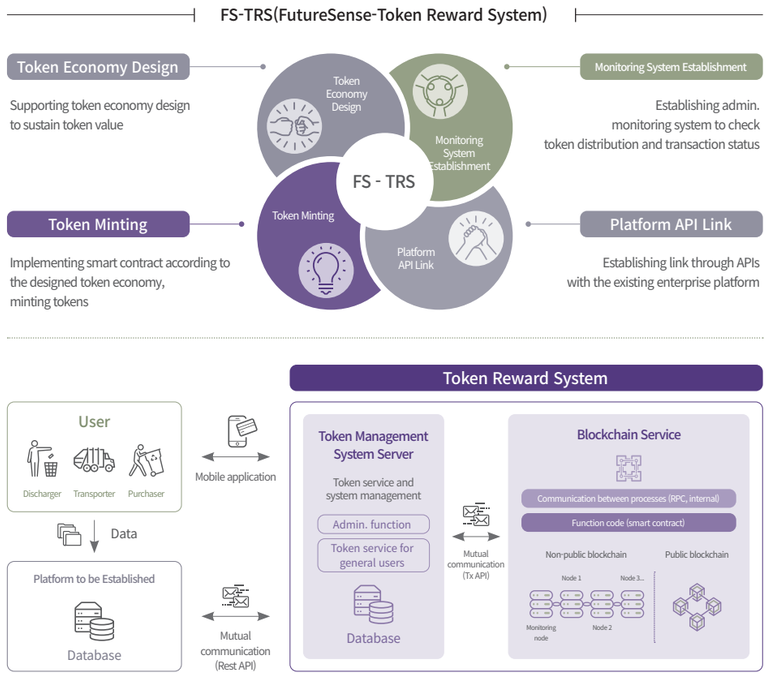
Solution Information

Name of Solution | FS-TRS(Token Reward System)
Developer | FUTURE SENSE (www.futuresense.dev)
Solution Category | Platform construction
Inquiry | info@futuresense.co.kr, 02-868-9672
Core Technology | Klaytn, Ethereum, Polygon

About Solution

This is a blockchain-based reward system to issue and transmit tokens using EVM. It helps activating communities by providing token rewards to active participants based on the platforms operated by each enterprise or group. In addition, this solution provides an admin. console through which users can check the token transaction status, distribution status, etc.

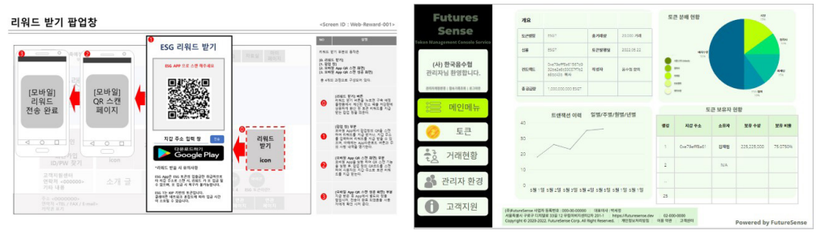
- Blockchain-based reward system
- Token reward to active participants
- Effective admin. console



#Token Reward #Token Economy #Community Activation

Features

- Supporting customers to conveniently introduce blockchain-based token reward system
- Providing APIs for simple integration with existing platform
- Convenient token management using admin. console



Applications

Category	Description
ESG	• System to reward personnel who have contributed to reduction of food waste generation amount or transporting distance with tokens based on a link to the platform for food waste collection, transport and handling
Corporate Reward System	• System to reward personnel who have contributed to corporate activities with tokens based on a link to the platform for corporate personnel management
Integration with Existing Systems	• Enabling users to create new business models, services and marketing plans by integrating benefits with public or fragmented services based on a link to various reward programs including mileage and point building

Implementation Case

Period	Project	Owner
2022	• Carbon zero & negative project using blockchain technology and ESG business scenarios	Korea Food Waste Collection and Transportation Association, Korea Greenhouse Gas Reduction and Recycling Association

Android-based blockchain payment system, “Yoshop”

Solution Information

Name of Solution I Yoshop
Solution Category I POS, mPOS, wallet
Core Technology I Hyperledger Besu
Developer I ibexlab (www.ibexlab.com)
Inquiry I dhjeon@ibexlab.com

About Solution

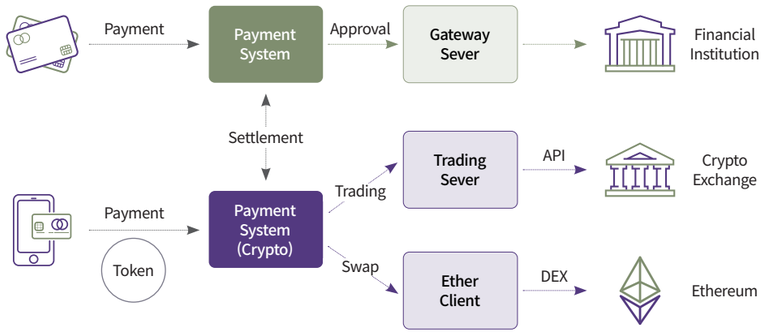
Across the world, small to medium-scale stores use credit card terminals. With credit card terminals, it is difficult to respond to the O2O, mobile payment, mobile commerce, etc. that have become an issue as of late. ibexlab intends to help them simply respond to the new trend by distributing an Android-based smart terminal device.

