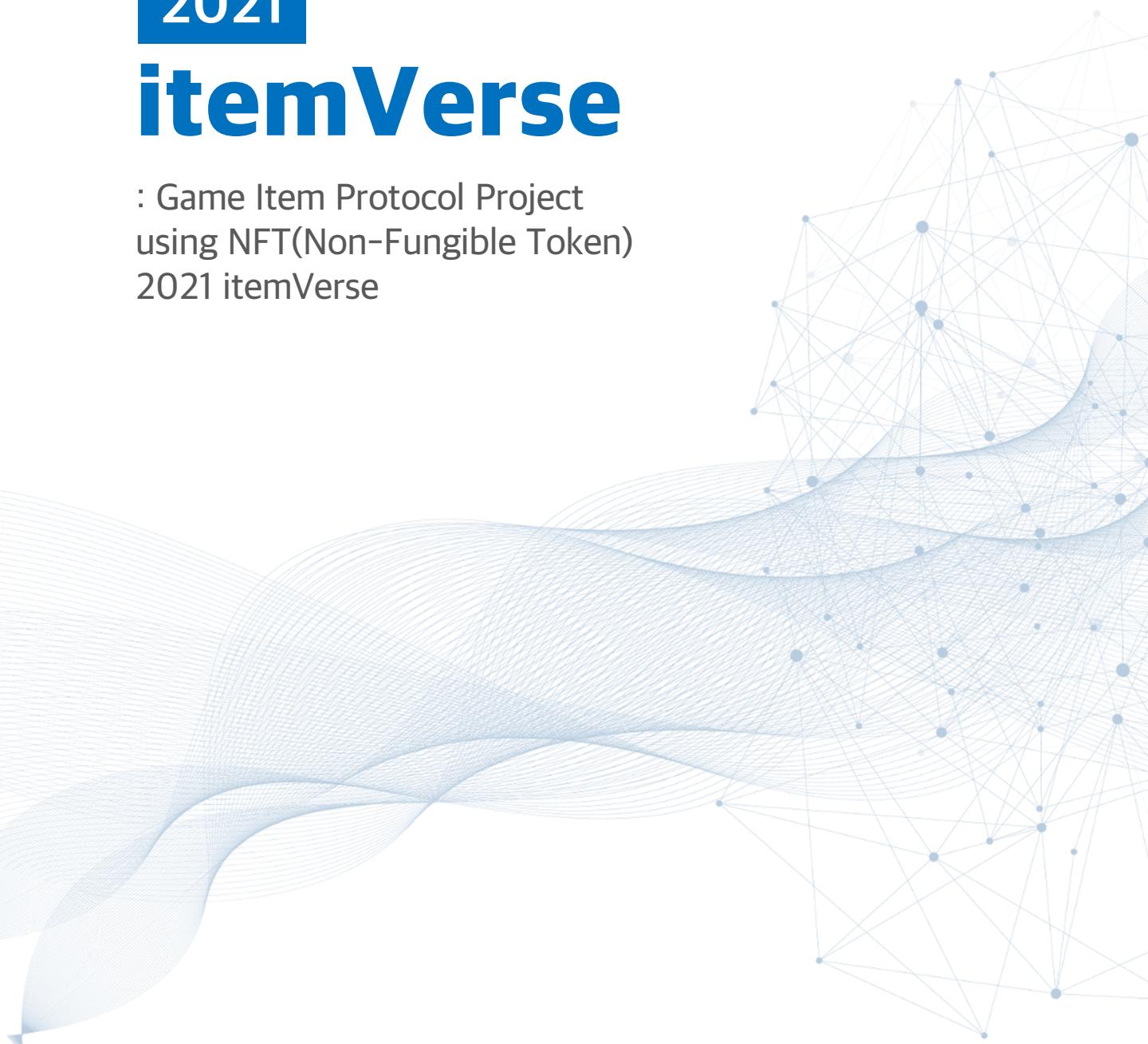




2021

itemVerse

: Game Item Protocol Project
using NFT(Non-Fungible Token)
2021 itemVerse



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Abstract

Currently, there are many problems in the mobile game market, and various attempts are being made to solve them. However, no appropriate solution has yet emerged. itemVerse is a project launched to address these issues and revitalize the mobile game market.

□ Background of itemVerse - Troubleshooting Current Game Market

The problems facing the domestic game industry are as follows:

- **High Platform commission**
- **Emphasis on the issue of rich and poor due to polarization of the game industry**
- **User's dispute over item sovereignty at the end of game service**
- **Massive PR and Marketing Costs**
- **Difficulties in recruiting users and raising funds due to intensifying competition**

The above problems are not the ones that have been highlighted recently. These problems have been accumulated since the mobile game market was formed, but they have yet to find a suitable solution. itemVerse is a project launched to solve these problems.

□ Past Troubleshooting Attempts - New Technology with Blockchain

Game developers made new attempts using Blockchain to address problems in the game market but failed to achieve breakthrough results. Precedents such as "CryptoKitties" and "MyCryptoHeroes", which once accounted for more than 15% of the world's Ethereum transaction ratio, are recorded as relatively successful examples. However,

- **Technology with high entry barriers**
- **High initial cost of introduction**

because of above reasons, it is evaluated as a technology that game developers cannot readily introduce due to such reasons.

□ itemVerse Overview

itemVerse project has been launched to efficiently solve the problems currently facing the mobile game market. itemVerse is a project to unite game market leaders to establish a general-purpose Game Item Protocol (GIP) using Non-Fungible Token (NFT) technology.

The features provided by the itemVerse Platform are as follows:

- **API and SDK to help game developers produce NFT**
- **NFT's free movement between games and itemVerse Wallet**
- **Free NFT Trading Market**

itemVerse proposes NFT Currency (NFTC) as the common currency of the GIP and NFT ecosystem to operate these platforms. itemVerse's attempt applying Blockchain technology to whole game industry is a completely different view from past challenges applying Blockchain technology to a single game.

□ Purpose of itemVerse

itemVerse's top priority is to address the chronic problems of the current mobile game market. In addition, the direction of the project was established to achieve the following objectives.

- **Pursuit a public purpose appropriate to Blockchain's original spirit**
- **Establishment of ecosystem for Blockchain game activation**
- **Funding and technical support to enhance Game Item NFT activation for companies**
- **Discovery, promotion, investment, production support of Blockchain game production**
- **New niche for existing game companies to open new markets**
- **Increasing consumer sovereignty of Game Item**

□ itemVerse Strength Point 1 - Strengthen Sovereignty of Game Developers

NFTC is a game item and a common currency for games in the itemVerse ecosystem, both a payment method in the game and a payment method for NFT transactions. Therefore, game developers can use NFTC as follows:

- **Introducing NFTC, which co-exists with the currency system in the game**
- **Eliminating platform dependencies such as Apple and Google through NFTC**
- **Earning Game Item NFT transaction commission**

Game developers are free to realize their policies and make more profits by reducing platform commission such as Apple and Google. Also, game developers can be free from Game Item sovereignty issues.

□ itemVerse Strength Point 2 - Easy to Create Development Environment

Game developers can also use NFT to create a new channel for development environment. It is to establish a stable development environment early in development by pre-selling Game Item NFT. This is possible for two reasons:

- **Proof of sparsity in pre-saled NFT**
- **Possibility of trading pre-saled NFT**

The quantities of pre-selling NFT are recorded in itemVerse Mainnet, which demonstrates technically the credibility of sparsity. Furthermore, since pre-purchased NFT can be traded between users, users can earn NFT by contributing to the games they are interested in before publishing and obtaining the rewards accordingly. Through this, game developers can establish a stable development environment.

□ itemVerse Strength Point 3 - Troubleshooting In-game Goods Sovereignty

Games using NFT technology can naturally solve the problem of the sovereignty of in-game goods when the service is terminated.

- **NFT can be moved after service termination if partnership with other game NFT**
- **NFT can be switched to NFC with the Melting provided by the itemVerse Platform**

Through the above function, users can continue to manage Game Item NFT, which they purchased, even if the game service is abruptly terminated. Melting functionality is described in the Business Model.

□ itemVerse Strength Point 4 - A virtuous cycle ecosystem

Lastly, the amount raised using NFT technology will be used for investment, promotion, and production support of new Blockchain game production companies. As the number of games applied with Blockchain increases, itemVerse will become more active, and supporting game developers is essential for a virtuous cycle ecosystem of itemVerse. Considering that Blockchain's original spirit was a public interest purpose using decentralization, itemVerse's move inherits the initial public interest purpose orientation of Blockchain technology.

1. itemVerse Platform

1.1. itemVerse Overview

itemVerse is a platform that supports the distribution and management of Game Items in NFT format. There are two main reasons why NFT technical integration such as itemVerse has not been achieved so far.

- **Limitations of implementing Blockchain, which allows integration of large-scale games**
- **The lack of a central point to integrate large games into a single protocol**

itemVerse solved the above two problems efficiently.

□ itemVerse Technical Overview - Luniverse, SASEUL

First, itemVerse dualized the structure because NFTC should be used on cryptocurrency exchanges.

- **Public Network leverages Luniverse to build on Ethereum**
- **Private Network leverages SASEUL to build as Luniverse's Sidechain**

Next, the Korea Mobile Game Association(KMGA) plays a central role in integrating large-scale games into a single protocol. Most of the Korean mobile game developers are affiliated with KMGA, which already has a human, technical and business network that can unite them..

itemVerse provides four main features for efficient distribution and management of NFT.

- **SDK & API to help game developers develop games using NFT**
- **Wallet to be used directly by users and used for NFT transactions**
- **itemVerse Admin Console for direct NFT management**
- **itemVerse Market where these technologies combined to trade Game Items freely**

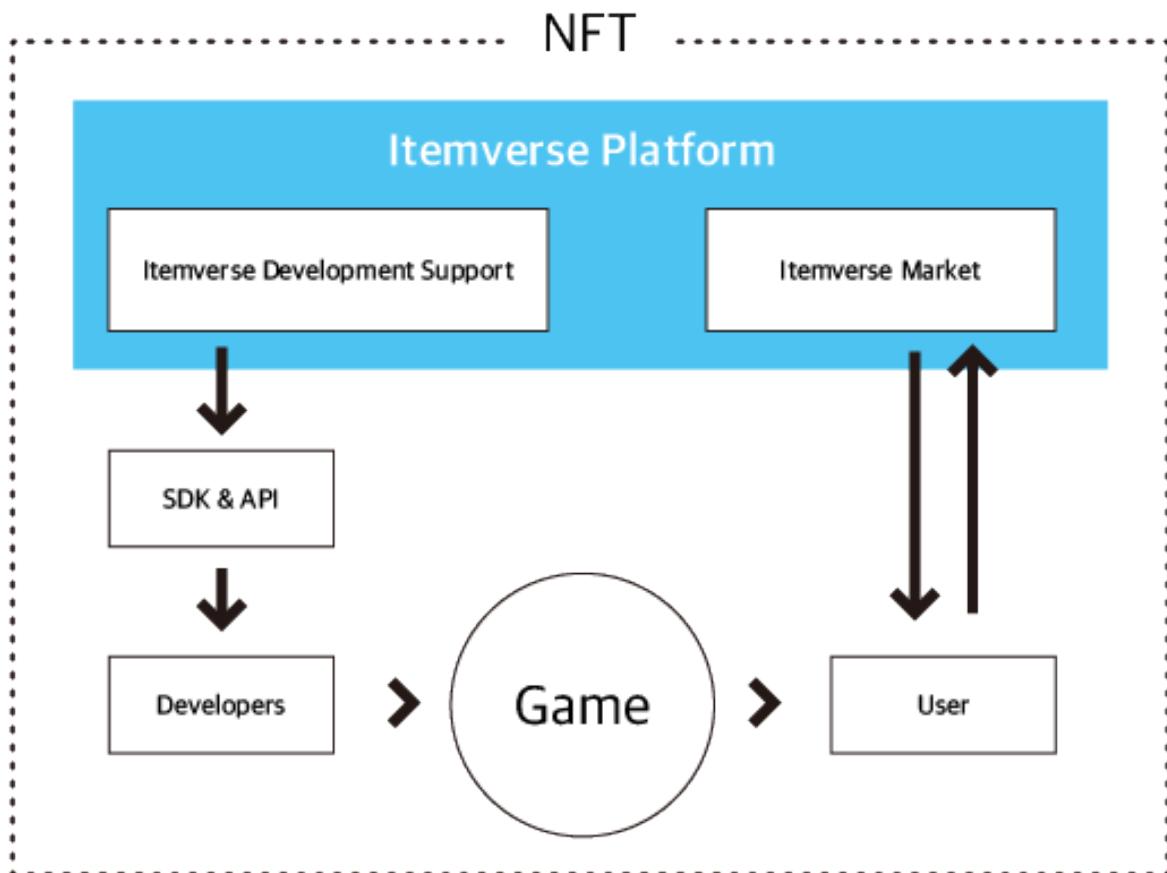
□ Background of itemVerse Emerge 1 - Structural Problems

The background of building the itemVerse Platform is as follows:

- **Fair Trade Issues related to the imposition of extreme commission and payment**
- **Weakening Game developers' sovereignty**
- **Emphasis on the issue of rich and poor due to polarization of the game industry**

One of the alternatives to solving these problems efficiently is the introduction of Blockchain.

