



Blockchain in Everyday Life

KIOS TOKEN WHITE PAPER



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KIOS9
PTE.LTD.

Section 1. Purpose and Overview of the KIOS Loyalty Points System

Throughout the history of humankind, technology has consistently redefined the foundations of civilization. From the invention of the printing press to the steam engine, electricity, transistors, the internet, and most recently, artificial intelligence—each breakthrough has reshaped the social order and economic structures of its time.

Since the emergence of blockchain technology in 2008, the internet has been evolving into a new paradigm: the Internet of Value—commonly known as Web3. This new era introduces a framework of decentralized ownership and fosters creative and economic opportunities for everyone.

At KIOS9, we are committed to realizing the philosophy of Web3 by seamlessly integrating blockchain technology into the daily lives of people around the world. Our mission is to build an innovative ecosystem where everyone can effortlessly engage in a token economy through ordinary consumption experiences.

The future is not something to predict—it is something to achieve. The expansion of a life-integrated token economy is not a possibility; it is an inevitable future.

Market Overview: Loyalty Points Ecosystem

Loyalty points—commonly issued in the form of mileage, coupons, or digital credits—are a globally adopted marketing instrument designed to attract new users and incentivize engagement from existing ones. As a proven strategy for enhancing customer retention and stimulating consumption behavior, loyalty programs have become an integral component of modern business models across industries.



In recent years, global consumer behavior has shifted beyond simple transactions toward a greater emphasis on meaningful experiences and tangible rewards. This trend has fueled rapid growth in the global loyalty points industry.

As of 2024, the global loyalty market is estimated to be worth approximately \$150 billion, with a projected compound annual growth rate (CAGR) exceeding 11%. By 2028, the market is expected to surpass \$210 billion, driven largely by platforms offering digitally-native, personalized loyalty experiences.

Currently, the loyalty ecosystem is undergoing significant transformation across three major vectors:

1) Digitalization and Data-Driven Personalization

Brands are increasingly leveraging AI-powered analytics to deliver hyper-personalized reward structures. Real-time reward systems, powered by mobile applications and integrated POS technologies, are rapidly becoming standard across industries.

2) Coalition Loyalty and Interoperable Ecosystems

Cross-brand point interoperability is expanding—particularly among airlines, hotels, and retailers. This marks a shift toward the “tokenization of rewards,” where a unified loyalty currency can be used across multiple platforms and brands, increasing utility and user stickiness.

3) Experience-Based Rewards and Emotional Loyalty

Loyalty programs are evolving from transactional discounts to mission-based, gamified, and community-driven engagement models. ESG-aligned “donation-based points” are also emerging as new forms of social compensation, reinforcing emotional connections with brands.

These developments reflect a deeper shift in the nature of loyalty points—from mere marketing tools to economic and emotional interfaces that strengthen the bond between brands and users.

In this landscape, blockchain-based point-to-token conversion platforms offer a promising path forward. By addressing legacy system limitations, they enable transparent reward issuance, seamless partner integration, and real-world token utility—laying the foundation for a decentralized and user-centric loyalty economy.

Effectiveness and Limitations of Traditional Loyalty Point Programs

Businesses and merchants no longer need to develop their own proprietary loyalty point systems. Instead, they can access professional electronic loyalty solutions by paying a fixed service fee to specialized providers.

According to data released by one such provider, stores that implemented an electronic point system were able to acquire approximately 1,000 point-holding customers per location. This resulted in an increase in customer revisit rates from 34% to 67%, demonstrating that the adoption of a point system contributes directly to revenue growth.

Despite the clear utility of such services, they can also impose burdens on both merchants and users.

[Burdens on Stores]

The services that merchants typically use to offer digital points to customers generally fall into the following two models:

1) Shared Loyalty Points:

These are points that can be used across multiple brands or franchises. In order to offer them, the merchant must purchase the points in advance.
(e.g., American Airlines miles issued to Citibank cardholders in the U.S., or OK Cashback points in Korea)

2) Store-Specific Loyalty Points:

These are points issued and redeemable exclusively within a single merchant’s ecosystem. To provide such a system, the merchant must install proprietary software and pay a monthly subscription fee. (e.g., Dodo Point in Korea)

However, both models place a considerable burden on merchants.

In the case of **Model 1**, the merchant pre-purchases points from the platform provider and distributes them to users. This means the merchant absorbs the cost even for unused or expired points, leading to financial inefficiencies.

In the case of **Model 2**, while the ongoing service fees are generally lower, the limitation lies in the usability: the points are only redeemable at the issuing store. This restricts marketing impact to a narrow, local customer base, making it difficult to scale.

Most loyalty services are still designed around the needs of providers rather than users, making point usage and management inconvenient for end users. Because usage is limited to specific brands or individual stores, users are often required to install and register for separate apps for each service or retailer.

Considering that users typically replace their smartphones every few years, these fragmented systems lead to compounded inconvenience.

Additionally, because each issuer operates its own isolated system, points cannot be aggregated across services. As a result, users accumulate small amounts of points across multiple platforms, often failing to reach redemption thresholds. This fragmentation leads to a high proportion of points expiring unused.

To summarize:



What if there existed a loyalty point system that fundamentally resolved these structural issues?

- A system that merchants can adopt free of charge
- One that allows users to seamlessly earn and redeem points across all participating stores and countries, regardless of brand or location
- A system where points have no expiration date, ensuring that accumulated value is never lost

Such a model has the potential to dramatically enhance economic utility for businesses, merchants, and users worldwide—transforming loyalty points from a fragmented, inefficient tool into a unified, borderless value network.

Tokenization of Loyalty Points

Our team seeks to solve these challenges by integrating blockchain technology into the loyalty point system.

As is widely recognized, the tokenization of all asset classes is rapidly underway. National fiat currencies are being transformed into Central Bank Digital Currencies (CBDCs);

intellectual property assets such as music, artworks, and copyrights are being represented as Non-Fungible Tokens (NFTs); and financial instruments and physical assets like real estate are evolving through Security Token Offerings (STOs). These developments, powered by blockchain—the foundational infrastructure of the Internet of Value—are creatively redefining the structure of industries and expanding the boundaries of the global economy.



Loyalty points are typically distributed at no cost to the user. While they cannot be redeemed for cash, resold, or transferred externally, they retain a defined value guaranteed by the issuer. Compared to other asset classes, loyalty points exhibit the following distinctive characteristics:

- **Everybody:** Unlike stocks, real estate, or intellectual property, anyone can earn loyalty points without restriction.
- **Everyday Life:** They are generated through ordinary, day-to-day consumption.
- **Global:** Loyalty points are recognized and used globally, transcending national and cultural boundaries.
- **Two-Sided Nature:** Points are simultaneously an asset for the buyer and a liability for the seller. This dual nature makes trust and transparency essential.

In this context, the tokenization of loyalty points perfectly aligns with our team's core mission: embedding blockchain technology into everyday life to realize the values of Web3.