Providing stable payment service to areas with inferior IT environment	Fundamentally preventing forgery/tampering of payment data, cash recipt issue information, etc.	Developing container with Spring Boot Framework of Java

Features

▸ **Sidechain**

- Hyperledger Besu-based side-chain
- Private blockchain compatible with Ethereum
- Providing ERC20, ERC721 and ERC1155 token platforms
- Providing NFT builder API
- Providing side-chain scan API and website

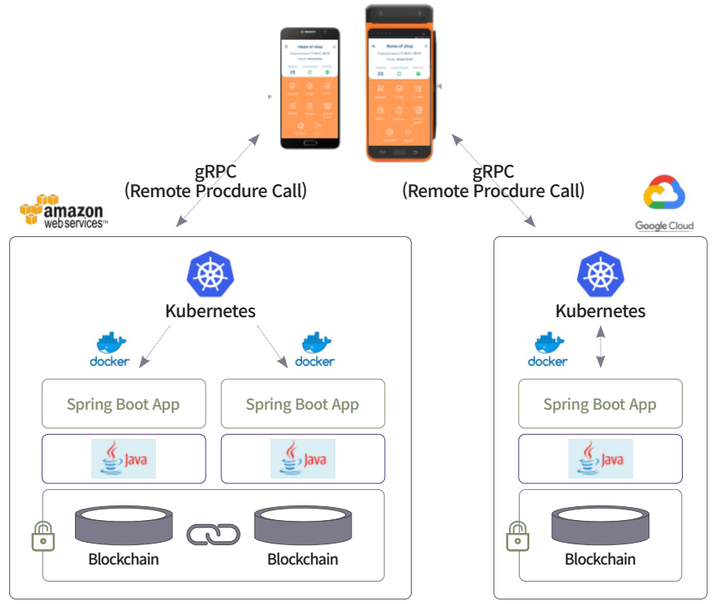


#Blockchain #Wallet #POS #mPOS

Applications

▸ **Payment**

- Online/offline credit card and QR payment service
- Link with three banks in Kazakhstan
- Token-based point building and payment service
- Token and cryptocurrency settlement service



Blockchain financial solution supporting virtual asset transactions based on the data of domestic and international exchanges, “EZS”

Solution Information

Name of Solution I EZS

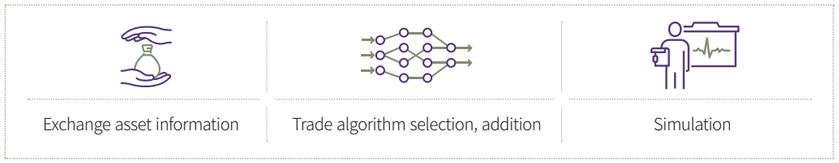
Solution Category I Algorithm-based program supporting virtual asset transaction

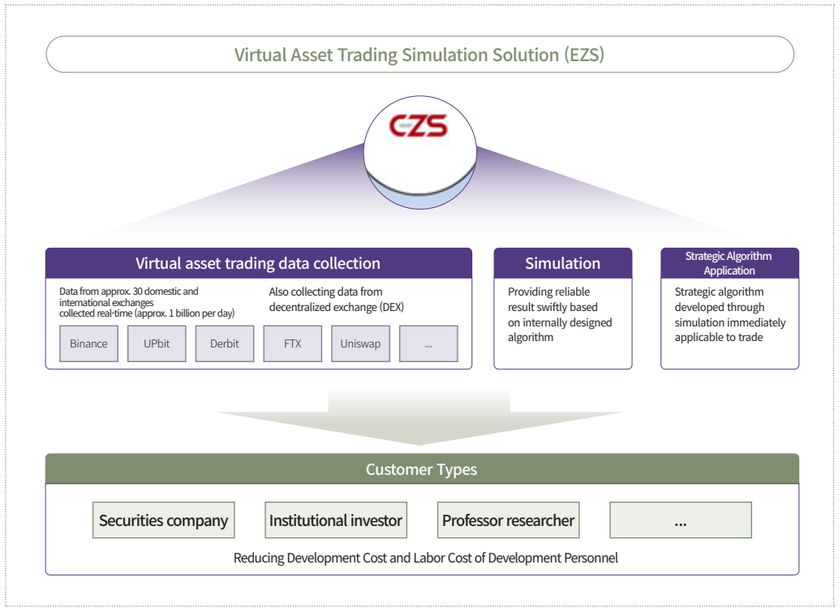
Developer I Block Odyssey (www.blockodyssey.io)

Inquiry I contact@blockodyssey.io
02-2088-6042

About Solution

This blockchain financial solution supports virtual asset transactions based on transaction data from approximately 30 exchanges in Korea and abroad.
EZS solution of Block Odyssey uses the on-infrastructure design structure developed by a U.S. Company with decades of experiences in high-frequency trade quantitative management. Through verification conducted targeting professional management personnel of institutional financial companies including the U.S. hedge funds and a virtual asset fund management company of the largest scale in Korea, reliability and stability of the solution have been recognized.
EZS solution is useful for traders who handle new financial products including virtual assets and other derivatives. In particular, the advanced algorithm and simulation tool enable institutional level trading and strategic research for trading without the need for a program development or development personnel allocation.





#Exchange #Virtual Asset #Financial Solution #Transaction Data #Transaction Support

Features

- The simulator module that assists in strategy verification provides a more elaborate market back-testing environment based on the historical data of virtual asset trading accumulated over approx. four years. In addition, unlike other solutions, the strategic algorithm established through simulation can be immediately applied to actual trading.
- The simulator mounted on the solution implements most situations that can occur in the market, such as partial deal conclusion, order canceling and order rejection. In addition, it realistically implements possible risk factors including market impact occurrence, such as price sweep, and latency. Therefore, the simulator ensures conservative strategy development and verification.
- The execution module of the virtual asset trade simulation solution enables concurrent operation of over 1,000 trade algorithms through individual sessions. It also increases convenience of solution users by supporting two transaction modes conforming to the characteristics of each strategy developed on one interface.