However, using Blockchain brings a major problem in fund raising. Due to the generally negative view of Blockchain from each government, there is little government support, making it difficult for game developers to make new attempts with their own financing. Fortunately, the Game Management Committee has recently approved the classification of games using Blockchain, but there is still a long way to go.



□ Background of itemVerse Emerge 2 - Changes of User's Perspective

The change in the user's perspective on games is also the reasons behind itemVerse's emerge.

- **Transition of game from entertainment and leisure to financial means**
- **Occurring cash trades of Game Item at the out of market surveillance**

We don't have to regard these changes of user as only negative. Incorporating their transactions into market surveillance to create a safer and more legitimate market is also an important part of forming a sound game culture.

itemVerse pursue to invest and provide technical support to game developers who want new attempts, claim legitimate sovereignty and incorporate user's changed game perspectives into itemVerse system to form a healthier game market. This objective is also consistent with the pursuing public interest that was ultimately directed from the launch of Blockchain.

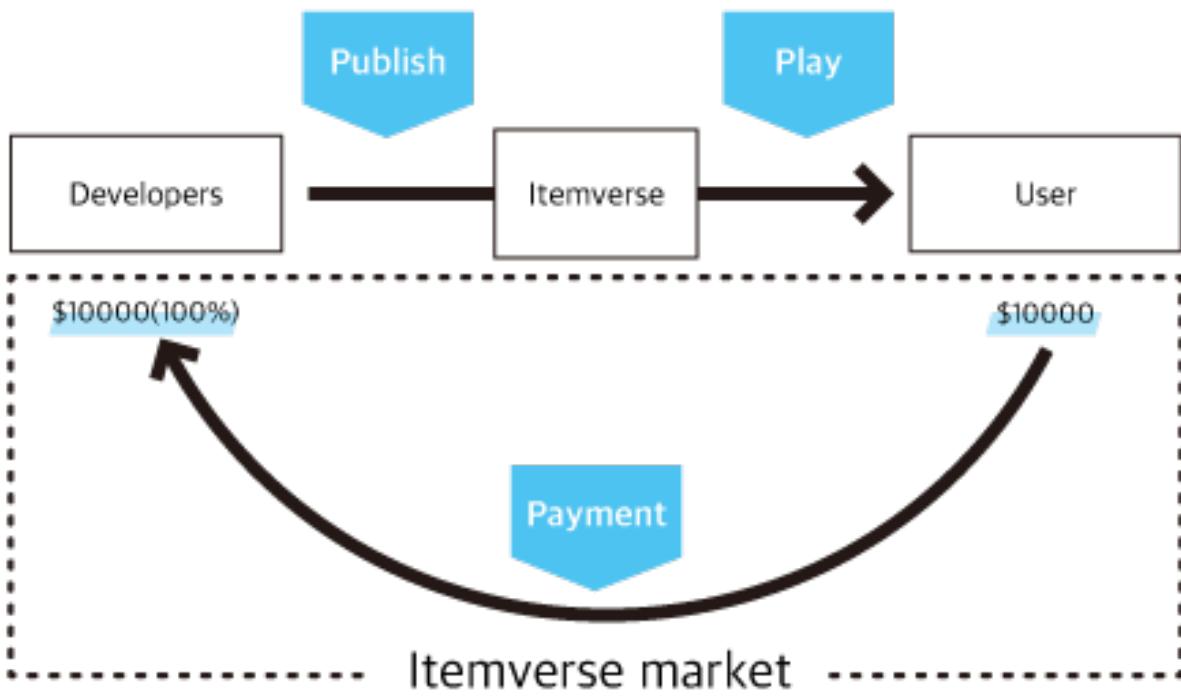
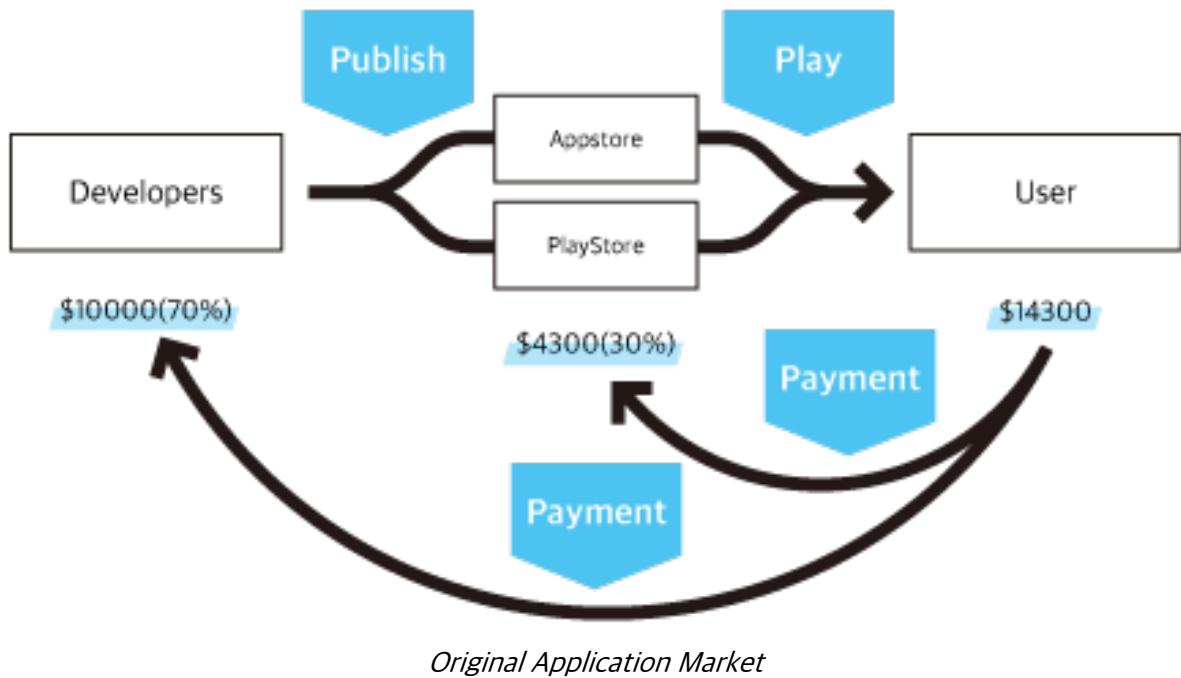
1.2. itemVerse Market

□ itemVerse Market Pros

itemVerse Market allows NFT to be purchased and sold using NFTC and has the following advantages:

- **Technical expansion of existing Game Item trading platforms**
- **Trading all Game Items built on NFT using NFTC**
- **Trading between games through NFTC**
- **Managing users' own game items directly using Wallet**

□ itemVerse Market Structure



itemVerse Market

□ Co-prosperity and Independence from the Existing Application Market

While existing application markets such as Google and Apple have advantages, the following disadvantages also exist:

- **30% higher in-app payment commission**
- **In-game policy abandonment if in-game policy and Application Market policy differ**
- **Weakening game developer's sovereignty because of Application Market monopoly**

itemVerse Market serves as a complement to them.

- **Avoiding high commission if game developers prefer to pay in-app using NFTC**
- **Pioneering a market for games that were not registered in the existing Market**
- **Ensuring the sovereignty of game developers**

However, itemVerse Market is not exclusive to the existing Application Market. Game developers can choose the advantages of each market through increased options and make a win-win structure that complements each other.

□ Tools for Managing Users' In-game Goods

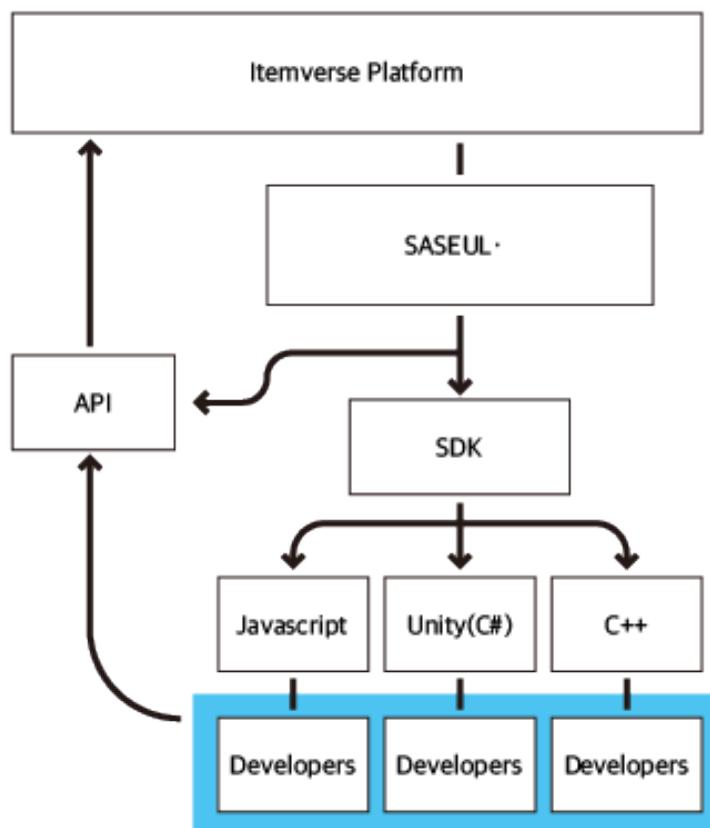
From the user's perspective, they manage their own Game Item directly, and they can switch to other Game Goods at any time, so they don't have to worry about the disappearance of Game Item. Recently, the asset value of game's virtual goods has been increasing, with many users managing their assets using limited edition Game Items. One of the biggest barriers to discouraging these users from consuming is the termination of services by game companies. However, itemVerse Market also plays a role in technically complementing these users' strategies.

1.3. Service Features

1.3.1. SDK & API

New challenges using Blockchain have been made constantly, but companies specializing in Blockchain often fail to release appropriate dApps. Therefore, if itemVerse Platform using NFT is completed and games using NFT are not developed, itemVerse is a name-only service.

□ SDK & API Structure



itemVerse provides SDK and API for game developers to easily implement NFT. itemVerse provides API of the SASEUL engine which makes up the Private Network, laying the foundation for applying NFT to game development more easily. Game developers can create NFT-applied Game Items only with SDK and API provided by SASEUL, even if they do not have professional knowledge about Blockchain.

□ Provide A Developer-Friendly Environment

itemVerse provides SDK for developers who have difficulty using API directly. In order to invoke the itemVerse API in various development environments, encryption modules must be built in advance in different languages, and sufficient technical skills must be supported. itemVerse will provide SDK such as Javascript, Unity (C#), Unreal Engine, Java, C++, and PHP, which are offered by both the Luniverse and SASEUL engines, with ease of use for game developers.