Currently, most real-world asset (RWA) tokenization efforts are focused on government bonds, treasuries, and other institutional-grade financial instruments. While these are critical for infrastructure development, they remain inaccessible and irrelevant to the general public.

In contrast, the tokenization of loyalty points presents an entirely new and mass-adoptable category of RWA tokens, capable of democratizing access to blockchain-based value systems.

Moreover, it offers a path to creating a practical and sustainable "X2E" (X-to-Earn) model. Previous X2E projects—such as Axie Infinity and other GameFi tokens—garnered rapid attention but ultimately struggled with sustainability due to excessive speculation and limited real-world use cases.

In contrast, the tokenization of loyalty points enables a Consume-to-Earn (C2E) model where users accumulate value simply through their everyday purchases—establishing a more grounded, utility-driven approach to reward systems.

Loyalty points operate at the intersection of buyers and sellers. They are issued and redeemed during transactional touchpoints—whether at the moment of sale or when rewards are later used. One of the most prominent touchpoints in modern commerce is the self-service kiosk, a rapidly expanding platform in the age of automation.

By integrating loyalty points and blockchain technology into kiosks, we aim to create a Web3-native consumer ecosystem embedded within real-world retail environments—bringing the philosophy of decentralization to the forefront of daily economic activity.

Kiosk - Beyond Order & Payment Device

Amid accelerating global trends toward contactless interaction, automation, and digitalization, the kiosk industry is undergoing explosive growth. As of 2024, the global kiosk market is estimated at approximately \$312 billion and is projected to exceed \$660 billion by 2029, reflecting a robust compound annual growth rate (CAGR) of 12–16%.

Several factors are driving this growth:



First, there is a surging demand for unmanned ordering and payment solutions in the retail and food service sectors. Kiosks have become essential operational infrastructure for fast-food chains, convenience stores, and supermarkets—simultaneously enhancing customer convenience and operational efficiency.

Second, the proliferation of public infrastructure and smart city initiatives is accelerating kiosk adoption. In transportation, hospitals, and government agencies, kiosks are increasingly replacing face-to-face interactions for services such as ticketing, check-ins, and document processing.

Third, the convergence of AI and IoT technologies is transforming kiosks from simple input devices into intelligent, user-centric interfaces equipped with biometric recognition, real-time personalization, and cloud-based system management.

Regionally, North America accounts for over 40% of global kiosk revenues, having reached a mature phase of adoption. Meanwhile, the Asia-Pacific region is experiencing the fastest growth—driven by rapid urbanization and digital transformation. Countries such as South Korea, Japan, China, and India are witnessing surging demand for smart kiosk platforms as digital payments and kiosk-based services become embedded in everyday life.

This evolving market landscape highlights the growing need for integrated kiosk platforms that go beyond hardware—to include software, payment systems, and loyalty infrastructures. This is precisely where KIOS introduces a differentiated and disruptive business model.

By combining kiosk-based point issuance systems with blockchain-powered tokenization, KIOS redefines the traditional one-way reward system into a participatory, expandable ecosystem, anchored on the principles of digital ownership and Web3

architecture. We call this innovation the KIOS Loyalty Point System, or simply the KIOS System.

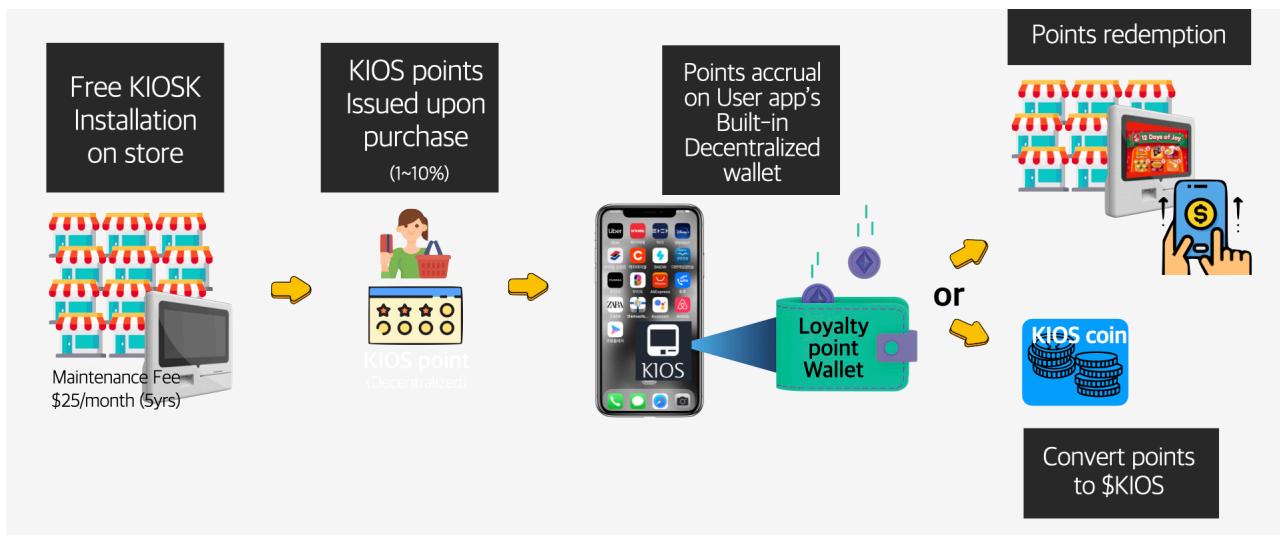
In alignment with these industrial transformations, KIOS merges merchant-centric mileage issuance with blockchain-driven reward mechanisms to build a trusted platform for point-to-value conversion. This evolution from basic point accumulation to a collaborative ecosystem positions KIOS as a foundational infrastructure for the next-generation loyalty economy.

KIOS Loyalty Point System

The KIOS System can be seamlessly integrated into any store or service where transactions take place. When users make purchases through kiosks, they earn blockchain-based points, functioning as loyalty tokens within the system.

All accumulation records are visible through a dedicated mobile application, and the usage of points is authorized through wallet-based signature authentication within the app.

[KIOS System Phase 1 Process]



1. System Components

1) Kiosks

- KIOS terminals are provided free of charge to merchants who enter into a service agreement with the KIOS system. The integrated loyalty point infrastructure is also offered at no cost to participating stores.
- However, to ensure proper device maintenance and support, merchants are required to pay a monthly maintenance fee of USD 20–30 for a period of five years. This fee may be adjusted based on local market conditions in each country.