Secure virtual asset storage and management solution, “KODA”

#Multi-signature #Security #Internal Control #AML

Solution Information

Name of Solution | KODA
Developer | Korea Digital Asset (kodax.com)
Solution Category | Virtual asset storage (cold wallet)
Inquiry | support@kodax.com, 02-561-4762
Core Technology | Multi-sig

About Solution

Cold wallet storage

Multi-signature system

Internal control equivalent to that of the banking sector

- Securely storing all assets in cold wallet that is completely disconnected from the Internet
- Preventing asset stripping and ensuring asset recovery even when a key is lost or leaked
- Facility security system equivalent to that of data centers of banks established and operated

Features

▶ **One-stop Solution for Corporations to Address Legal, Accounting and Tax Issues**

- Legal, accounting and tax consulting
  - Providing general advisory service to corporate and institutional investors through cooperation with law and accounting firms
- Guidelines provided
  - Providing guidelines for decision-making and disclosures necessary when a corporate or institutional investor is entrusted with Bitcoin
- Documentary evidences issued
  - Providing documentary evidences such as balance certificate for submission to external auditor

▶ **Digital Asset Management System Designed for Corporations**

- Privilege Separation according to Duty
  - Assigning privileges and establishing approval line according to positions/ranks in corporation
- Convenient Asset Management
  - Conveniently checking corporate asset details, deposit/withdrawal detail and payment details
- Double Security System
  - Safely storing company’s asset information with OTP double authentication and IP address white listing functions

Applications

Field	Description
Virtual Asset Storage	• Securely storing and managing customers’ virtual assets

In addition, as services of a third party trusted for virtual asset storage, all services provided by trust companies of traditional financial companies can be handled

Blockchain-based digital beneficiary certificate issue and distribution platform, “Funble”

#Fractional Investment #STO #Real Estate #Blockchain #RWA

Solution Information

Name of Solution | Funble

Solution Category | Security token solution

Core Technology | Hyperledger Fabric

Developer | FUNBLE (www.funble.kr)

Inquiry | contact@funble.kr
1661-3258

About Solution

Enabling investment in Korea’s representative landmark buildings with KRW 5,000

Investment
Investment in diverse buildings from KRW 5,000

Trade
Traded as securities through exchange Swift investment return

Dividend
Rental income provided as dividend monthly

Profit
Gaining profit from building sale

Features

- Among the five companies designated as innovative financial service providers by the Financial Services Commission, FUNBLE is the only platform equipped with the experience of full-cycle process operation from security token issue to distribution and sale pursuant to the Act on Electronic Registration of Stocks and Bonds
- To provide a convenience and safe transaction environment, FUNBLE has obtained ISO 27001 and ISO 27701, the international data protection management system certifications, and introduced biometric authentication system

Applications

Category	Description
Security Token Issue	• Issuing beneficiary certificate for real estate disposal trust through electronic registration
Security Token Distribution	• Trading beneficiary certificate for real estate disposal trust on app

Implementation Case

Period	Project	Owner
2022	• Fractional investment offering for Lotte World Tower Signiel sold out early	FUNBLE
	• Fractional investment offering for Haeundae LCT sold out early	FUNBLE

Blockchain-based electronic payment solution, “Plapay”

#Plapay #NFT Kiosk #NFT #Coin Payment #Korean App #Ethereum Payment Store

Solution Information

Name of Solution | Plapay
Solution Category | Wallet, coin payment, settlement, NFT transaction
Developer | KoreaApp (www.koreaapp.kr)
Inquiry | bkim@koreaapp.kr, 02-1668-1311

About Solution

Plapay is a blockchain-based payment support solution for global digital asset electronic payment service.
The top two global electronic payment companies are PayPal (KRW 120 trillion) and Block (KRW 63 trillion). Both companies are conducting business by launching digital asset payment services. In Korea, Kakao Pay (KRW 14 trillion) and Danal Pay (KRW 630 billion) have launched digital asset payment services. However, with the payment means limited to Klaytn, Paycoin, etc., these companies focus more on coin foundation than the payment means. Plapay is the only platform where payment can be made with digital assets of various cryptocurrency foundations and major coins like Bitcoin, Ethereum and USDT. In addition to a patent application for blockchain settlement technology using kiosk, an overseas patent application is also in progress. The demand for Plapay is expected to increase in line with the growth of digital asset payment industry. Currently, payment through Plapay is being made at six stores in the capital region of Korea.

Coin trading volume exceeded 190 million (cumulative for 1 month)	Ethereum payment support and USDT payment support planned	Online/offline NFT payment support

Features

▶ **Guaranteeing Real Value of Coin through Cooperation with Safe Foundation**
- As with the recent Terra and LUNA incidents, a logic connected to LUNA for $1 pegging of Terra stablecoin was developed. However, the project has ended in failure because this, too, is only a digital goods and the real value, such as of gold, cannot be guaranteed.
- Coopeating with a safe foundation for kiosk and coin payment, Plapay has created a safe environment for users by processing settlements for each store using the deposit of the foundation. The main source of income is the blockchain PG business, which is to take a part of the payment service fees.

▶ **Disclosing Coin Payment Details**
- Plapay has completed the development of an internal wallet and a kiosk for coin payment. Currently, the system is being operated at six offline stores across the country. Even now, payments are being made with coin, and the details are disclosed through the website (https://koreaapp.kr/trans/).

▶ **Scam Logic Level Adopted for Coin Foundation Safety Evaluation**
- For this service, KoreaApp has adopted the coin technology rating of the Korea Virtual Asset Valuation with which safety of a coin foundation can be evaluated. This logic is an objective indicator to announce a scam rating with data activated through GitHub (https://daek.kr).