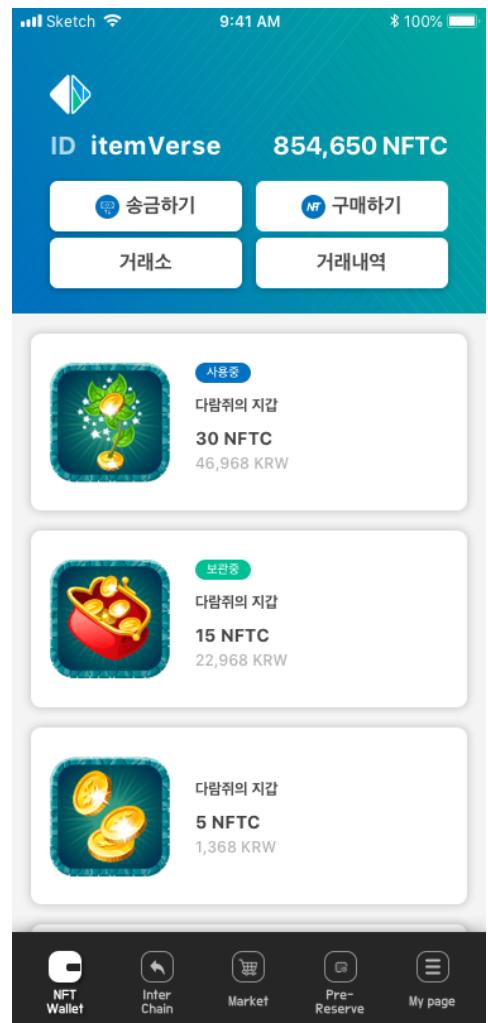
1.3.2. Wallet

□ Wallet Overview

The main features of Wallet to be developed by itemVerse are as follows:

- **NFT management that allows user to manage users' own NFT directly**
- **Market to buy and sell NFT freely**
- **Game Item NFT Presales**
- **Interchain that can be exchanged with other games NFT**

In addition, additional functions such as NFTC remittance and purchase, connecting to external cryptocurrency exchanges, checking transaction details, and setting account information will be added.



□ Wallet Features 1 - Game Item NFT Management

Wallet-managed NFT are kept in the form of goods that can be bought and sold at the Market.

It is easy to think of a structure that is responsible for inventory functions in games. The configuration of the NFT management page is as follows:

- **Total NFTC held by user**
- **NFT List of Game Items in Wallet**
- **Each Game Item NFT Details**

User is free to trade NFTC using his Wallet in the Market.

□ Wallet Features 2 - NFT Presales and Promotions Page for New Games

Wallet provides a space to check information about new games. This makes it easier for game developers to promote new games.

At the same time, by setting up a page to pre-sell Game Item NFT, it replaces the existing pre-booking system and provides opportunities for game developers to raise funds.

□ Wallet Features 3 - itemVerse Ecosystem Expansion with Interchain

In itemVerse, user can use Interchain to convert tokens from other game companies into NFTC. For game companies that have already conducted ICO or have completed game development by issuing tokens on their own, applying NFT belatedly acts as a technical burden. However, itemVerse implements the Interchain feature inside Wallet, allowing other game companies to convert tokens to NFTC, making it easier to expand the itemVerse Platform ecosystem.

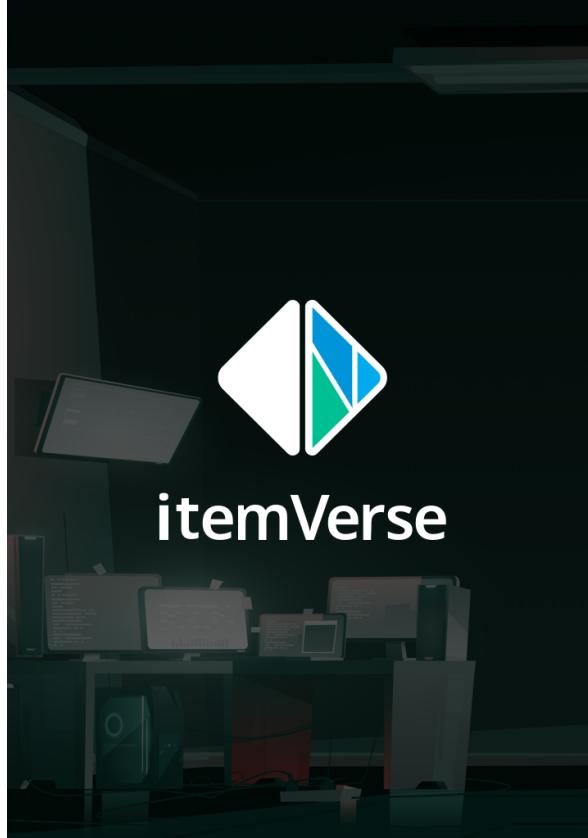
In other words, the Wallet of itemVerse is a blockchain dApp that is both self-complete and scalable.

1.3.3. itemVerse Console

itemVerse Console acts as admin of itemVerse and has the following functions:

- **NFT creation and management, permission**
- **Presales banners management**
- **Market transaction Item management**
- **Block data and transaction data management and inquiry**

Block data and transaction data are used as information for statistics. Due to the transparent nature of Blockchain, itemVerse can see which games are actively traded and who has which NFT items. Based on this, itemVerse can deliver meaningful information to game developers or operators.



itemVerse Console example

2. Business Model

itemVerse envisions the following business models.

- **Trying returns for shareholders and investors by NFTC management**
- **Ensuring Validator operational revenue with Block Rewards**
- **Raising money for itemVerse operations through V-NFT sale**
- **Expanding itemVerse ecosystem through partnerships**
- **Managing and transferring user of NFT through Melting**

The above methods enable itemVerse to achieve revenue and promote the shared growth of many shareholders, investors and affiliates.

2.1. Native Coin - NFTC

NFTC is the currency used in the itemVerse Platform and is issued under the ERC-20 token.

NFTC is issued as an ERC token because it is designed to be used with cryptocurrency exchanges outside the itemVerse Platform. To this end, itemVerse has adopted Ethereum-based Luniverse as its Public Network. Simultaneously, it is available inside itemVerse by linking NFTC generated based on ERC to SASEUL, which is responsible for the Private Network.

The initial publication size is fixed at 10 billion, and there is no plan to issue additional NFTC afterwards. However, if it is deemed difficult to operate smoothly due to the natural loss of NFTC during the operation of the service, additional issuance can be made through official procedures through the configured Governance. In such cases, sufficient prior notice shall be given to users of the service and related personnel to prevent any disruptions in the use of the service.

In addition, the published NFTC is sold in some private sales for investors before being sold on public exchanges. The amount raised from the sale under private sale is used to develop the itemVerse Platform.

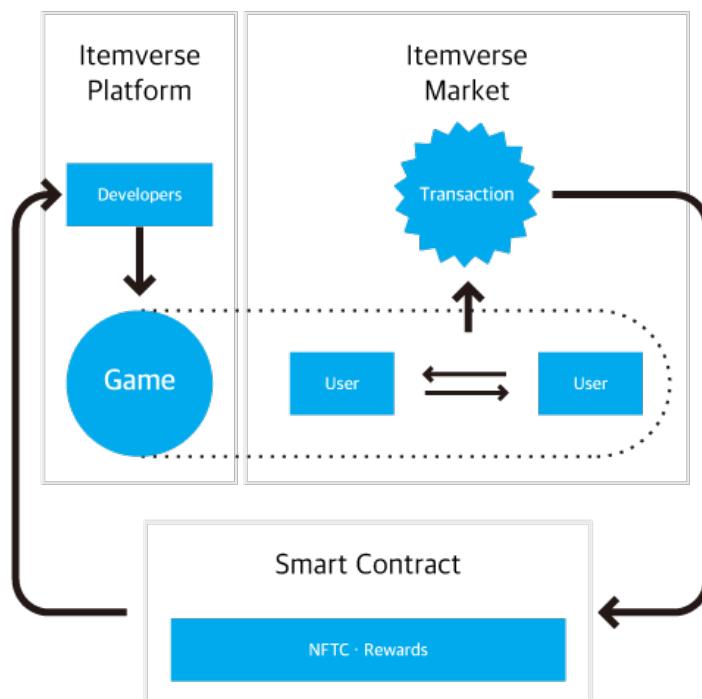
2.2. Block Rewards

In itemVerse, users make NFC transactions with Peer to Peer, and all transactions are recorded on the Block. NFT transactions include Game Item, pre-booked and pre-sales.

In itemVerse Mainnet, a certain amount of NFTC is paid to the Validator Node in the form of a commission each time a block is created. The percentage of commission will be determined by the Coin Policy Committee as a policy.

itemVerse Mainnet defines all policies described above as Smart Contracts.. Therefore, commission paid by Block Rewards are defined as one Smart Contract as a network policy. The policy can be changed, but even if it is changed, it will remain recorded on the itemVerse Mainnet and no one can change the policy arbitrarily.

itemVerse will also operate Validator Node to achieve operating profit through Block Rewards. The Validator Node, which receives Block Rewards, must have a V-NFT issued by ItemVerse. The initial publication volume of V-NFTs is 200, of which 100 are owned by itemVerse.



Block Rewards structure

2.3. V-NFT Sale

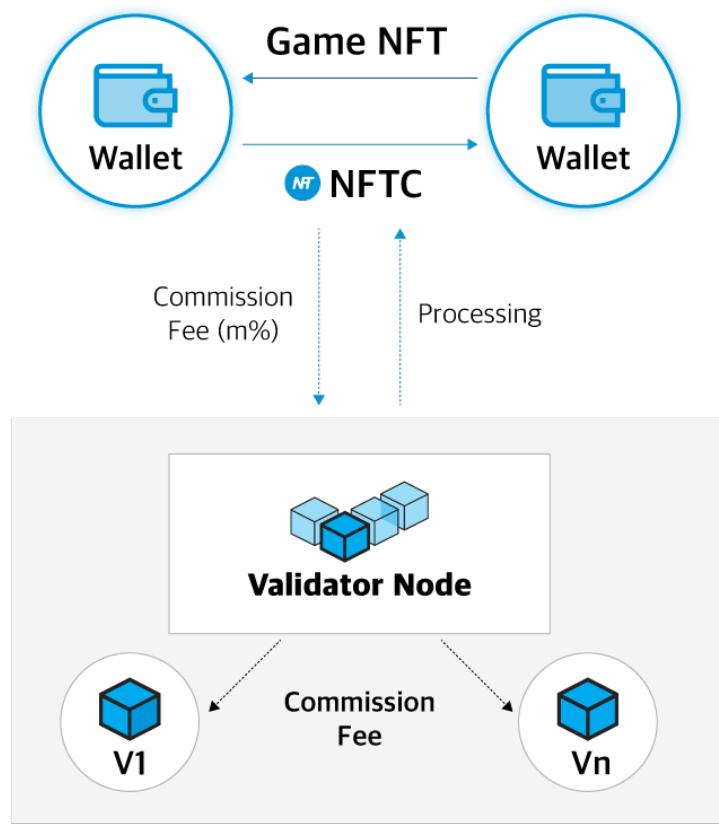
□ V-NFT Overview

itemVerse Platform issues Validator NFT (V-NFT) to grant Validator privileges.