2) KIOS Points

- Blockchain-based loyalty points are issued to users upon the purchase of products via KIOS terminals.
- These points function as incentive-based experiential rewards and do not possess any cash value. They are non-redeemable and non-refundable.
- While the unit value of KIOS Points is indexed to the local fiat currency for intuitive reference, KIOS Points are neither fiat currency nor electronic money.
- KIOS Points are defined strictly as gratuitous marketing rewards and service usage rights within the KIOS ecosystem. They do not confer any monetary value, investment rights, yield entitlement, or redemption guarantees.
- Points can only be earned through eligible purchases or behavior-based actions; no paid top-ups are permitted.
- The point accrual rate is determined individually by each merchant, within a range of 1% to 10% of the transaction value.
- To receive points, users simply enter their mobile phone number at the kiosk during checkout.
- Users can view their accumulation status and use their points through the KIOS mobile app.
- Upon fulfilling specific predefined conditions, KIOS Points may be converted into KIOS Tokens as a form of reward distribution.
- All KIOS Points are subject to a validity period of one (1) year from the date of issuance.

3) KIOS tokens

KIOS Token is a utility token designed to serve as the core asset within the KIOS ecosystem.

It has no expiration period and may be accumulated or used without time restrictions.

In Phase 2, following the acquisition of VASP (Virtual Asset Service Provider) licenses in each respective country, users will be able to directly earn and spend KIOS Tokens through kiosks, in addition to loyalty points.

[Comparison of KIOS Points and \$KIOS Tokens]

	KIOS Points	KIOS Token
Technology base	Blockchain	Blockchain
Reference price	1 Point = Issuer-defined (Stable)	Avg. current price on listed exchanges
Transfer between Users	Not Possible	Possible
Exchange Listing	Not Possible	Possible
Expiration	1 Year	No Expiration
Conversion	Conversion to tokens available	Conversion to KIOS Points not possible
Earn/Redemption	Only points can be earned/redeemed at kiosks in phase 1	Token earn/redemption at kiosks in phase 2

4) KIOS App for Users

The KIOS app includes a built-in wallet for managing both points and tokens. This wallet enables the following functions:

- Conversion of loyalty points to KIOS Tokens
- Authorization of point usage
- Token transfers

Importantly, the KIOS app functions solely as a point-to-token interface platform and does not retain custody of the user's private keys.

Each user fully controls and stores their own wallet keys, and must independently execute all actions related to point-to-token conversion, point usage approvals, and token transfers. This ensures complete user sovereignty and decentralization of asset management.

Additionally, the app features “AD Action” zones, where advertisements are displayed. Users can earn additional loyalty points by engaging with these ads—functioning as a rewarded advertising model (i.e., watch-to-earn).

5) KIOS App for Stores

Merchants within the KIOS ecosystem have access to a dedicated interface through which they can:

- Configure loyalty point accrual rates

- View and verify settlement point balances
- Submit and confirm settlement requests

KIOS Points and Tokens function as value indicators for product exchange within the ecosystem, rather than as direct payment instruments.

Points accumulated by users are utilized for product redemptions or token conversions. Upon use, points are burned, and corresponding tokens are recycled within the system treasury through a revolving mechanism.

Accordingly, KIOS Points and Tokens are not intended to act as a payment medium whereby merchants "receive" them in exchange for goods.

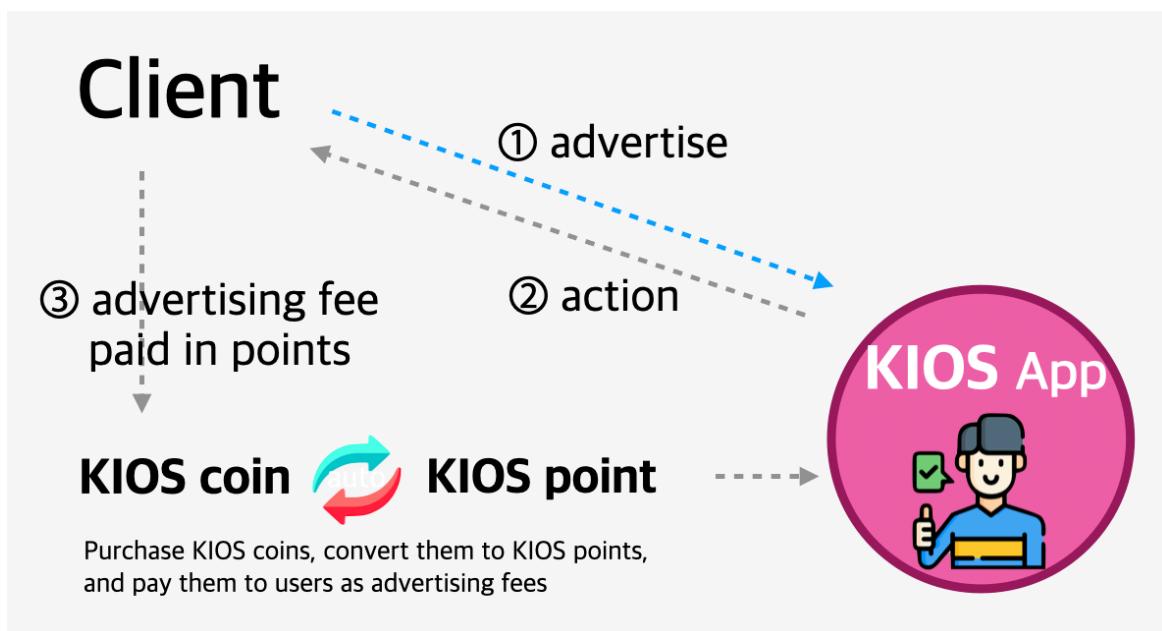
Rather, they operate as utility instruments that serve as a behavioral metric of user participation and ecosystem activity.

6) AD Action

In the KIOS ecosystem, advertisers engage in a Web3-native performance-based advertising model by displaying ads directly within the user's KIOS app. When users complete the required actions as specified in the advertisement, they receive the promised amount of KIOS Points as a reward.

To facilitate this, advertisers must first acquire \$KIOS tokens from a public exchange, convert them into KIOS Points, and then distribute these points to users as pre-agreed advertising compensation.

This structure creates ongoing buying demand for \$KIOS tokens in the open market, as advertisers are required to procure tokens to execute their campaigns. Over time, this sustained demand contributes to the appreciation of the \$KIOS token's market value, aligning ecosystem activity with token utility and value growth.



2. Point Collection Process (Upon Purchasing Products/Services)

When a user purchases a product at a merchant store through a KIOS terminal (with the merchant acting as the seller), the kiosk system transmits purchase details and the corresponding reward point amount to a KIOS system smart contract.

The smart contract then executes an on-chain operation that credits KIOS Points to the user's wallet address based on the specified purchase data.

Importantly, this point allocation process does not involve any token transfer or balance deduction from the KIOS9 treasury account. Instead, the system issues reward points algorithmically and transparently via the smart contract, ensuring trustless and autonomous distribution logic.

3. Point Redemption Process (When Redeeming for a Product/Service)

When a user initiates a product redemption request at a store via the KIOS terminal, the following sequence occurs:

- The user authorizes the use of KIOS Points by signing a transaction through the KIOS mobile app.
- Upon confirmation, the corresponding amount of points is deducted from the user's on-chain account.
- The consumed points are then irreversibly burned by the smart contract to maintain the system's economic integrity.
- The merchant fulfills the request by delivering the selected product to the user.
- The kiosk verifies the point usage record on the KIOS smart contract and completes the redemption process accordingly.