Applications

Category	Category
Diverse Stores Where Payment is Made	• Supporting payment through Plapay at six stores in the capital region • Service application to be expanded to coffee shops, Internet cafes, restaurants, retail stores and franchises

Integrated framework supporting core technology infrastructure and financial protocol for blockchain financial service, “Plutos”

Solution Information

Name of Solution I Plutos

Developer I SOOHO.IO (www.sooho.io)

Solution Category I Interoperable technology infrastructure for blockchain-based digital asset transaction

Inquiry I conan@sooho.io
010-2923-5696

Core Technology I Bridge, consortium chain, integrated data service, travel rule solution, etc.

About Solution

For blockchain-based asset and financial services, such as remittance, payment and those with RWA, STO and Stablecoin, solutions for security, reliability and regulatory response and a framework supporting various assets and protocols are required. This is a one-stop solution provided to address this need.

Supporting private consortium and 11 public chains

Transaction monitoring, cross-chain transaction monitoring, fraud detection, Oracle

Smart contract security, security monitoring, KYC, travel rule

Integrated data service for assets of heterogeneous chains

Remittance, payment, asset deposit, derivatives, loan, ETF

RWA, STO, NFT, Stablecoin

SDK, Open API

Features

- **One-stop blockchain financial solution providing from infrastructure to service layer for digital asset service**
- **The strengths of Plutos are that it is a one-stop platform for digital assets and that it offers C2CC and ODIN, which are explained as separate solutions in this document In other words, Plutos is a solution developed through complete integration of SOOHO.IO’s development competencies**
- **Interoperability**
  - Supporting C2CC (chain-to-chain communication) for asset moving/trading and data connection between private chains, private and public chains and public chains
  - Interoperability is the basic condition for maximizing asset liquidity, which is the key to digital asset service This is because asset liquidity is the basic element for maximizing asset value and maintaining reliability of the market price

#Blockchain Finance #RWA #STO #NFT #Stable Coin

- **Security**
  - For digital asset service, security higher than that of the financial sector must be maintained Compulsory element for protecting consumers and stably supporting asset transaction SOOHO.IO’s ODIN has been recognized of its technological power that is even used by the Financial Security Institute. Based on the technology, SOOHO.IO has won the best technology award from Binance and UPbit.
- **Asset Link and Integration**
  - For digitally tokenized assets, integrated issue, management and distribution must be possible so that the assets can be mutually converted anytime within legal borders. In other words, it must be possible for various assets, such as RWA, NFT and STO, to be defined, have their values delivered and become traded on a single platform. With Plutos, all digital assets can be handled on one platform.

Applications

Category	Description
RWA	• Real asset and financial service
STO	• Asset and financial service for security tokens or secutirized tokens
NFT	• NFT asset and financial service
Stablecoin	• Stable coin issue and asset-related services

Implementation Case

Period	Project	Owner
2021	• Kleva: Technology platform establishment for Klaytn decentralized financial service	Wemade
2022	• Teal Swap: Technology platform establishment for decentralized financial service of Oasys, Japan	Oasys
2023	• Hellobot: Real asset-based NFT service	Internal

Multi-party computation-based accident-proof private key distribution safe, “Hi-Vault”

Solution Information

Name of Solution | Hi-Vault
Solution Category | Blockchain private key management
Developer | HiFive Lab (hifivelab.io)
Inquiry | gihoon.kang@hifivelab.io
010-3268-4024

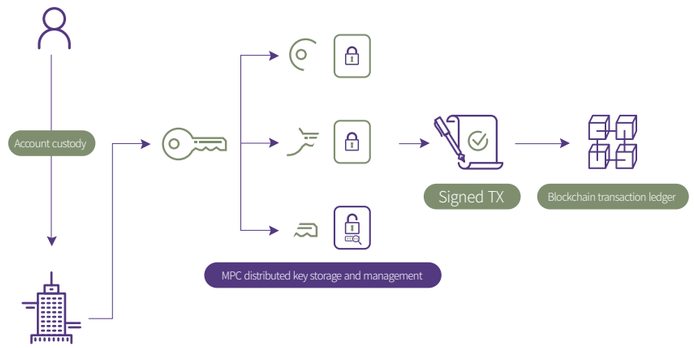
About Solution

The safest private key management system for STO and CBDC platforms (distributed safety KMS)

System to manage and use private keys by dividing through MPC

Establishing accident-proof private key management system by completely separating MPC party server

- Users accessing solution through consignment to business operator (bank) in the same method as that for the existing business app
- The commonly used private key of wallet cannot be leaked through the application of distributed password technology, and assets are kept in safe state even when individual wallet/safe loss or hacking accident occurs (no risk of internal accident)
- Enterprise takes part in, and therefore can block or monitor all TXs (transactions)
- Blacklist and white list managed in relation wallets (accounts)
- Transaction suspension, transaction resumption, etc. applied real time to specific wallets (accounts)
- (Wallet creation) Each party server partially holding private key
- (Wallet signature) Single signature created by cooperation/consensus of each party server



#MPC #Multi-party Computation #Blockchain KMS #Distributed Signature System #Private Key Security

Features

- Accident-proof private key management system for blockchain finance system (custodial)
- Secure custodial safe preventing insider mistake and accident
- Secure safe that cannot be hacked from outside based on distributed safety server
- Users conveniently using wallet through login and biometric authentication

Applications

Field	Description
STO Platform KMS	• Very advantageous in terms of key management compliance and key management TCO
CBDC Platform KMS	• Establishing wallet system with which users can freely and safely configure secure private key management for business and customers’ private key management in custodial and non-custodial types
Enterprise Wallet Service for Customers	• Developing technological solution to support custodial enterprise wallet service for customers