The general features of V-NFTs are as follows:

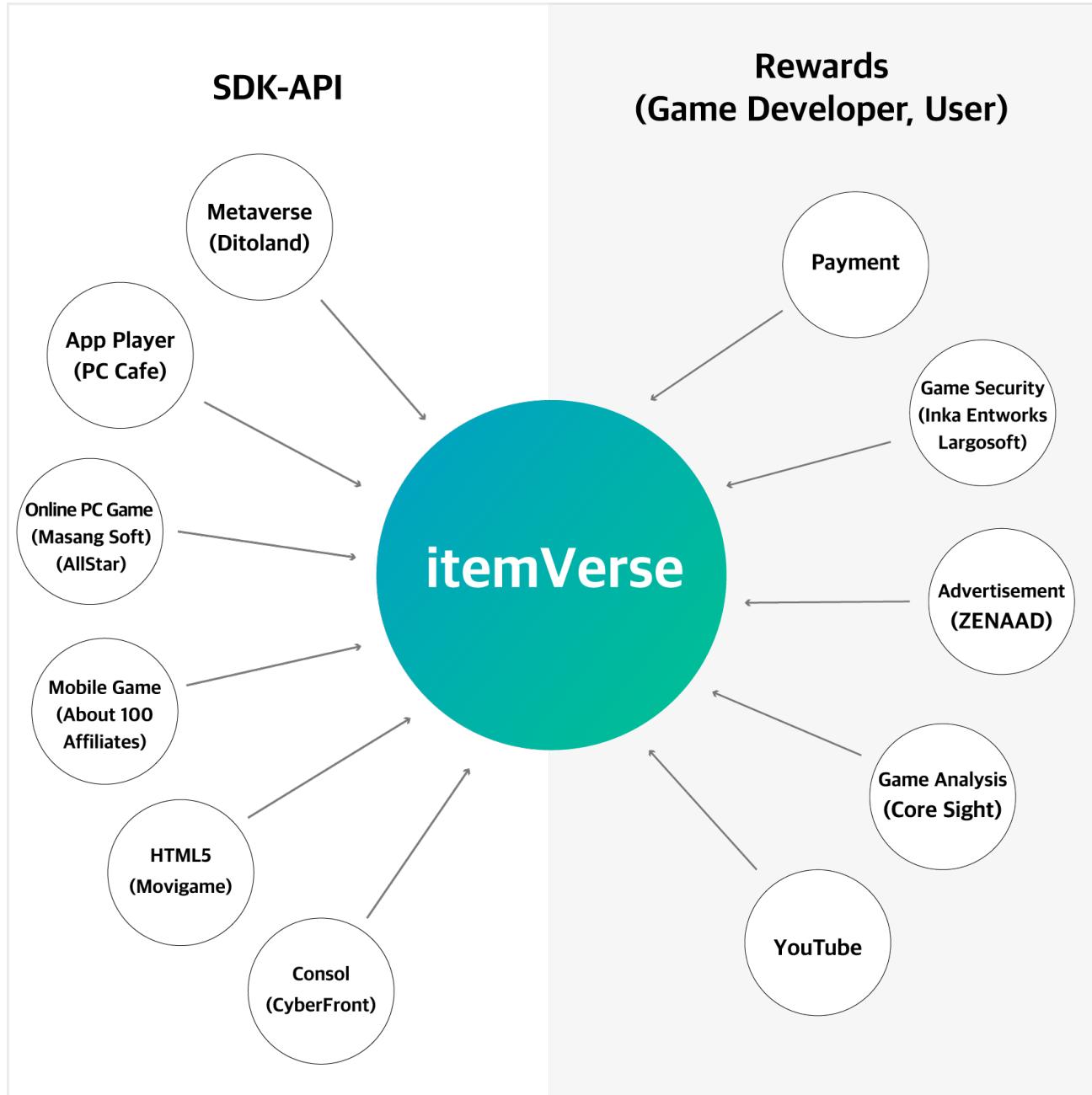
- **V-NFT deals in the same form as other Game Item NFT**
- **When a V-NFT holder generates a Node, it is recognized as a Validator Node**
- **Those with V-NFT can operate the Validator Node**
- **Validator handles NFT transaction every time it takes place**
- **Receive a commission equal to m% from itemVerse Mainnet in exchange for processing**

The size of the transaction commission is determined by Governance, and if there are many validator nodes, the transaction commission will be divided equally. itemVerse will produce only 200 V-NFTs and sell them for some investors.



V-NFT Structure

2.4. Recruiting Affiliates



The recruitment of affiliates consists of two main divisions.:

- Game developers that can connect with itemVerse with SDK and API
- Advertising, security, and analytics companies that can co-exist with rewards

2.4.1. Game Developers

Game developers can easily interact with itemVerse by receiving itemVerse's SDK and API, which can benefit from:

- **Increasing Retention of Users**
- **Game Item NFT Promotional Effects**
- **Auction house automation (commission distribution)**

Games and game-related programs linked to itemVerse provide NFTC to users in proportion to their usage time. Therefore, the retention of users using the game and related programs will increase.

Game Item NFT such as limited quantities can be promoted using pre-sale, and NFT can be resold, resulting in natural promotional effects.

Building an auction house in the game costs a lot of manpower, time, etc. However, NFT allows the use of itemVerse's auction house, and game developers can automatically settle transaction fees whenever their NFT are traded.

2.4.2. Other Partners

Advertising, payment, game analysis, and security companies can also achieve profits through partnerships. Platforms can gather user by paying NFTC to users who use the platform in proportion to the time of use.

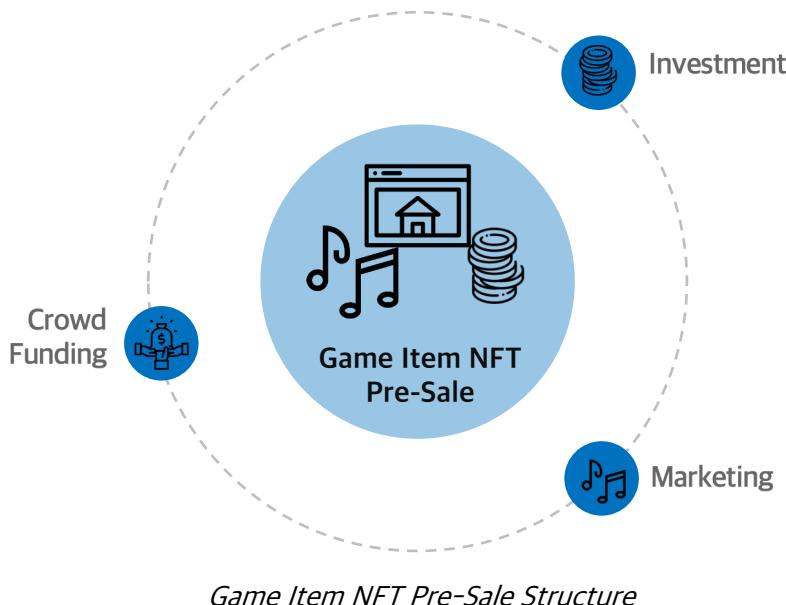
As competition for platforms is intensifying, partnerships that can gather users will work positively for companies. In addition, like games, users can expect high retention, not temporary use.

2.5. Eco-System

2.5.1. Game Item NFT Pre-Sale

Game developers promote and market through the issuance of pre-booking coupons, and the following effects occur:

- **Drag user's attention by promising perks**
- **Increase expectations for upcoming games**



Game Item NFT Pre-Sale, on the other hand, is a method of making a limited edition of Game Item, etc. into NFT and selling it in advance. The published Game Item NFT is recorded on the Blockchain of the ItemVerse Platform, and the published quantity is released. Pre-sales have the following expected effects:

- **Game Item NFT Price Changes based on Game Success**
- **Users purchase Game Item NFT as an investment concept for future value**
- **Game developers raise money for game development and promotional expenses before the game is released**

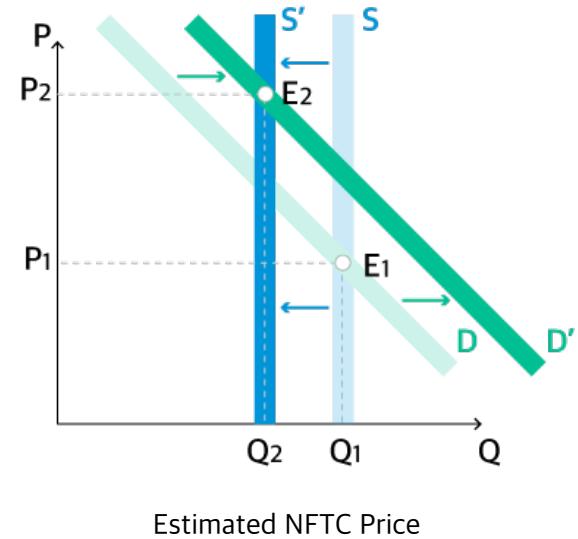
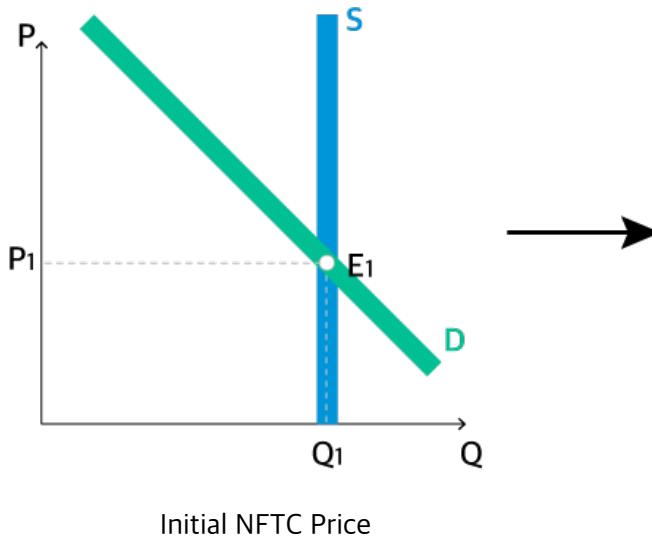
In this process, itemVerse can set a certain commission, resulting in minimal service revenue.

2.5.2. NFTC Price Forecast

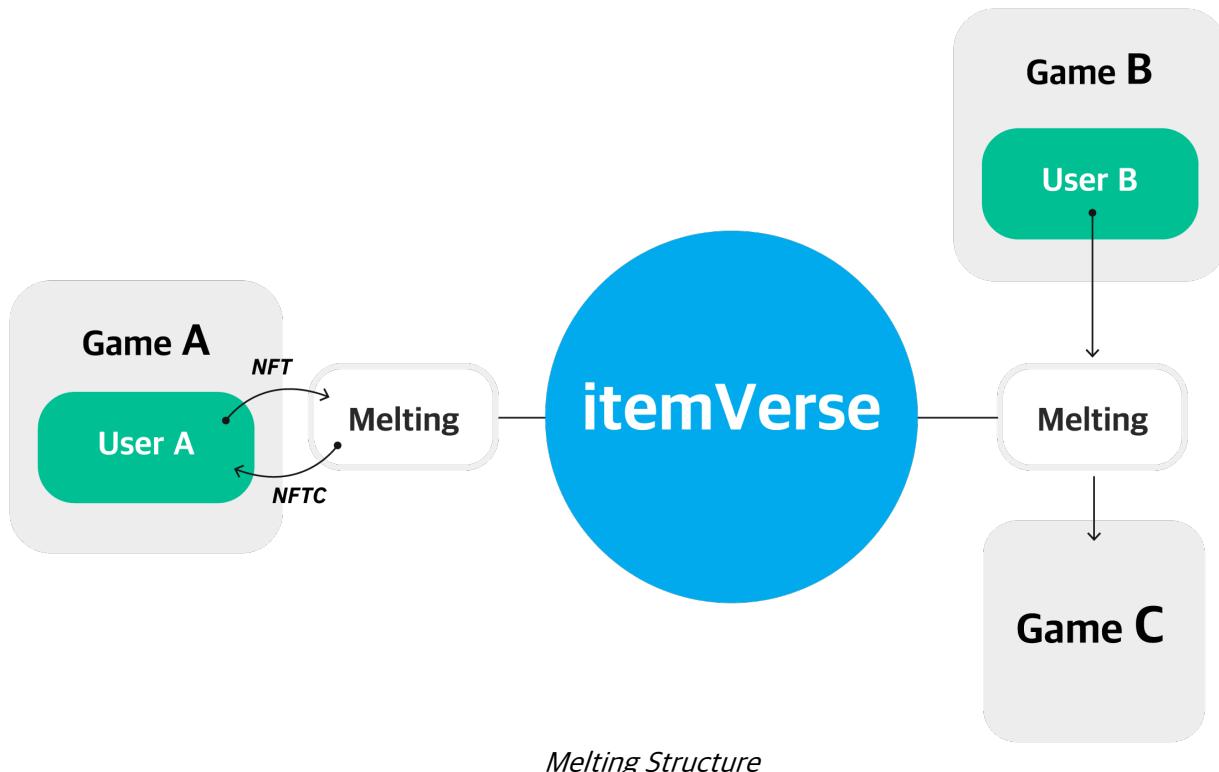
The price of NFTC used in itemVerse is determined through an open exchange. However, with the operation of the service, NFTC's price will increase over time. These predictions are illustrated based on the demand and supply curves of traditional economics.

- Increase NFTC role with itemVerse activation
- NFTC demand increases as itemVerse Platform becomes active
- NFTC supply fixed and additional non-issuance
- NFTC failure occurs as itemVerse Platform operating period increases
- Increased number of people holding NFTC for speculation reduces NFTC distribution

The number of NFTC issued is fixed at 10 billion, but the actual NFTC distribution felt by users for the above reasons is less than this. Therefore, as itemVerse project is completed and the operating period continues, NFTC's price will continue to rise.