This workflow ensures a decentralized, user-authorized, and transparent settlement mechanism, where the user's digital signature is required for point spending, and every interaction is immutably recorded on-chain.

4. Settlement Process for Points Usage that Exceeds Provided Amount by a Shop

If a merchant has cumulatively issued KIOS Points equivalent to 100 units of value, but a user initiates a redemption request that exceeds this amount, a settlement mechanism is triggered to reconcile the difference.

When the user requests a product exchange via the KIOS terminal, the merchant proceeds to deliver the ordered product as usual.

Following this, if the value of KIOS Points redeemed by the user exceeds the total point value originally issued by the merchant, the merchant becomes eligible to withdraw the equivalent amount of excess in \$KIOS tokens from the system.

This ensures that merchants are not economically disadvantaged when facilitating redemptions funded by ecosystem-level point circulation, and that the system remains balanced, fair, and sustainable from both the user and merchant perspectives.

5. System Features

While traditional loyalty point programs have long presented significant challenges for both merchants and users, and while most kiosk systems focus solely on labor cost reduction, the KIOS Loyalty Point System introduces a fundamentally new value proposition. It is designed to drive merchant revenue growth and maximize user benefits through the following innovative features:

1) Global Unified System

KIOS is the world's first blockchain-based integrated loyalty point platform that can be used across brands, industries, and borders—anywhere a KIOS terminal is installed. As kiosk adoption continues to accelerate globally, KIOS is poised to become the first multi-national, multi-brand, multi-industry point ecosystem operable in real life.

The larger the KIOS ecosystem grows, the broader the utility of KIOS Points and Tokens becomes. This, in turn, incentivizes user loyalty and increases customer revisit rates—creating a positive feedback loop that directly contributes to higher merchant sales.

2) Blockchain-Powered Transparency and Trust

The KIOS system is operated entirely through smart contracts on a decentralized blockchain, ensuring that all accumulation, redemption, and settlement processes strictly follow predefined rules.

Every transaction is transparently recorded on-chain and verifiable by network validators, eliminating the risk of data manipulation or centralized fraud.

In addition, KIOS Tokens are not limited to merchant transactions. They are transferable, tradable, and free from expiration, offering users long-term utility and ownership over their digital assets.

3) Zero-Cost Adoption for Merchants

Unlike conventional point systems or kiosk providers that charge merchants for usage or require prepaid point purchases, KIOS terminals and loyalty systems are offered on a free rental basis.

Only a modest maintenance fee of USD 20–30 per month (for five years) is required to cover device upkeep. This eliminates nearly all adoption friction for merchants.

Given the explosive growth of both kiosk hardware providers and loyalty SaaS platforms—despite their fee-based models—KIOS represents a category-defining solution. By combining two industries (kiosks + loyalty) and offering them free of charge with added blockchain utility, KIOS is positioned to rapidly scale as a global category killer.

4) Merchant and User Support Programs

KIOS will provide an array of value-added programs to support both merchants and users. Planned offerings include:

- Kiosk-integrated gift cards and vouchers
- Prepaid meal credit services for emergency merchant liquidity
- Integration with service robots
- AI-powered digital human agents within kiosks
- Joint ingredient purchasing for F&B businesses

All services will be launched in compliance with necessary local licenses and regulations in each jurisdiction.

5) A C2E (Consume-to-Earn) Platform for Everyday Life

KIOS enables users to consolidate fragmented rewards from daily purchases into a single, interoperable KIOS Point balance.

Through participation in Web3-native “AD Action” advertisements, users can earn additional points and, upon meeting certain conditions, convert them into KIOS Tokens. This establishes a practical and sustainable Consume-to-Earn (C2E) model where everyday spending leads to tangible financial value.

6) Token Price Appreciation Mechanism

As the KIOS ecosystem expands, it will generate high-value behavioral data based on real purchases and sales. This data—only accessible with the user's explicit consent—will be exclusively purchasable using \$KIOS tokens.

Such data enables advertisers to deploy precisely targeted, high-ROI campaigns through the AD Action platform.

In addition, industry partners will be able to purchase analytics such as customer purchasing behavior by store type and ingredient demand forecasting for F&B merchants.

As KIOS app adoption grows, the value of this big data increases—leading to greater demand from advertisers and enterprises alike. This demand creates continuous market buy pressure on \$KIOS tokens, thereby reinforcing long-term price appreciation through ecosystem activity.

6. System Fee

The KIOS system incorporates two types of fees to support both blockchain operations and long-term infrastructure sustainability:

1) Network Fee

This fee is incurred when transactions are executed on the mainnet and represents the cost of utilizing the underlying blockchain network.

The network fee rate is determined by the KIOS9 Foundation and may vary based on network conditions and policy updates.

To encourage early adoption and ecosystem growth, KIOS9 will initially cover all network fees associated with point issuance and redemption.

2) Protocol Fee

This is a platform usage fee applied when users spend KIOS Points through the system. It is used to fund ongoing operations, including server infrastructure and system maintenance, thereby ensuring long-term reliability and sustainability of the KIOS protocol.

The protocol fee is fixed at 5% of the transaction value (i.e., 5% of the points used per redemption).

Participating entities and their roles

The primary objective of the KIOS Loyalty Point System is to revitalize participating merchants and maximize user benefits.

Through this mission, KIOS aims to build a decentralized system that is fair, transparent, and economically accessible to all people—regardless of geography, brand, or socioeconomic status. In doing so, it aspires to become an advanced economic community platform aligned with the core values of Web3 philosophy.

To achieve this vision, every participant in the KIOS ecosystem assumes the following responsibilities:

1. KIOS9 PTE. LTD.

Development of Blockchain-Based Loyalty Point Infrastructure

The KIOS9 Foundation is responsible for the design, development, and maintenance of the blockchain-powered KIOS Loyalty Point System, including:

- **Issuance and Management of KIOS Points and KIOS Tokens**
Ensuring transparent creation, allocation, burning, and conversion mechanisms for both utility tokens and loyalty points within the ecosystem.

- Implementation of Sidechain Infrastructure and The Graph Protocol (Subgraph)
Deploying scalable, low-cost sidechains optimized for retail transaction processing and integrating Subgraph indexing to enable fast, queryable, and verifiable access to on-chain data for dApps and system modules.
- End-to-End System Development and Operational Maintenance
Overseeing the full-stack architecture and continuous performance of the KIOS ecosystem, including kiosk integration, mobile wallet interfaces, smart contracts, and protocol security.