Implementation Case

Period	Project	Owner
2022	• MPS distributed safe technology for digital currency simulation	Bank of Korea
2022	• MPS signature system PoC technology for STO platform PoC	Samsung Securities
2023	• MPS signature system and technology for STO platform establishment	KB Securities

Vulnerability Analysis and Information Security

PART 2. **About Solution**

151. RedSpider-Web3
152. reverseWall CDS LinkRai
153. BlueBears
154. BICScan
155. EdgeChain CTTI
156. ODIN
157. KeyGuard Titan-Cy

Smart contract and blockchain security audit and consulting service, “RedSpider-WEB3”

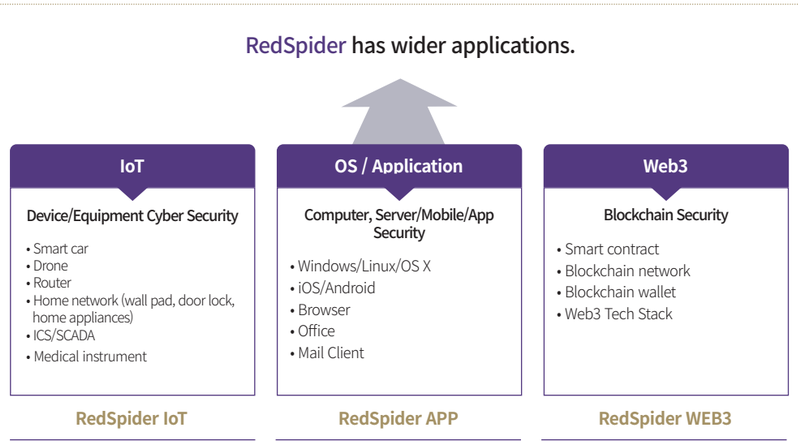
Solution Information

Name of Solution | RedSpider-Web3
Developer | 78ResearchLab (www.78researchlab.com)
Solution Category | Blockchain security audit
Inquiry | contact@78researchlab.com, 02-6952-7809
Core Technology | Smart contract source code vulnerability analysis

About Solution

This is a smart contract and blockchain security audit consulting service solution. The possibility of hacking on a blockchain service is eliminated in advance from the hacker’s point of view.
It provides security audit consulting service for blockchain and application services that have been or are soon to be launched. Detecting security vulnerabilities and preemptively responding to them, it supports users to provide safe blockchain services.

Information security | Security audit | Consulting



#Blockchain #Information Security #Security Audit #Smart Contract #Vulnerability

Features

- Blockchain security audit consulting by Korea’s top-level white hackers who have extensive experiences in various fields (a large number of vulnerability reports in relation to key softwares such as Windows, Linux and Browser)

Applications

- Security audit across blockchain service areas including smart contract

Implementation Case

Period	Project	Owner
2023	• Ethereum-based DeFi service security audit	MoveLabs

Blockchain data transmission platform going beyond limits, “reverseWall CDS LinkRai”

Solution Information

Name of Solution	reverseWall CDS LinkRai	Developer	SECUEVER (www.secuever.com)
Solution Category	platform construction	Inquiry	sales@secuever.com 02-422-4638

About Solution

This is an integrated security solution providing file tracking, audit and control functions in secure/non-secure zones and Internet environment based on advanced technologies. As a safe next-generation data transmission product applying digital currency to “digital data sharing” using the patented blockchain technology of Secuever, this future-oriented product ensures safe file transmission, and enables distribution, tracking and deletion of the transmitted files based on the blockchain encryption technology.

Tracking copyright file distribution status using distributed ledger

Safely storing copyright files with secure drive

What is LinkRai?

LinkRai is a safe next-generation data transmission product applying digital currency to “digital data sharing” using the patented blockchain technology of Secuever. This future-oriented product ensures safe file transmission, and enables distribution, tracking and deletion of the transmitted files based on the blockchain encryption technology.

LinkRai Service Details

Technological Limitation of Existing Blockchains for Data Transmission

① Max. file attachment capacity limited
② Excessive transaction consensus (mining) time
③ Copied data processing/search not possible

Technology development Patent secured

Technological Solution for Data Sharing Platform

① Block header structure change - Changed to header part and data part to lift data capacity limit
② Resolved with distributed ledger processing technology based on patented copyright chain technology
③ Resolved with copied data grouping through 1copyright block tree technology application

Sender (file creator) — LinkRai Platform (digital data distribution platform) — Receiver (secure sharing target)

Key Functions

- Secure storage
- External transmission
- Recovery/destruction request
- Distributed ledger audit

- Copyright chain applied
- Transmission route secured
- Copyright protection executed

Management Goals

- Application of copyright regulations
- Application of distributed ledger
- Digital currency-level audit/ management

#Distributed Ledge #File Tracking #Data Transmission #Secure Drive #Blockchain

Features

▶ **Improving processing speed through parallel block connection using copyright chain group**

▶ **Managing files distributed by copyright holder through deletion/recovery command**
- Deleting/recovering files distributed by copyright holder

▶ **File tracking with distributed ledger records**
- Copyright holding tracking distributed files using distributed ledger
- File leakage route swiftly identified

▶ **Safe file storage with secure drive**
- Secure drive created at electronic wallet installation
- Copyright files safely stored in secure drive

▶ **Overcoming technological limitation of existing blockchains for data transmission**
- Max. file attachment capacity limited ⇨ Block header structure change - Changed to head part and data part to lift data capacity lift
- Excessive transaction consensus (mining) time ⇨ Resolved with distributed ledger processing technology based on patented copyright chain technology
- Copied data processing/search disabled ⇨ Resolved with copied data grouping through copyright block tree technology application