2.6. NFT Melting



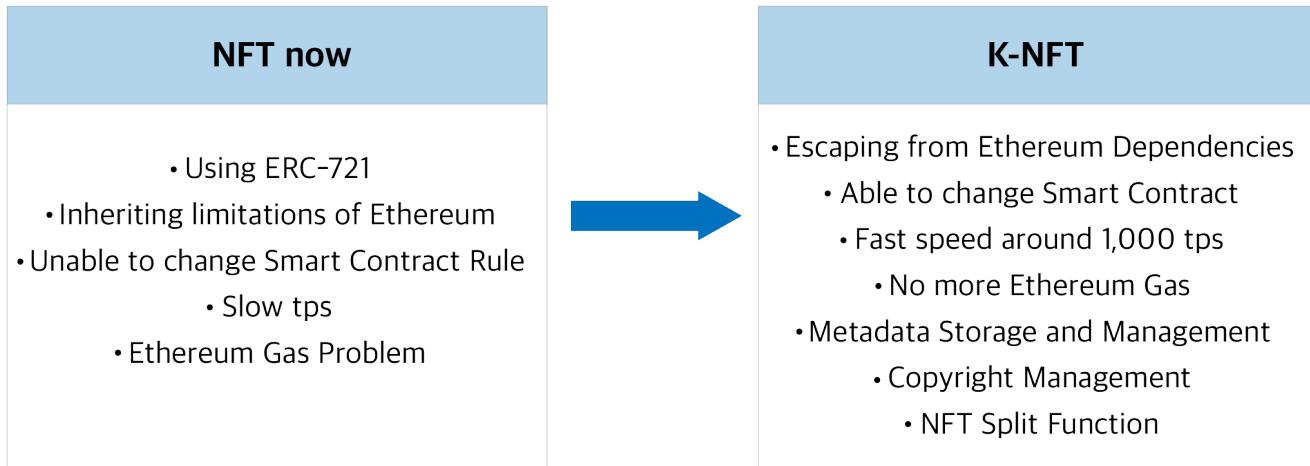
Melting is a way to recycle Game Item NFT that are no longer available. When the game service is terminated, NFT loses its value of use. However, it guarantees minimal value by using Melting.

- **Send NFT to itemVerse Platform and receive NFTC in return**
- **Switch to Game Item NFT for other affiliated games and transfer user to that games**

User can choose one of two methods.

First of all, NFT that have no use like Game A can be replaced with NFTC to minimize damages. Alternatively, Game B continues to play Game Item NFT as another game affiliated with Game C. In the latter case, it is a great benefit for Game C's operators because it is a Paying User movement.

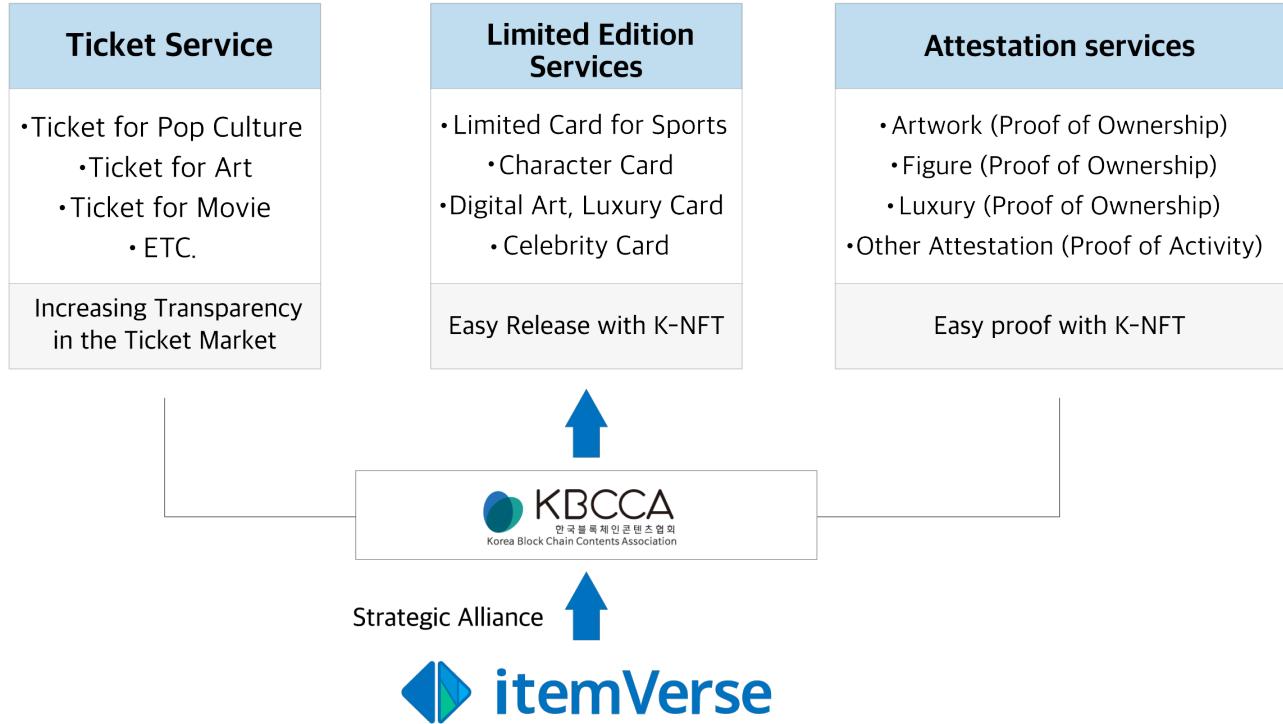
2.7. K-NFT & Cross-Chain



- **Smart Contract Rules:** Smart Contract Rules must be changed when the game is updated, but if NFT is configured as ERC-721, the rules cannot be changed (but very difficult).
- **Ethereum Gas:** Item information cannot be included in the issued NFT, and if the item's status changes even if it is included, Ethereum Gas continues to occur.
- **Ethereum Speed:** Ethereum main network cannot handle many triggers, with speeds shared by all users around the world at 20 tps

K-NFT is an overwhelming performance NFT that improves the above problems, and a cross-chain that enables transactions between other chains, ensuring scalability.

2.8. itemVerse Expansion



itemVerse Expansion Plan

The extension of itemVerse proceeds as follows:

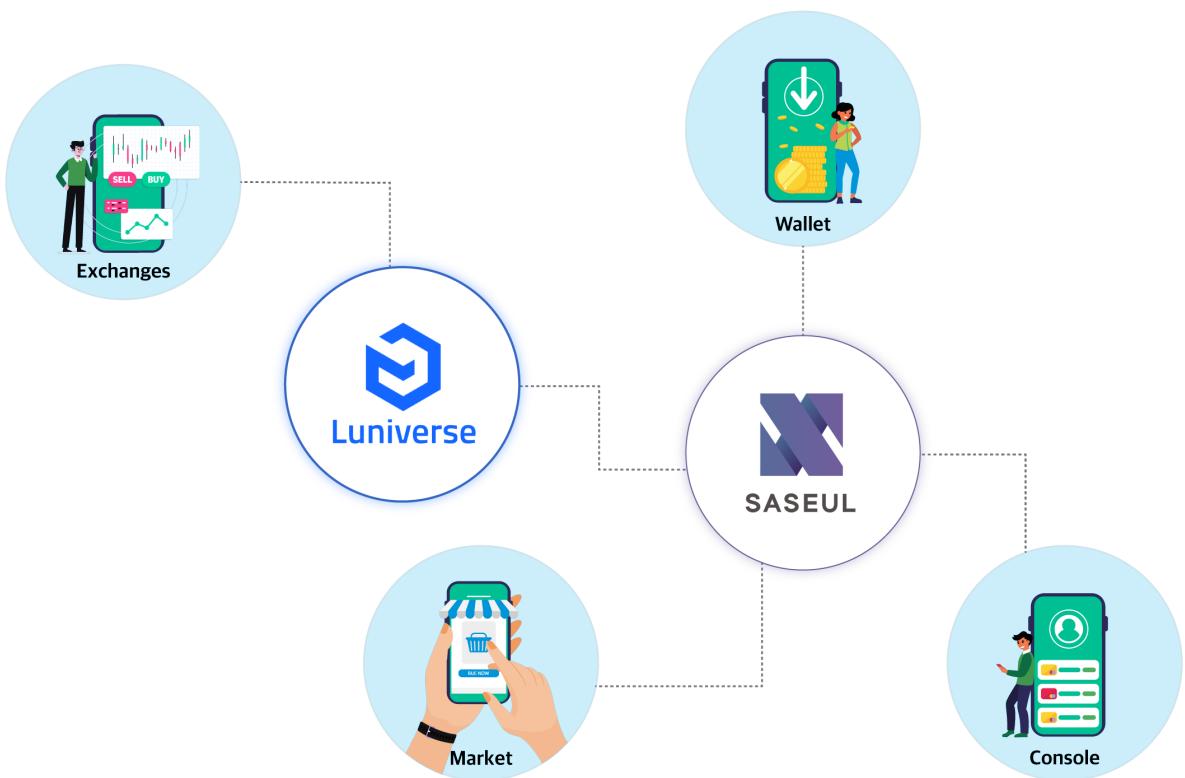
- Applying "K-NFT Standardization" in conjunction with more than 100 member companies of the Korea Blockchain Association
- Increasing transparency of "Dark Market" by applying K-NFT through partnership with various ticket service providers
- Increasing revenue of Limited Card for Sports, Character Card, Digital Art, Luxury Card, Celebrity Card through "Limited Market"
- Establishment of a market foundation such as Attestation Services

3. itemVerse Mainnet

itemVerse consists of the following:

- **Public Network - Luniverse for interworking with cryptocurrency exchange**
- **Private Network - SASEUL for being utilized in in-game**

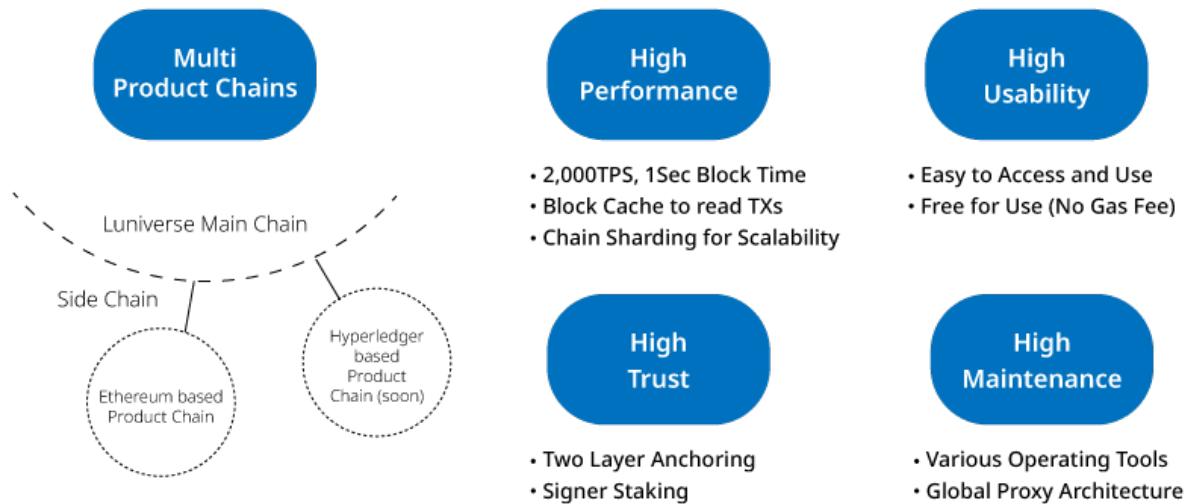
Public Network is based on Ethereum using Luniverse, which is one of the pillars of the Korean Blockchain industry running BaaS. Private network to be utilized in in-game is developed and built on SASEUL, and NFTC is managed by Sidechain.



itemVerse Mainnet Structure

3.1. itemVerse Mainnet Spec.