2. THE9 Company

Kiosk Manufacturing, Distribution, and Operations

The designated operational entity is responsible for the end-to-end management of the physical kiosk infrastructure and merchant onboarding. Its responsibilities include:

- Operation of the KIOSK Hardware and System Layer
Managing the software-hardware interface, firmware updates, user interface experience, and kiosk maintenance protocols across all deployment sites.
- Merchant Partnership and KIOS System Deployment
Establishing and managing service agreements with participating stores for the adoption and use of the KIOS Loyalty Point System.
- Development and Operation of the Settlement System
Implementing and maintaining the back-end settlement and reconciliation system that handles cross-store point usage, redemption balances, and token-based compensation mechanisms.

3. Stores

KIOS System Service Agreement with THE9 Company and Overseas Operating Partners

THE9 Company, along with designated international operating partners, enters into formal agreements to deploy and operate the KIOS Loyalty Point System. Their responsibilities include:

- Installation of the KIOS Merchant App
Ensuring that all partnered stores are equipped with the official KIOS merchant interface to enable real-time point issuance, redemption, and system communication.
- Configuration of Point Accrual Rates and Settlement Execution
Merchants define custom loyalty accrual rates (within approved parameters), monitor point activity, and initiate settlement procedures through the app interface.
- Fulfillment of User Requests for Product or Service Redemption
Upon receiving a user's request—supported by on-chain confirmation of KIOS

Point or Token usage—merchants are obligated to deliver the corresponding product or service as specified.

4. Users

Installation and Use of the KIOS User App

End users participating in the KIOS ecosystem are responsible for the following:

- **Installing the KIOS Mobile App**
Required to view point balances, earn rewards, and access point/token utilities within the ecosystem.
- **Managing KIOS Points and Tokens**
Users may convert KIOS Points into KIOS Tokens (subject to eligibility), as well as transfer, monitor, and utilize their balances within supported interfaces.
- **Secure Custody of Wallet Keys**
As KIOS operates on a non-custodial model, each user is fully responsible for the secure storage and management of their private wallet keys. All point usage, token conversions, and transfers must be independently signed and authorized by the user.

5. Validators

Validators play a critical role in maintaining the fairness and transparency of the KIOS system by verifying all protocol-defined transactions and data in real time.

- **Eligibility Requirements:**
To become a validator, one must stake a minimum of 100,000 KIOS tokens and operate a fully functional and compliant node within the network.
- **Reward Distribution:**
Validators receive reward allocations proportionate to their node's contribution to the network. These rewards are distributed from the validator pool and are designed to incentivize secure and consistent operation.

This decentralized verification structure ensures the trustless execution of point issuance, redemptions, and settlements, preserving the integrity of the KIOS ecosystem.

Token Supply Plan

1. Token Standard

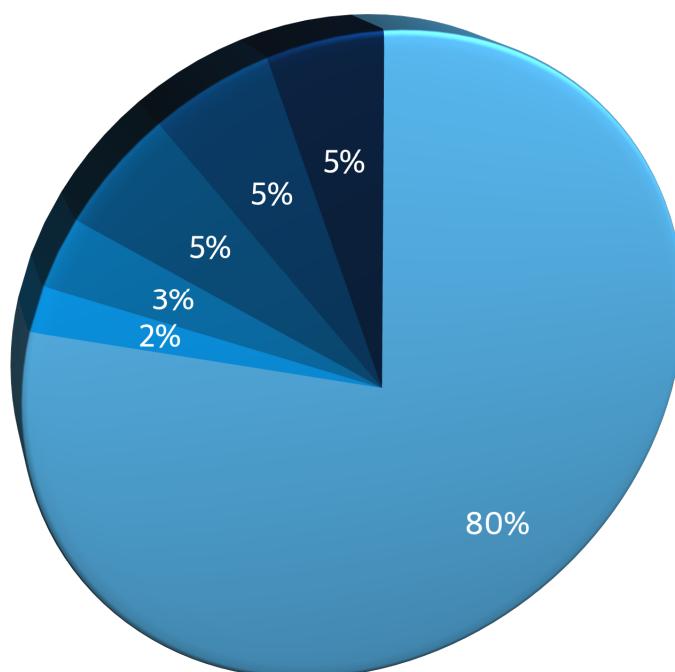
- The KIOS Token will initially be issued as an ERC-20 token on the Polygon network.
- Upon completion of the KIOS System development and the stabilization of the BIP-20 mainnet (BOSagora mainnet), the token will be migrated to BIP-20 via a bridge mechanism.

2. Total Supply : 10,000,000,000 KIOS tokens

Allocation Category	Allocation Amount	% of Total Supply
Ecosystem Rewards	8,000,000,000	80%
Validator Rewards	200,000,000	2%
KIOS9 Foundation	300,000,000	3%
Team / Advisors	500,000,000	5%
Marketing / Partnerships	500,000,000	5%
Liquidity Provision	500,000,000	5%

This token distribution model is designed to ensure ecosystem sustainability, incentivize network security through validator rewards, and support long-term platform growth through marketing, partnerships, and liquidity incentives.

● System Rewards ● Validator Rewards ● Foundation ● Members/Advisors
● Marketing/Alliance ● Liquidity



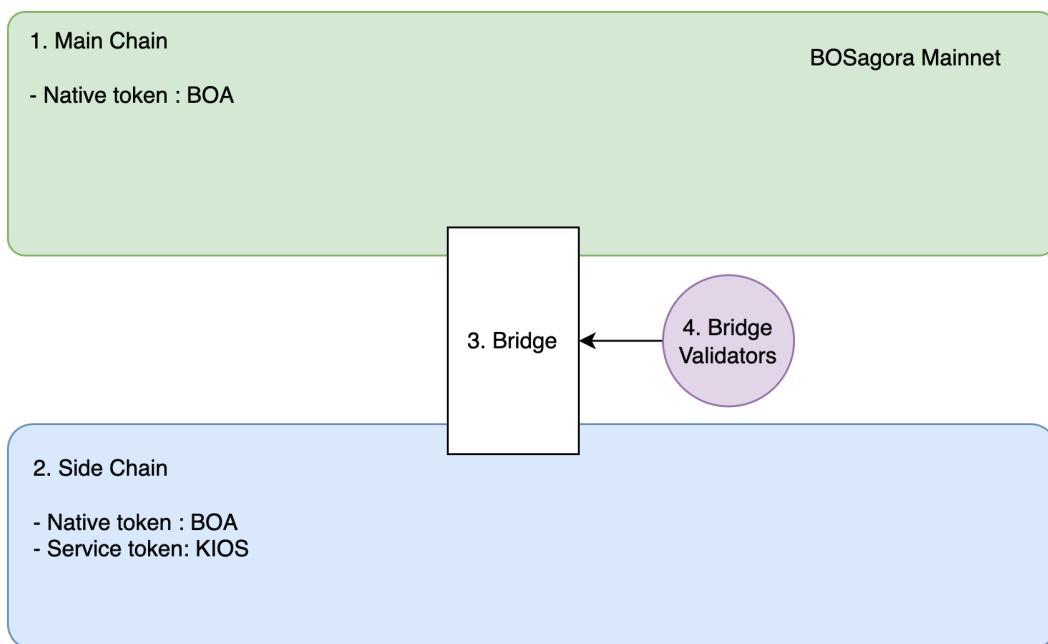
Section 2. Technical Specifications of the KIOS Loyalty Point System

We will build a decentralized loyalty point system in which points are issued based on purchase data, without relying on any centralized authority.