Applications

Category		
Domestic Enterprises/ Financial Market	• Enterprise required of data sharing security • Approx. 30,000 enterprise handling personal data • Approx. 50,000 registered research labs • Approx. 10,000 defense contractors • Approx. 1,000 association/unions	• Primary target market with 5,000 enterprises • Preferentially targeting 300 existing customers using initial-model platform • Establishing marketing strategies by phase • Aiming to be No. 1 company in data sharing security field • Overseas market entry based on reputation of domestic industry
Public/Information SI and Data Connection Market	• National data dam construction • Spreading data sharing based on data highway • Data triangle among individuals, financial sector and government	• Promoting national data dam connection • Strategy to establish secure data transaction platform between individuals and financial sector/government
Market for Blockchain Technology Use	• Market for data guarantee using blockchain technology • Scale of domestic and international markets using technology, such as for smart transaction and data guarantee, amplifying	• Reference strategy based on successful large-scale data distribution traffic user • through blockchain technology application • Technology and commercialization optimized to characteristics of each industrial field
Export Market based on Reputation of Domestic Enterprises Abroad	• Personal data protection tightened, such as of GDPR of Europe • Increased sharing of domestic companies’ confidential information abroad	• Proposing and standardizing secure data sharing system with countries where domestic data are distributed such as China, U.S. and Europe

Web service to strengthen smart contract security, “BlueBears”

#Smart Contract #Information Security #Obfuscation #Purging #Vulnerability

Solution Information

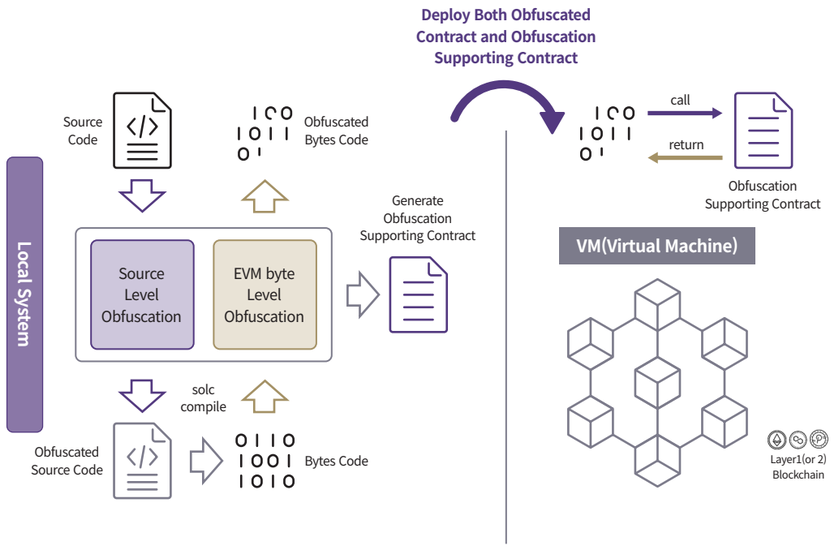
Name of Solution	BlueBears	Developer	78ResearchLab (www.78researchlab.com)
Solution Category	Web service for smart contract obfuscation and automatic vulnerability detection	Inquiry	contact@78researchlab.com 02-6952-7809
Core Technology	Smart contract obfuscation, smart contract static analysis and purging		

About Solution

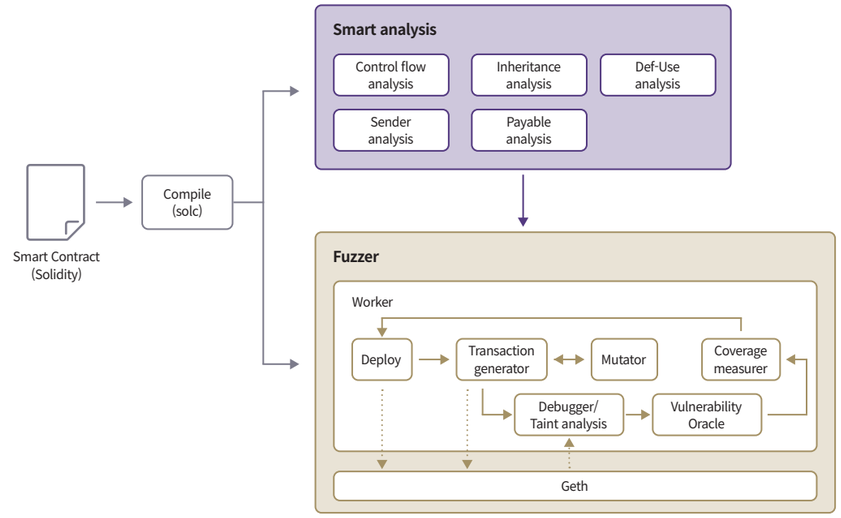
This is a web service for source code obfuscation and automatic vulnerability detection to strengthen security of smart contract.

Features

▶ Patented obfuscation technology applied to smart contract source codes



▶ Purging technology for automatic detection of smart contract vulnerabilities



Applications

▶ Code obfuscation and vulnerability detection to strengthen security for smart contract service

Blockchain security intelligence for preemptive defense against suspicious transactions, “BICScan”

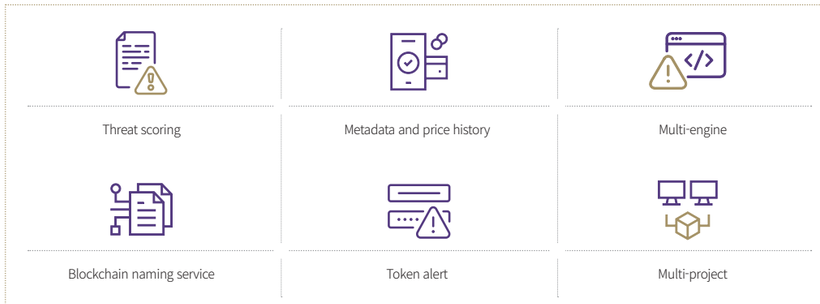
#Blockchain #Security #Transaction #API #Intelligence

Solution Information

Name of Solution	BICScan	Developer	AhnLab Blockchain Company
Solution Category	Blockchain security intelligence	Inquiry	1kko@ahnlab.com 031-722-8000

About Solution

This is a blockchain security intelligence solution to identify and score security threats that can occur during transactions on blockchain by collecting and analyzing diverse data on/off-chain.