3.1.1. Luniverse Spec.



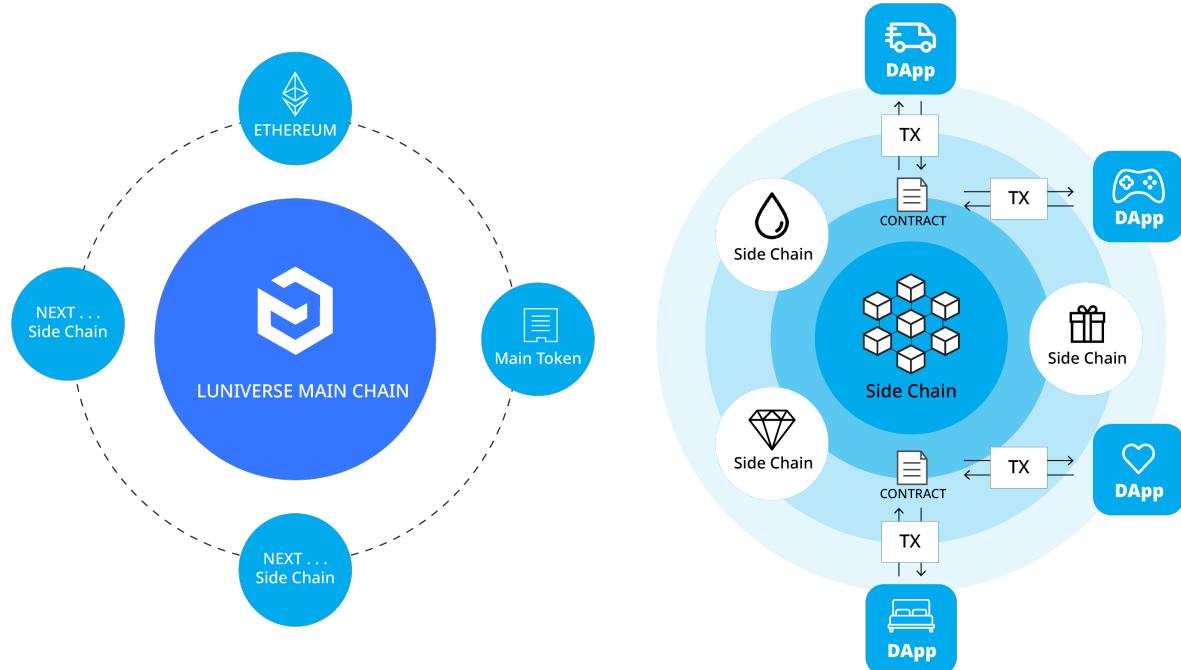
3.1.2. SASEUL Engine Spec.

	SASEUL	ETHEREUM	COMOS	HYPERLEDGER	EOS
Finality	1~5 seconds	1.5 Min	3~7 seconds	N/A	less than 1 seconds
Speed	1,000 tps (global scale), 3,000 tps (Asia Scale), 10,000 tps (local)	- 15 tps -	- 1,000~3,000 tps -	- N/A -	100,000 tps, 3,800 tps (Proven)
Consensus	PoR (HAP-2)	Pow	Tendermint	PoET (Elapsed Time)	dPos
Virtual Machine	SASEUL Commit Engine	EVM	-	Various	EOS VM
Demonstration	AWS SASEUL BaaS	Main-net	Main-net	No publi use cases	Main-net
Architecture	Multi-Blockchain	Single-Blockchain	Cosmos Hub	Modular complex architecture	Parallel processing

3.2. Public Network Engine - Luniverse

Luniverse is a blockchain network and BaaS developed by Lambda256, a research subsidiary specializing in Blockchain of Dunamu Corporation, which develops and operates South Korea's largest cryptocurrency exchange "Upbeat." Luniverse shares its trajectory in terms of direction with the development goal of a practical blockchain pursued by itemVerse

□ Easy Connection with Sidechain

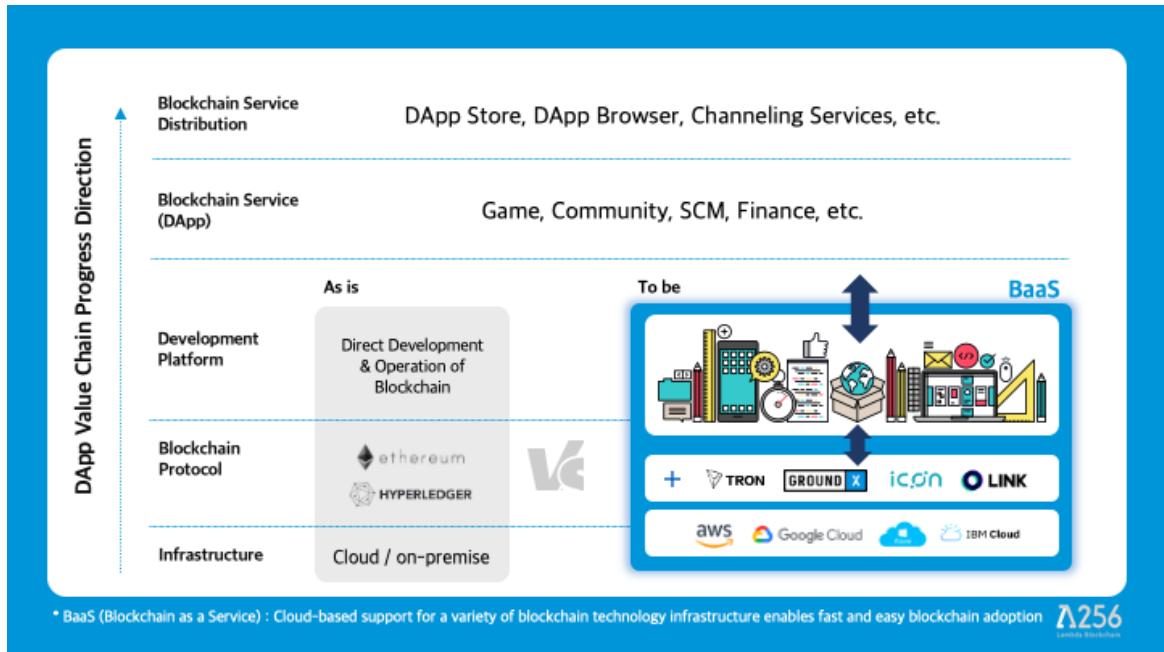


Luniverse main chain can be configured based on Ethereum or Hyperledger Fabric. However, Ethereum and Hyperledger Fabric have their own drawbacks:

- **Ethereum: Slow processing makes large-scale service applications difficult**
- **Hyperledger Fabric: Decentralization by Ordered Queue**

itemVerse adopted Ethereum and actively uses sidechain sharding supported by Luniverse to solve Ethereum's speed problem. Sidechain sharding reduces the burden of main chain and enables smooth dApp service.

□ Lambda256 BaaS Features



Until now, companies had to develop and operate Blockchain themselves to apply Blockchain technology to their services. However, even with the already widely used Ethereum and Hyperledger protocols, it is not easy to transform them into forms that can be utilized in Blockchain DApps.

- **For Ethereum, there is a language barrier called Solidity.**
- **Hyperledger limits access to companies due to the difficulty of technology.**

Luniverse, provided by Lambda256, is the most powerful alternative to addressing the above challenges for companies. Luniverse provides users with the following functions:

- **Connectivity to Cloud such as AWS, GCP, MS Azure, and others**
- **Leverage more blockchain protocols**
- **Apply this to the development platform at once**

This allows customers of Luniverse to focus only on developing DApps and distributing services and enable more efficient resource distribution.

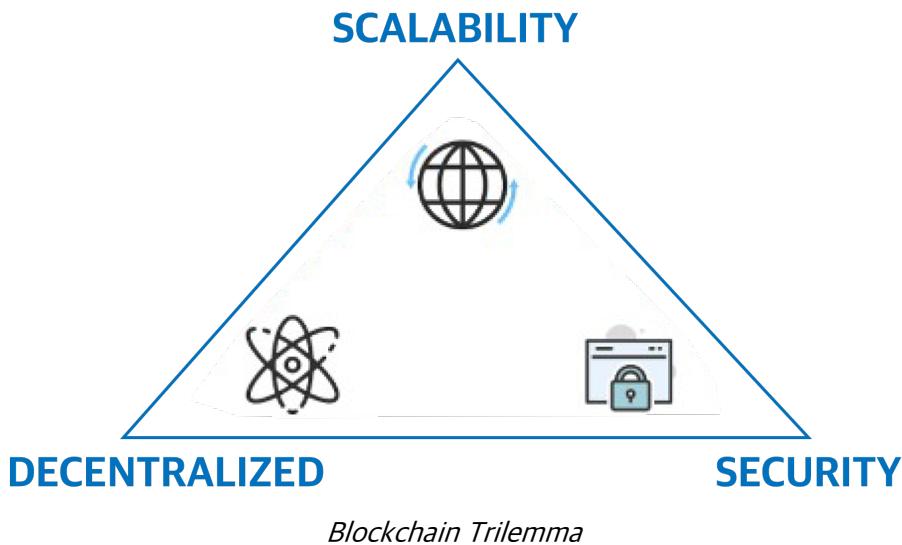
3.3. Background Engine - SASEUL

itemVerse uses SASEUL as a blockchain to implement NFT and GIP. Rather than developing all technologies from scratch, itemVerse Mainnet can be configured using an already equipped Blockchain engine, which describes the advantages and characteristics of SASEUL and scrutinizes SASEUL's differentiated features.

3.3.1. Description

Blockchain is a decentralized system-based data transfer/storage technology that stores network records and others in the form of unmodifiable blocks, based on the concept of creating blocks containing data at regular intervals and then connecting previous blocks like chains. In other words, it is also called a public transaction book by all (node) participating in the transaction distribute, store, and chain data into blocks, and is considered a key technology to improve data reliability and stability.

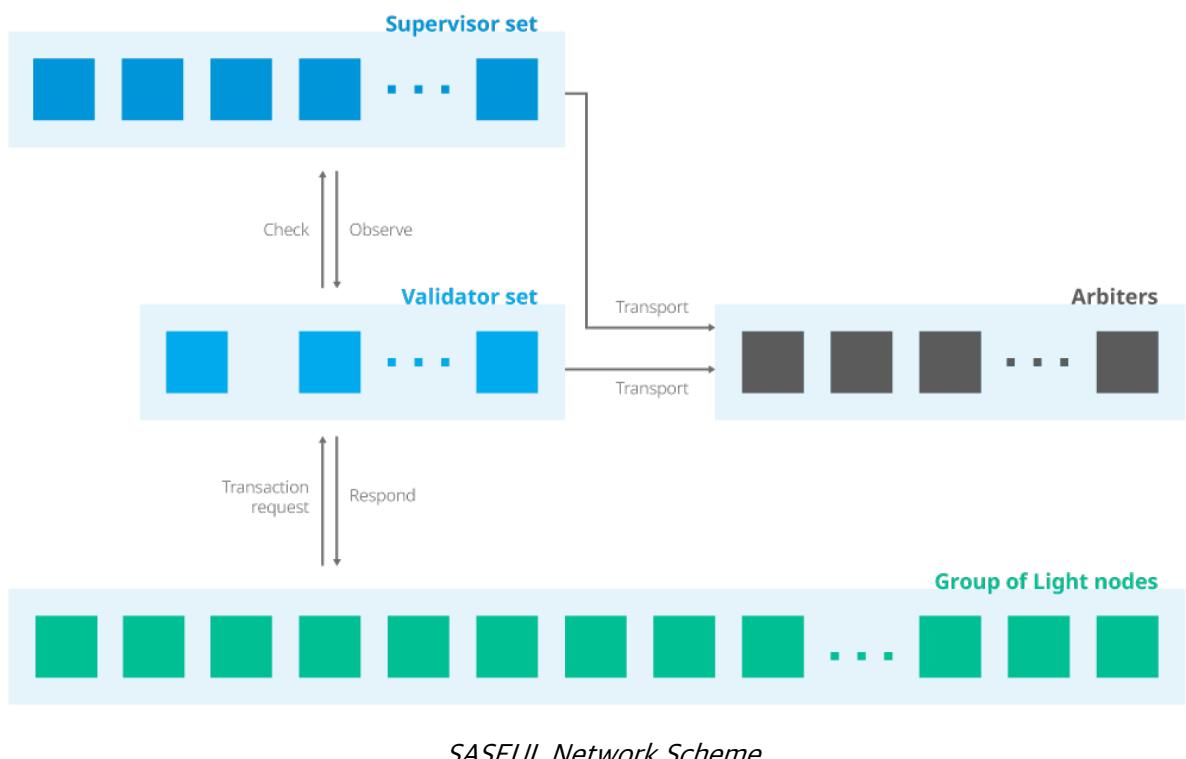
□ Limitations of Existing Blockchain Technology - Trilemma



Few existing blockchains feature all three characteristics: decentralization, stability, and performance. This is known as the Trilemma of Blockchain. SASEUL is a blockchain with stability and performance without compromising the first value of a blockchain.