System Structure

This system replaces a central authority with multiple validators who verify purchase data and, through consensus, authorize point issuance. To facilitate this, we will deploy a smart contract (hereafter referred to as "the contract"). Function calls that modify another party's assets will be executed through validator consensus, while those that alter a user's own assets will be executed only after authorization via the user's wallet signature. This design minimizes the risk of arbitrary changes or improper issuance by any single entity.

1. Blockchain Network

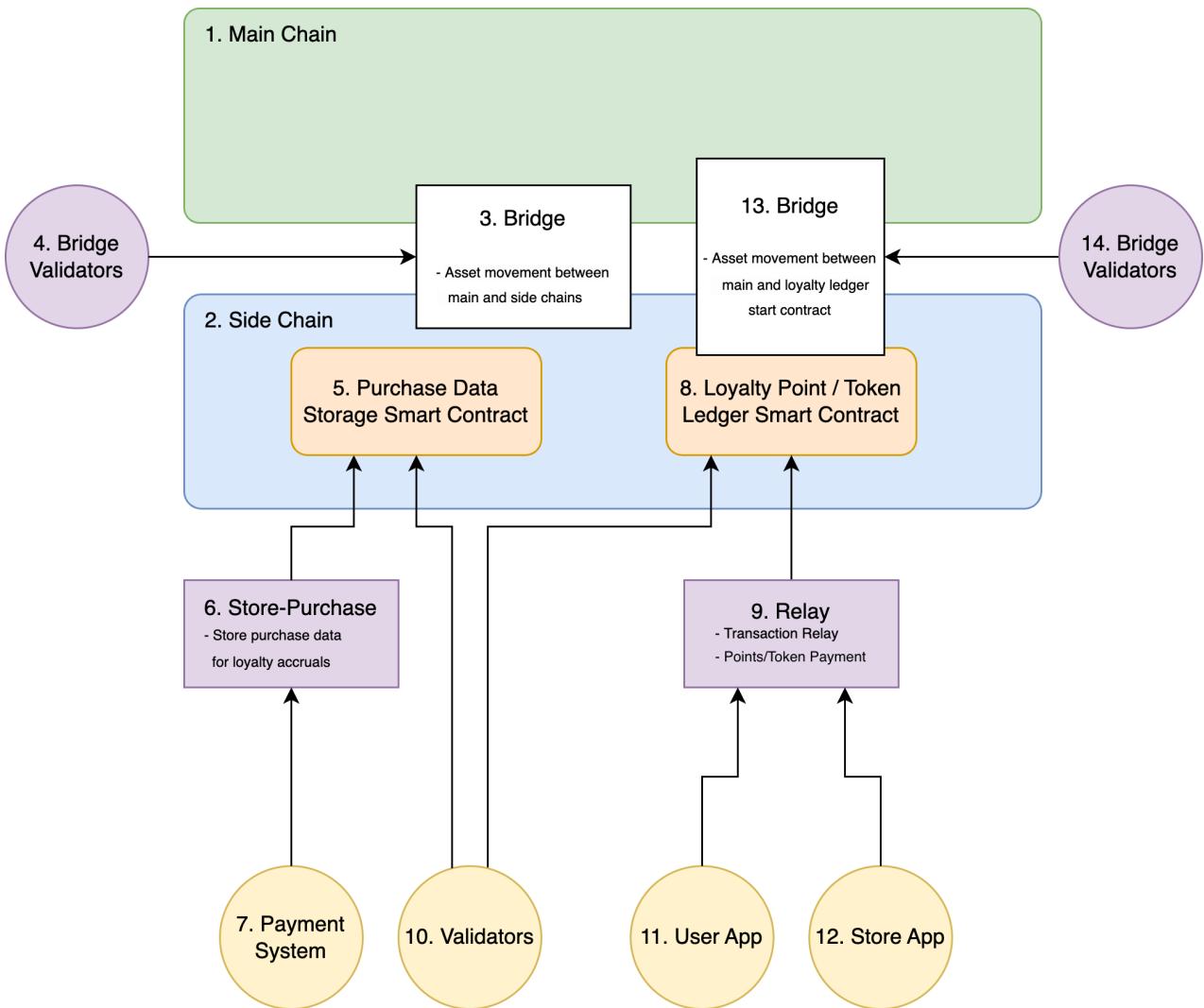


- 1) Main Chain: BOSagora mainnet.
- 2) Side Chain: Supplements the main chain by enhancing processing speed and performance.
- 3) Bridge:
 - When a user deposits assets into the bridge smart contract on one chain, multiple validators approve the withdrawal on the bridge smart contract of the other chain. Once the bridge validators' consensus is reached, the assets are withdrawn to the user's wallet address on the other chain.
 - Mainnet bridge connects the BOSagora mainnet with the KIOS mainnet sidechain.

- Testnet bridge connects the BOSagora testnet with the KIOS testnet sidechain.