- **CA, EOA and DApp URL Threat Scoring**
  - Providing detailed information and insight about the related networks, assets held and domains by scoring threats in relation to the URL of DApp as well as diverse contracts and wallets
- **Cryptocurrency Metadata and Price History**
  - Providing metadata on official website, description, current price, price list, etc. for identified cryptocurrencies and smart contracts
- **Diverse Reliable Engines**
  - Evaluating the level of threat to addresses that occurs in multi-engine, and identifying risk of assets associated with suspicious transactions using diverse engines
- **Completely Supporting Blockchain DNS**
  - Simplifying blockchain address interaction and improving user experience by supporting various decentralized naming services such as ENS, CNS and KNS
- **Alert for Tokens with Low Reliability**
  - Identifying suspicious transactions and SPAM, issuing alerts to tokens with low reliability and tracking price fluctuations
- **Multi-project Supporting API**
  - RESTful API, which supports multiple projects, is intuitively designed, and therefore can be conveniently integrated with any product

Features

- **Easy and Safe Blockchain Security**
  - The intuitive security solution scans all suspicious activities on blockchain at once
- **Diverse Data with High Reliability**
  - For the data provided, high accuracy and stability are ensured based on global partnership, and the multi-chain metadata can be used for various purposes
- **Developer-friendly API**
  - The intuitive API for convenient development is conveniently applied to and integrated with diverse systems

Applications

Category	Description
Wallet	• Identifying risk scores of transaction targets, such as DApp, contract and wallet address, in advance
DApp, Blockchain Service	• Identifying suspicious transaction targets in advance, and suspending transaction
Exchange	• Checking wallet address for asset transfer to external wallet

Platform to collect and analyze cyber threat information, and secure and share integrity of internal/external trust information, “EdgeChain CTTI”

Solution Information

Name of Solution	EdgeChain CTTI	Developer	SECURELiNK (www.securelink.co.kr)
Solution Category	CTTI sharing platform	Inquiry	lrrfnfl@securelink.co.kr 010-9693-9000
Core Technology	Hyperledger Fabric v2.2		

About Solution

EdgeChain CTTI platform was developed to recognize and respond to not only the known, but also the new threats by collecting and analyzing information of all cyber threats (CTI: Cyber threat intelligence) that occur across the world.

EdgeChain CTTI is a hierarchical blockchain-based platform to collect and analyze cyber threat information in various forms, and secure and share integrity of internal and external trust intelligence.

Using the profiling technology to recognize situations related to and details of a malicious activity through integration with SECURELiNK’s AI-based malicious code detection (XDK) solution, new and variational threats are detected and blocked, and trust information is generated in related to the threats and saved and shared on blockchain for use in zero-day attack detection and zero-trust security.

Collecting and analyzing cyber threat information	Collecting and sharing trust information	Link to AI-based malicious code detection	Credentials and qualification certification expansion

#Blockchain #Information Security #Malicious Code #Cyber Threat #CTI

Features

- Hierarchical ledger structure to efficiently share a large amount of data
- STIX/TAXII-based threat information and trust information sharing
- Integration with and expansion to malicious code/trust information detection

Applications

Category	Description
Sharing Threat Information	• Sharing CTI refined information and specific trust information between enterprises
Sharing Trust Information	• Reliable process and data information authentication between enterprises
Blocking Zero Day	• Blocking unauthenticated process inflow and execution through execution authentication
Expanding Authentication Information	• Blockchain-based authentication system expansion
IoT/IIoT Authentication	• IoT device authentication and transaction authentication

Smart contract vulnerability analysis rool, “ODIN”

Solution Information

Name of Solution	ODIN	Developer	SOOHO.IO (www.sooho.io)
Solution Category	Static and dynamic analysis tools and consulting to discover vulnerabilities for smart contract	Inquiry	conan@sooho.io 010-2923-5696

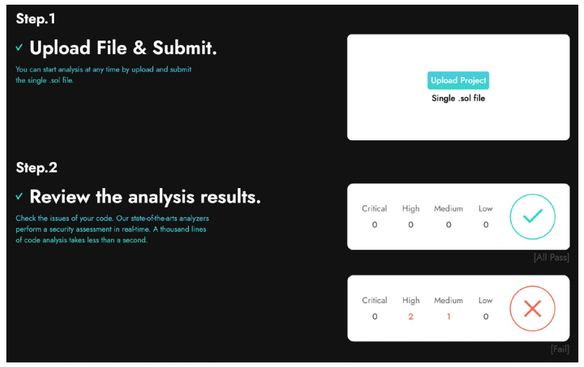
About Solution

This is a formal verifier for SWC solidity vulnerability analysis and code clone detection.