3.3.2. Consensus Algorithm - PoR

SASEUL uses Hypothesis Acceptance Protocol (HAP) to unify the data in the network, among which it uses a more stable HAP-2. The key to this algorithm is to view future block data as one hypothesis, and to determine it as a block after a process of merging all hypotheses. In addition, if there is a block that has already been created, it is also considered as a hypothesis, and each Node determines self-centeredly whether to accept it or not. We propose PoR as a term meaning that the criterion of the decision is viewed as a rule and that it must be demonstrated in accordance with the rule to be recorded in the block. This has an advantage in that even if the number of validators increases, the network speed does not decrease, and bottlenecks do not occur compared to PoS. It can also address the phenomenon in which nodes with high computing power have an advantage, as in PoW.



3.3.3. Node Configuration

□ Light Node

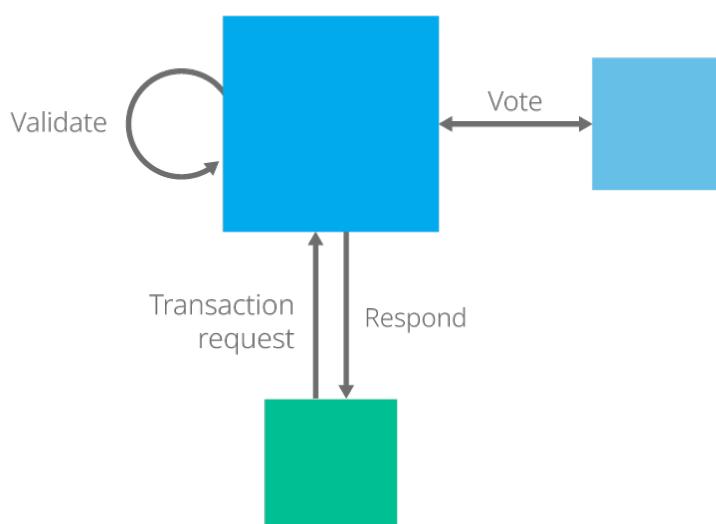
It is the most basic node included in the network and is mainly used by service end-users such as wallets. Node includes its own private key and tracker, which allows transaction creation, requesting, and checking results.



Light node generates and transmits transaction requests.

□ Validator

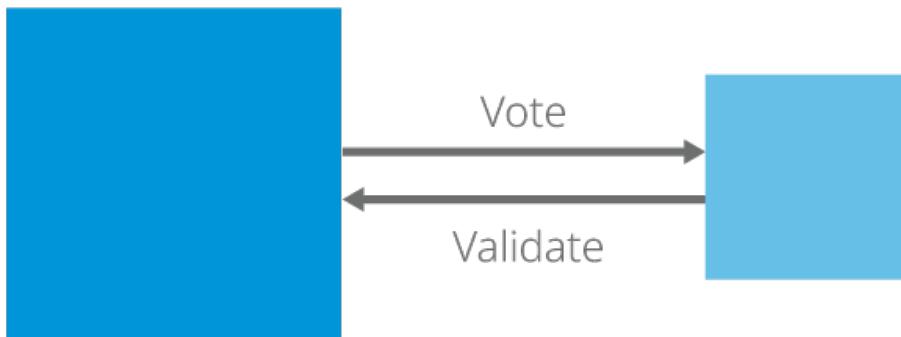
It is a node that synchronizes with all existing blockchain and is approved to participate in an agreement. Validator receive transaction requests from the network, agree on approval and rejection, and generate block-shaped data. The agreement proceeds according to the policy code (Policy Smart Contract) pre-designed by itemVerse, communicates directly with the Light node, hashes the generated blocks periodically and transfers them to the arbiter.



Validator is directly involved in the processing of transactions and performs the functions of transaction request approval, validate, vote, and response.

□ Supervisor

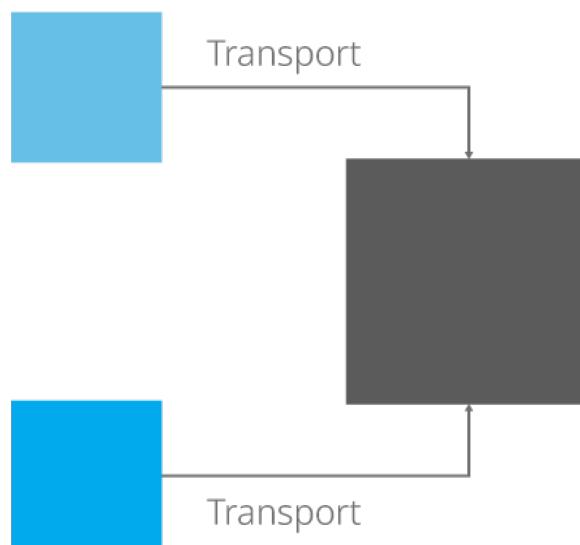
It is a node that serves as a watchdog to ensure that the network generates the correct blocks and stores them. It is possible to detect problems such as false hash generation, but it does not perform functions that directly affect the network, such as directly generating transactions for verification and punishment.



Supervisor checks all consensus and determines if it is correct. This can be referenced by the Validator as a basis for judgment.

□ Arbiter

A node that stores all blockchains. It is a node that exports data so that historical records can be contrasted against validation requests from Validators without engaging in decision-making and solves much of Blockchain's book storage space problem.



Arbiter receives and stores data at the end of the chain lifecycle.

4. Team & Partners

itemVerse Project was launched to pursue the public interest purpose of revitalizing the Blockchain game market and was established as a democratic corporate system in which all shares owned equal shares without major shareholders.

4.1. Core Members

- | | |
|--|---|
| <ul style="list-style-type: none">▪ Kim Hak-min (CEO)• Encom Holdings, CEO• Bitlink Director• Amusebank Founder, CEO | <ul style="list-style-type: none">▪ Lee Jung-woo (CTO)• Undergraduate., Dept. of Mathematical Science, KAIST• Woowa Brothers Infrastructure Developer.• Technical Adviser of ArtiWealth• CEO of ArtiFriends Inc. |
|--|---|

4.2. Core Developers

- | | |
|---|--|
| <ul style="list-style-type: none">▪ Lee Yong-jae (Developers)• B.S. in Computer Science, Kaist• Former Developer in JPCOMPANY• Former Developer in Artifriends Inc. | <ul style="list-style-type: none">▪ Lee Jai-in (Developers)• B.A. in Asian History, SNU• B.S. in MOT, SNU• Former Developer in M&J• Former Technical Adviser of Midam• Former SSAFY (Samsung SW Academy)• Developer in Artifriends Inc. |
| <ul style="list-style-type: none">▪ Han-sol (Developers)• B.A. in Aesthetics, SNU• Former Developer in ATOZ• Developer in Artifriends Inc. | |

4.3. Partners

4.3.1. itemVerse Partners (About 100 Companies in the Korean Game Industry)

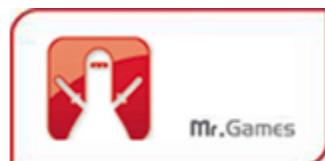








Jn Company

 놀웍스주식회사
Knowledge worker's groupPurple™
Ocean
UT+
UTPLUS
INTERACTIVE
FORZA®
G A M E S**G1** Playground

4.3.2. Partners' Games (About 300 Games)

 <p>Arcane M</p>	 <p>Ace Online-Duel X</p>	 <p>Dkonline Global</p>
 <p>AsdalGlobal</p>	 <p>AceOnline Europe</p>	 <p>AceOnline Japan</p>
 <p>Astronest</p>	 <p>Dekaron</p>	 <p>Laghaint</p>
 <p>DK Online</p>	 <p>PristonTale</p>	 <p>Gunz</p>
 <p>Call of Chaos</p>	 <p>Ace Online</p>	 <p>The King of Fishermen</p>
 <p>Skid Rush</p>	 <p>Hero X</p>	 <p>Strikers 1945m</p>
 <p>Strikers 1999m</p>	 <p>GUNBIRDm</p>	 <p>TENGAI M</p>



Strikers 1945 SAGA



Strikers 1999 SAGA



GUNBIRD SAGA



TENGAI SAGA



DITTO Land



Rogue Universe



Revolt



Ocean Hunter® : Match3 Puzzle



Puzzle Crossing



Project XD



Mad for Dance - Tab



Villains robot battle royale



Block Dragon king



Luminous Brick Glow



Luminous Brick lite



Glow Circle



Glow Pingpong



Glow Defense



Glow Lock



Glow Move



Glow Puzzle



Galaxy Rush



Archery HIT



Block Stack



Timing Hero VIP



Mystic Guardian VIP



Theme Solitaire PV



Underworld Office



Galaxy Idol PV



Wonder KnightPV



My Oasis



7Days



Galaxy Idol



The Romance in your Dream



Timing Hero



Buff Knight Advanced



My Coloring



Mystic Guardian



Buff Knight



Swipe Rolling



Theme Solitaire Trifix



The Choice of Argo



Underworld Office



Cattrix



CELESTIAL GODDESS



Wonder Knight



Angel Saga



Merge Racing 2021



Monster Fishing 2021



Fighting & Life



Space Rider 2019



Bowling Club



Real Archery 2021



Fishing Season



My City



2048 Fishing



Poly Star



Solitaire



Word Land 3D



Dancing Queen : Club Puzzle



Pixel War : Photo



Drop the Number®



Fruits Master



Spookies Pop



Candy Friends Forest



Maze : Rookie



Jewel Hunter® Lost Temple



Bubble Hunter



Sheep ranch Tycoon



Bingo Bay™



Jewel Land®: Match3 Puzzle



Sugar Hunter: Match3 Puzzle



King of Arkanoid



Candy Friends®



Hello Candy Blast®



Fruits Magic®



Jewels Jungle™



Block Puzzle Pop



Sugar Pop®



Bunny Blast®



Jewels Magic Quest



Candy Sweet Pop



Fruits Pop™



Icecream Mania



Jewel Blast®



Jewel Castle



Jewels Magic Lamp®



Candy & Cookies™



Jewels Pharaoh®



Star Link Free



Fruits Garden



Jewels Garden®



Hexa Starlink



Block Puzzle King



Golf Hero 3D



Classic Blast



Colorling Puzzle



Bricks Breaker



Drop Merge



SuperBricks



DungeonMaze.io



Jellycrew Paradise



Running Mania



Super Idol®



Block Hexa Puzzle



Jewel Fairyland



Bricks Breaker Shooting



Arkanoid Galaxy Shooter



Solitaire Life!



MySolitaire



Jewel Puzzle King



OC FREEDOM



HIT THE MOLE



AFTER WAR



DETECTIVE S



MY STREET



ZOO'S TRUCK



ZOMBIE KINGDOM



BARBARIAN WARS



MERGE RACER



cattrix



CELESTIAL GODDESS



Angel Saga



50Blitz



CoverallBingo



CoverallBlitz



CrazyFork



JumpingBlitz



JumpingRobo



NumberBrain



StackBlitz



TriPeaks



TripleCrush



Allstar Poker



Allstar Slot



Allstar Sports



Allstar Webtoon



Magicstone



Adventure H2



23 HOURS



2048 Will You Merry Me



The Chosen Star - SF Fantasy



Help! Mingle Bot



The Footprint of a Star



Story Town



Witch Hunter RPG



Errant Saga



Fantasy Magic Academy



WYD



Alkanoid Neon9



SAGAC SAGAC



Alkanoid Neon11



Sweetie Jump !!



BLOCK PUZZLE 1010!



Battlemen League



Warmonger



Alkanoid Neon Block



Crush Runner



Nyom Nyum



Friends Gem



Disney Hide & Seek



Disney Find Wrong Picture



Hanbang Gostop



SoliPop



SBS Gostop



Dungeon and Girls



Sweetmonster Alkanoid



Gon Match3 Puzzle

5th Street Bong

Jadu Bubble



Air Battle War



SweetMonster match3 Puzzle



Alkanoid 2020 Smash King



League of Masters Legend Battle



2048 Merge Museum



Fruits Master Match3 Puzzle



Dungeon and Goddess



Bluemon Find Wrong Picture



KKR Gostop



Catchy Frenzy



Find Dog House



Food Quiz



loveritmo



operation7



rakion



wolftteam



Neo Puzzle Quest



Neo Brick Quest



Minimon Masters



Bellatia



Island



Wanna Go Home



CN Arena AllStars



ERUASAGA



space-out

4.4. Coin Policy Committee

It consists of about 10 policymakers, including itemVerse's NFTC Block Rewards, and the company's policy-making body. The main roles of the Coin Policy Committee are as follows:

- **Set the NFT transaction commission**
- **NFTC Block Reward policy determination**
- **Price management for V-NFT**
- **itemVerse Platform satisfaction survey**

Policy decisions at this Coin Policy Committee are carefully made and aimed at maintaining as little variation as possible. The main policy-making bodies for this project are as follows.