4) Bridge Validators

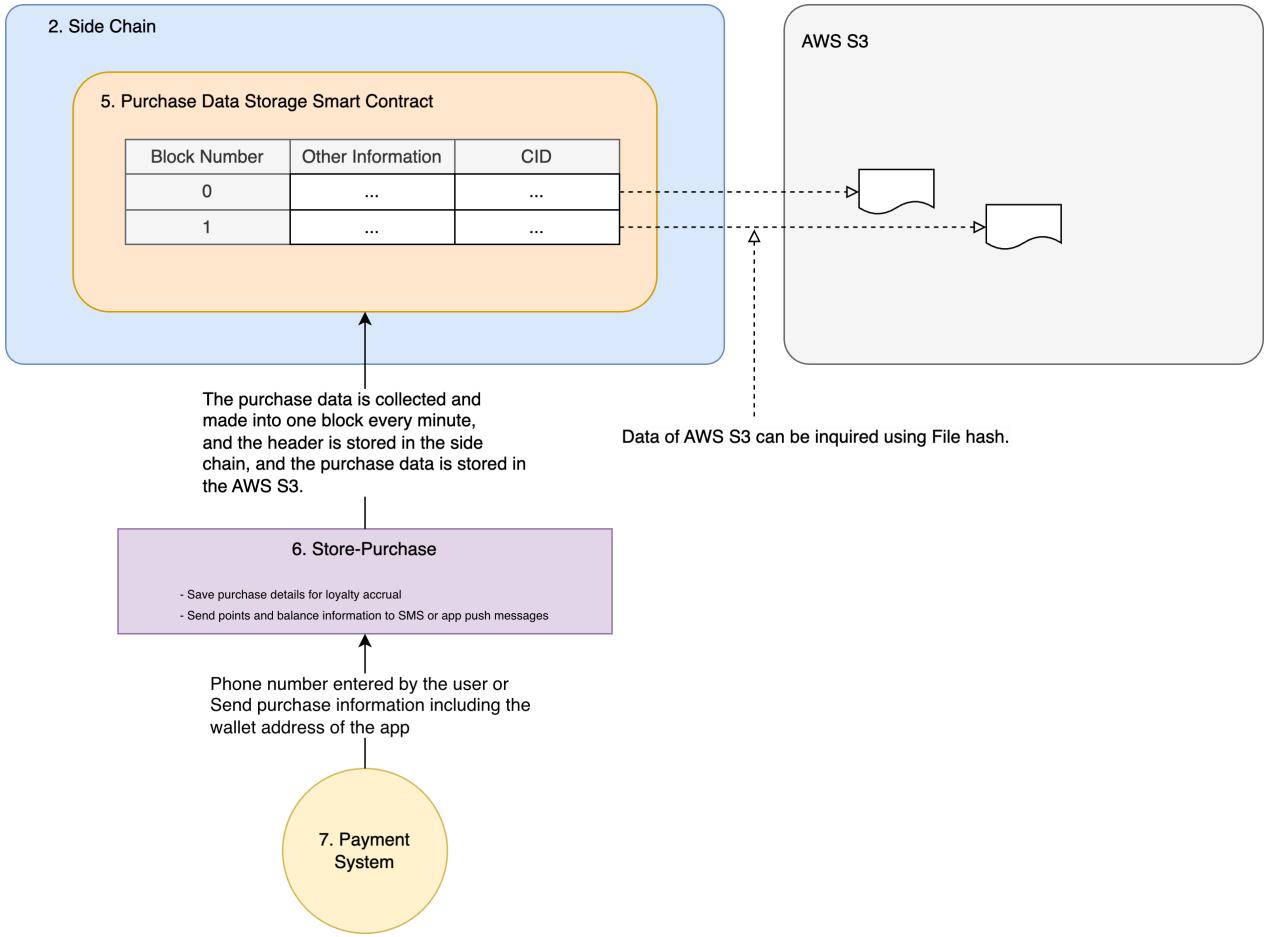
2. System Components



- 5) Smart contract for purchase data storage.
- 6) The process of creating a blockchain structure every minute of purchase history sent from the payment system and storing it in the smart contract and AWS S3.
- 7) Payment systems including kiosks and POS.
- 8) Smart contract that records the user's points balance - this information is modified when earned/redeemed/transferred.
- 9) API server that relays transactions for users and processes point redemptions:
 - Transaction fees are paid in \$BOA
 - Eliminates fees for point redemption and issuance to improve usability
 - Also allows transfers, withdrawals, and deposits to be charged in \$KIOS tokens instead of \$BOA.

- Without this relay, users would have to send transactions directly to the blockchain and pay transaction fees.
- 13) Feature to move assets between the main chain and the Ledger Contract. Introduced to improve usability. Without this feature, users would have to move assets from the main chain to the side chain, and then from the side chain to the Ledger Contract.
- 14) Bridge Validators for 13) Bridge

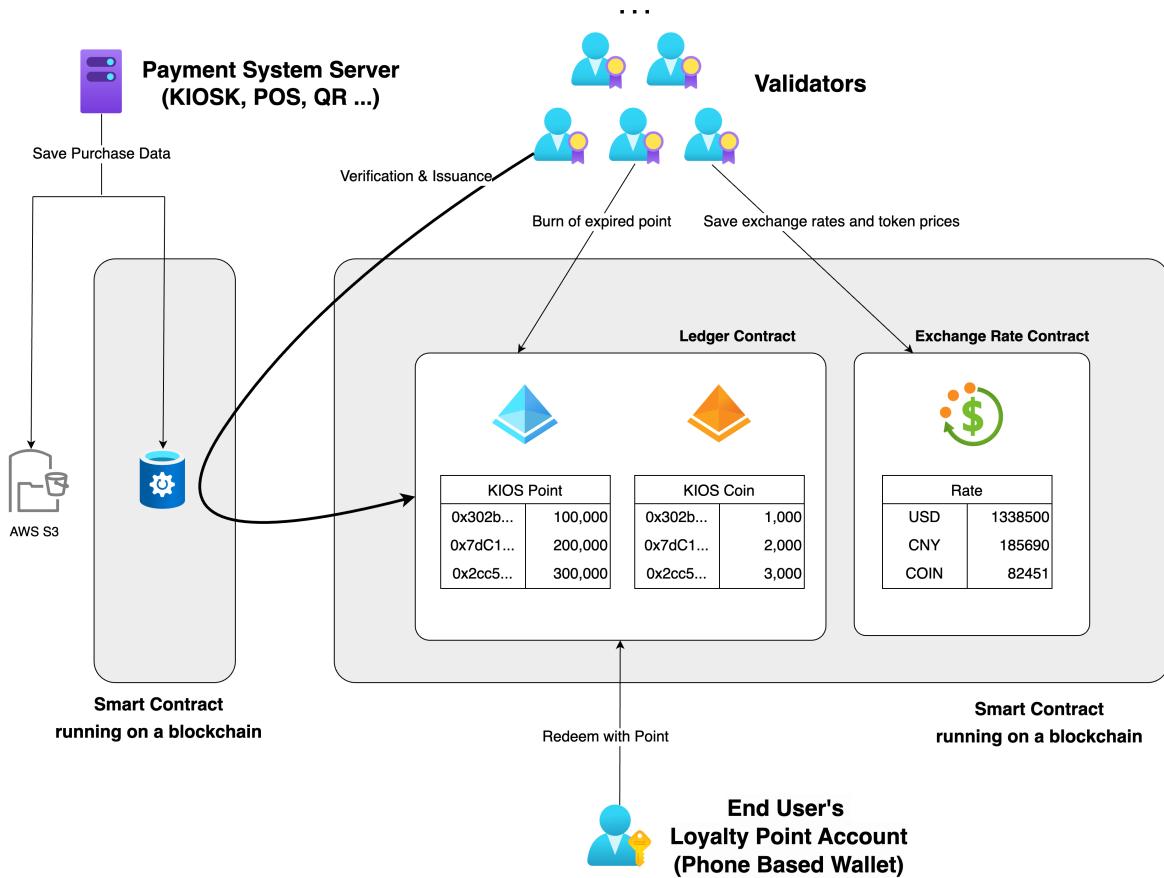
3. Blockchain storage of kiosk purchase data



The purchase data generated from the kiosk is recorded and made public on the blockchain and AWS S3 so that validators can verify the purchase history. The figure above shows that the purchase data from the payment system is stored in the smart contract on the blockchain and AWS S3.

The smart contract stores a list of data, and AWS S3 stores the actual data. The purchase data is processed and stored in the form of a blockchain, so it is impossible to change the data that has already been made public.

4. Validating Purchase Data



Once a purchase is confirmed by a kiosk user who wants to earn points, points are credited to the user's account in the amount of a percentage of the purchase price.