Executing security inspection at each commit push to repository	Fast, safe and reliable vulnerability analysis solution	Continuous smart contract scanning and issue detection

Features

- Real-time upload
- Vulnerability analysis for sources distributed to GitHub
- Information on recommended modification following swift analysis



#Blockchain Finance #RWA #STO #NFT #Stable Coin

Applications

Period	Project
RWA	• Real asset and financial service
STO	• Asset and financial service for security tokens or secutirized tokens
NFT	• NFT asset and financial service
Stablecoin	• Stable coin issue and asset-related services

Implementation Case

Period	Project	Owner
2019	• Automatic vulnerability analysis • KYC & AML APIs	KYC & AML APIs SK C&C
2020	• Automatic vulnerability analysis for Nexledger • Automatic vulnerability analysis for Monachain	SDS LG CNS

Blockchain digital signature and encryption key management HSM solution, “KeyGuard Titan-Cy”

Solution Information

Name of Solution	KeyGuard Titan-Cy	Developer	XVISION Security System (www.x-vision.co.kr)
Solution Category	Blockchain digital signature and encryption key management HSM	Inquiry	master@next-vision.co.kr 02-3471-8829
Core Technology	Hyperledger Fabric v1.4 and other blockchain platforms		

About Solution

This is an HSM solution with an acceleration function for blockchain-based digital signature and encryption/decryption. Compared to foreign HSMs, it offers superior performance and price competitiveness.
With KCMVP verification algorithm mounted and applied, this HSM supports various international standard algorithms, such as RSA 2048bit and EC-p256, for digital signature and PKCS#11 standard interface API.

Encryption key creation, isolation, backup and recovery safely from application server	Encryption acceleration for digital signature	Securely saving encryption key in memory for HSM
Supporting link to secure international standard PKCS#11 API	Manager for GS level 1 key management and expansion management function	Diverse KCMVP verification encryption modules and international standard encryption algorithm

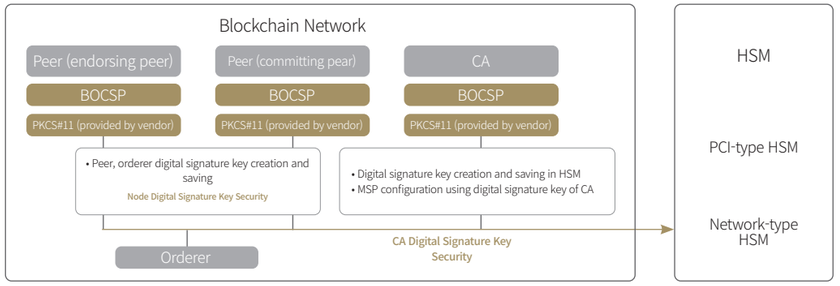
Features

- Supporting max. 100,000TPS performance based on RSA 2048bit for PIK encryption
- Supporting max. 70,000TPS performance based on ECDSA EC-p256 for blockchain digital signature
- Saving user key used in blockchain through encryption with KCMVP verification ARIA master key inside HSM
- Dedicated shield sticker attached to the part in connection with appliance (equipment separation evidence recognition and check)
- ARIA master key automatically deleted if power is not supplied for a set period of time (key loss prevention in case of key storage device theft)
- Recognizing information of parts for the chip applied to key storage device (HSM), such as name of part and supplier, and disabling part dismantling (powerful epoxy applied throughout key storage device)
- GUI-KSM key management solution link (accoding to KISA encryption key management guidelines)
- After-sale service and maintenance in Korea
- Algorithm customizing service for enterprises

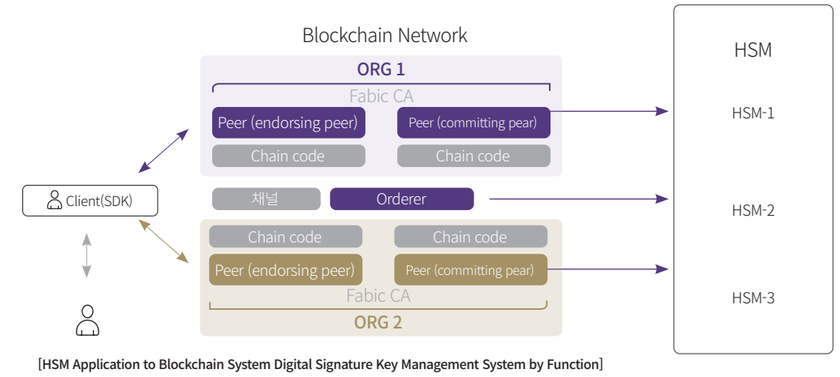
#HSM #Encryption Key Isolation #Encryption Acceleration #Encryption Key Management #KCMVP

Applications

- Blockchain PKI-based digital signature, encryption acceleration and digital wallet key management
- Automatic encryption key isolation based on DBMS-TDE such as Oracle
- Encryption key isolation for DB encryption solution based on API
- CA certificate management and digital signature acceleration for PKI-based authentication
- Encryption/compression of unstructured data such as PDF and Word, and encryption key management
- Encryption and key management of important logs, passwords and F/W application sources
- Big-size data encryption and key management, such as for CCTV video, recording and medical imaging



[Secure Digital Signature after CA Node Digital Signature Key Creation/Saving Using HSM]



[HSM Application to Blockchain System Digital Signature Key Management System by Function]

Implementation Case

Period	Project	Owner
2019	• Encryption distributed key management for vein matching • Encryption key isolation and management for DBMS-TDE encryption method	RETURNTRUE JEI University
2020	• Encryption key isolation and management for DBMS-TDE encryption method	Yeungnam University
2021	• Encryption key isolation and management for API-type DB encryption project link	Cyber Operations Command, Korea Gas Safety Corporation, Gyeongsang National University
2022	• Busan Metro payment QR code encryption key creation and derived key management • Blockchain-based online voting system reinforcement • Blockchain-based drone credentials service system establishment • Encryption key isolation and management for DBMS-TDE encryption method of Oracle • Self-driving pilot project (DB encryption key isolation)	Busan Transportation Corporation, Lotte Innovate Company National Election Commission, Korea Internet & Security Agency Korea Transportation Safety Authority, Korea Internet & Security Agency BNK Capital Anyang City Hall