4.5. Advisors (About 70 Representatives in the Game Industry)



- **Jeon Sun-ik**
 - Former Financial News Tokyo correspondent
 - Former Financial News Los Angeles correspondent
 - Vice President of Financial News Group Management Planning
 - CEO of Factblock



- **Kwon Jae-ryun**
 - Graduated from KAIST Department of Industrial Management
 - Former Korea Corporate Investment Representative
 - Former CEO of KTB Entertainment
 - Former Auction Director
 - Former NDOORS (now Nexon Red) Founders and Directors
 - Former Job Korea Director
 - Former Director of KTB Network
 - CEO of Skywalk Holdings.



- **Kang Shin-beom**
 - Doctor of Information Protection at Korea University
 - Former Soft Forum Founder
 - Former Item Bay CTO
 - Former CEO of NR Studio
 - CEO of Barun Son



▪ [Kim In-sook](#)

- KAIST Business School
- Former Orion Fritorey Marketing Headquarters
- Former NHN Corporation/Han Game Marketing team marketer
- Former Director of Electronic Arts Korea Marketing/Business Development/Publishing
- Representative of Unity Technologies Korea Branch



▪ [Park Young-mok](#)

- Former Deputy Director of Microsoft
- Former Managing Director of NCsoft's Management Strategy Office
- Former Managing Director of Blizzard Entertainment
- Former NHN Game Headquarters Director
- CEO of Pole To Win Korea



▪ [Hong Sung-joo](#)

- Former Onnet CEO
- Former CEO of Next Game
- Audit of Pearl Abyss
- CEO of Team O2 (Camore)



- **Lee Il-soo**

- DeNA Seoul / Representative Director
- Former Frontier Management / Senior Director
- Former Ernst & Young / Supervisor



- **Koo Chang-sik**

- Former Fujitsu Korea Co., Ltd.
- Former Fujitsu Corporation of Japan
- CEO of Cyberfront Korea
- CEO of CFK



- **Choi Sam-ha**

- Professor of Game Education at Sogang University
- Game Management Committee Standards Maintenance Committee/Grade Re-classification Committee
- Game Culture Forum Member
- Senior Advisor to the Gen.G-ELite Academy
- 4K&Co E-sports Education Company Co-founder



▪ **Yang Sun-woo**

- Doctor of Chung-Ang University Graduate School of Advanced Film
- Former Korea Electronics and Telecommunications Research Institute researcher
- CEO of Chalavros, Inc.
- CEO of Birdletter



▪ **Kim Hong-seok**

- Doctor of Communication at Sogang University Graduate School of General Studies
- Former Head of NCsoft Japan Business Development Team
- Former Professor of Game Education at Sogang University
- Former Director of the Korea VR Industry Association
- CEO of Stoic Entertainment (formerly Cake Therapy)



▪ **Kim Chul-hwan**

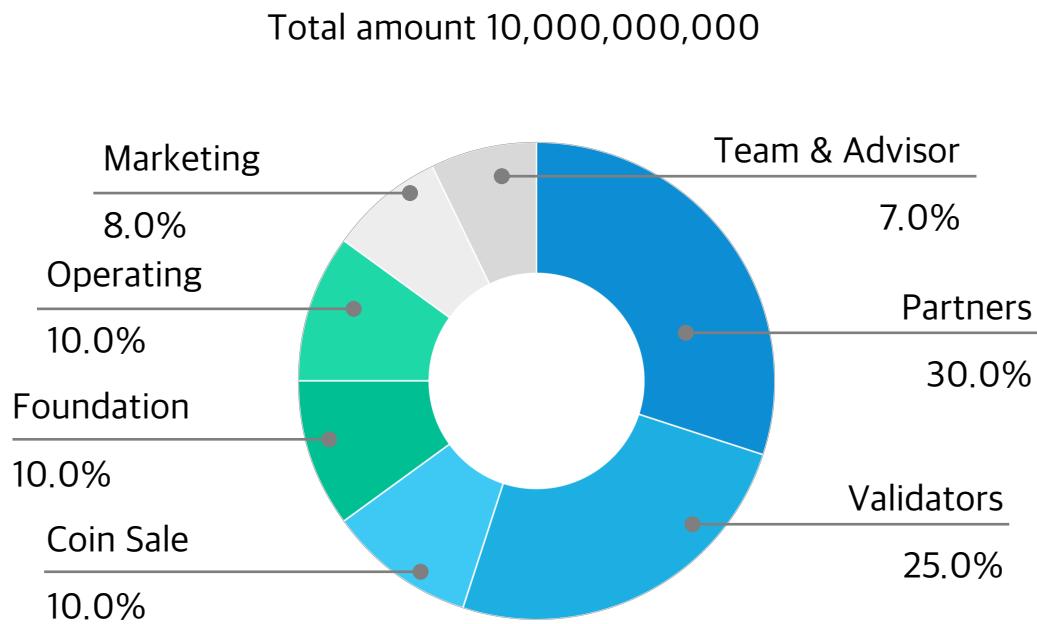
- CEO of LargoSoft
- Blockchain Ventures Advisor
- Vice President of the Mobile Game Association
- Korea Copyright Protection Agency Advisor

Others

Ahn Sung-min (CEO of Inka Entworks), Yoon Sun-hak (CEO of Jungwon Games), Kim Hwan-ki (CEO of AN Games), Seo Yang-in (CEO of Andromeda Games), Choi Myung-il (CEO of IOI Games), Song Won-young (CEO of Moby Games), Kang Baek-joo (CEO of Must Games), Cho Young-jong (CEO of Polar Games), Lee Tae-hwan (CEO of Gregory Global), Kang Byung-jong (CEO of Arum Games), Ham Ik-heon (CEO of Bread Hammer), Cho Do-yeon (CEO of Sonew), Lee Jong-ha (CEO of DDD Game), Cho Min-hyuk (CEO of Rawhands), Kim Sung-soo (Director of Hanyoung Accounting Corporation), Kim Kyung-mook (CEO of GDINET Korea), Choi Sam-ha (Professor of Sogang University), Cho In-sook (CEO of Present of Present), Kim Hong-seok (CEO of Stoic Entertainment), Yoon Hyuk-je (CEO of ZENAAD), Cho Sung-ho (CEO of Space Elvis), Koo Chang-sik (CEO of Cyberfrontier), Kim Chul-hwan (CEO of Largo Soft), Kim Ju-il (CEO of Coresight), Jeong Hyun (CEO of Cocktail Media), Lee Jung-hyeop (Professor of Suncheonhyang University), Park Jong-soon (CEO of Galaxy Mobile), Jang Seung-ryul (CEO of Superday), Lee Dae-hee (CEO of Flysher), Jeong Jong-ryul (CEO of AURA Gamestudio), Ashal (God of Coding), Choi Jin-young (CEO of LIBRA Systems), Yoo Tae-yeon(CEO of UT+), Yoo Tae-sun (CEO of Joy Impact), Kang Dae-sung (CEO of Link Town), Lee Dong-man(CEO of Purple Ocean), Park Jung-joo (CEO of Dobi Games), Park Jong-hyuk (CEO of Forza Games), Park Jong-hyun (CEO of Glitch Studio), Jeon Ki-bum(CEO of Alchemist Games), Oh Young-hwan (CEO of Mega Holdings), Kim Yong-sun (CEO of Knowledge Workers' Group), Kang Ji-hoon (CEO of Popjoy), Jeon Ki-hyung (CEO of Mr.Games), Sim Hye-taek (CEO of Mellow Meat), Heo Sung-sik, Choi In-ho (CEO of DCARRICK), Kim Gu-hyun (CEO of Malang Games), Park Joon-beom (CEO of EXIENM), Kwon Hyuk-joo (CEO of Hotstone Venture), Shin Kyung-tae (CEO of Sinest), Bae Hyo-sung (CEO of Touchtouch), Kim Byung-soo (CEO of Entrance), Kim Bok-nam (CEO of Lunosoft), Heo Sung-young (CEO of SuperNAD), Han Seung-yong (CEO of Very esports), Jeong Sa-kyo (CEO of All Star Company), Lee Dae-hee (CEO of After Time), Kim Do-kyun (CEO of Ganitani), Shin Jae-seop (CEO of Fleximind), Kang Ki-wan (CEO of NeoSonics)

5. Project Plan

5.1. Token Allocation



5.2. Token & Coin Sale

Method of Sales	Price
Private sale	Only for V-NFT buyer & Stockholders
Pre-sale Phase I	TBD
Pre-sale Phase II	TBD
Estimated Listed Price	TBD

5.3. Token Economy

NFTC's token economy is oriented towards the BMD model (Burn and Mint Deflation). The NFTC token is continuously incinerated whenever the K-NFT asset is issued and traded in the secondary market. A certain percentage of the incinerated tokens are reminted and the minted tokens are used as resources to maintain the sustainability of the ecosystem. The deflation rate is adjusted by the Coin Policy Committee.

B = Burn quantity

- K-NFT items store metadata in dedicated blockchain. Depending on the size of this storage space, Issuer will have to pay NFTC, and the tokens used will be incinerated immediately. In addition, NFTC is used to apply additional issuance functions such as registration of copyright settlement system and registration of ownership of equity in accordance with the K-NFT standard. Similarly, the tokens used are incinerated immediately.
- Whenever NFT users trade items, a certain level of commission is incurred according to the K-NFC standard. The fee payment is used to buy and incinerate NFTC from the market.

M = Mint quantity

- M = The quantity to be minted has a formula of $M = B * k$. ($0 < k < 1$)
- k is determined by the Coin Policy Committee and the initial value is set at 0.95.
- The quantity to be minted is redistributed to (1) Issuer Burn Payback (2) User Burn Payback (3) BurnDrop budget, each of which is determined by the Coin Policy Committee.
- BurnDrop is used as an NFTC Pool, which is given as a reward for incinerating an equityized NFT token.

5.4. Milestones

[2020 1Q]

- itemVerse K-NFT Launching
- itemVerse K-NFT TestNet Architecture Design
- Game Alliance 1st Formation

[2020 2Q]

- itemVerse K-NFT TestNet Ver Alpha Open
- itemVerse Scenario Test
- Game Alliance 2nd Formation

[2020 3Q]

- itemVerse K-NFT TestNet Ver 0.5 Open
- itemVerse Console Explorer Development
- Game Alliance 3rd Formation

[2020 4Q]

- itemVerse K-NFT TestNet Ver 1.0 Open
- itemVerse Test NFT Open Launching
- Game Alliance 4th Formation

[2021 1Q]

- itemVerse K-NFT TestNet Service Open
- itemVerse K-NFT SDK Ver Alpha Open
- itemVerse K-NFT Overseas NFT Standard Interlinked Partnership

[2021 2Q]

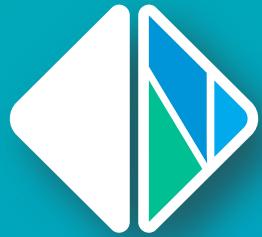
- itemVerse K-NFT MainNet Launching
- itemVerse K-NFT SDK Ver 0.5 Service Open
- itemVerse K-NFT Game Service Close Beta Open

[2021 3Q]

- itemVerse K-NFT SDK Ver 1.0 Service Open
- itemVerse K-NFT Game Service Open

[2021 4Q]

- itemVerse K-NFT MainNet Service 1.0 Open
- itemVerse K-NFT SDK Ver 2.0 Service Open
- itemVerse K-NFT Expansion Service Open (Contents for non-game industry)
- itemVerse K-NFT Overseas NFT Standard Interlinked Partnership Open



itemVerse

: Game Item Protocol Project using NFT(Non-Fungible Token)
2021 itemVerse