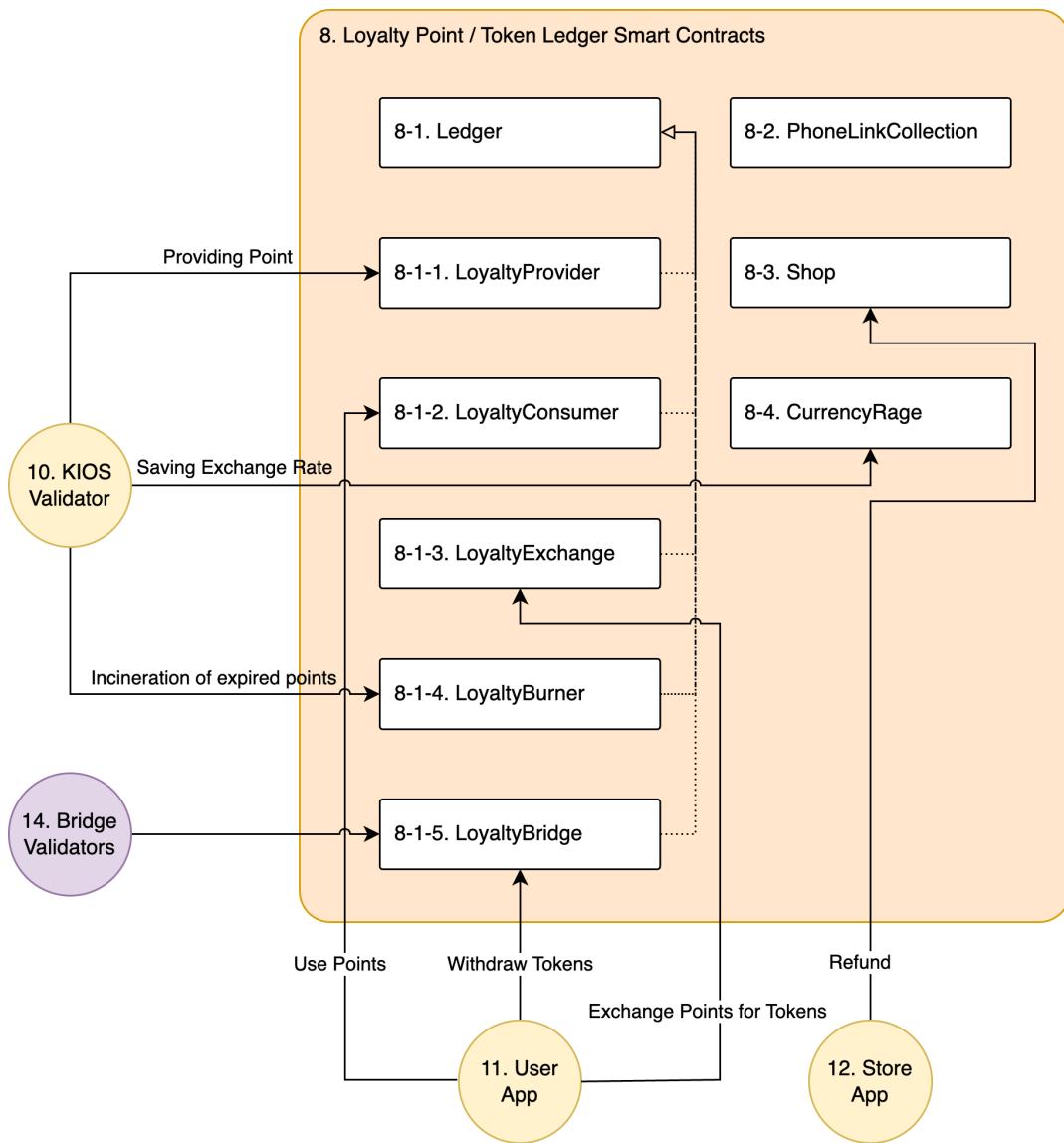
Validators checks the purchase history stored in the blockchain one by one. After verification, if a purchase is deemed eligible for points reward, the information is recorded in the 'Ledger Smart Contract'. Once the validation quorum is met, points are immediately credited to the user's account.

Users who have the app installed will receive points to the account that matches the address of their wallet. These points can be redeemed directly at the kiosk.

Users who don't have the app installed are awarded temporary points. Temporary points are issued to an account mapped to the user's phone number hash value.

When the app is installed, the validators validate the owner of the phone number via SMS, so the user's assets are kept safe.

5. Loyalty Point/Token Ledger Smart Contract



Above is the diagram of the internal structure of the Loyalty points/tokens Ledger Contract.

8-1: This is the ledger where the balance of KIOS points and \$KIOS tokens is recorded.

8-2: Phone number hash and wallet address are mapped and stored.

8-3: Cumulative points provided by the store, cumulative points used at the store, settled amount, and amount available for settlement are recorded.

8-4: This is where exchange rate information and \$KIOS prices are stored. Only validators can store it.

8-1-1: Module that is executed when the system provides points to a user.

8-1-2: Module that is executed when a user purchases a product using points.

8-1-3: Module that is executed when a user exchanges points for \$KIOS tokens.

8-1-4: Module that is executed when expired points are burned.

8-1-5: Module that is executed when a user moves tokens to the main chain.

System Features

1. KIOS Points Collection/Redemption/Burn

	User with App (In-app wallet is automatically created)	User without App (User without a wallet)
Points Collection	<ul style="list-style-type: none">Kiosk user who chooses point collection completes a purchaseValidators verification<ul style="list-style-type: none">: Check purchase history stored on the blockchain one by one: Record on the contract if purchases are eligible for pointsPoints are credited to the user's account only if validator quorum is met <p>Points are credited to the user account matching to the in-app wallet address</p>	<Temporary points> credited to the user account matching to the hash value of their mobile number <ul style="list-style-type: none">-To protect privacy, contract only uses the hash value of user's mobile number- The hash value of mobile number can be converted to the user's wallet address and vice versa through 'mobile number-to-wallet address matching service.'
Points Redemption	When the contract's points payment function is called with the in-app wallet signature, the user's account balance is deducted by the redeemed amount	<Temporary points> can be converted to redeemable points after the followings: <ul style="list-style-type: none">-User's wallet address matching to the mobile number is recorded to the contract via SMS verification by validators- Temporary points are converted to redeemable points in the account matching to the in-app wallet address
Expiration of points	<ul style="list-style-type: none">Users are required to pay a fee of 5% of the reward(s) value in pointsFee paid in points is immediately converted to token amount and transferred to the KIOS9's fee accountRedeemed points are burned	<ul style="list-style-type: none">Points awarded expire after 1 year (burn)Validators analyze each user's data, including points earned and redeemed, to compile a list of points eligible for expiration. These points are burned after reaching a consensus by validator votesThe process is conducted periodically and repeatedly at set intervals

2. KIOS Points to Token Conversion/Withdrawal

Conversion	<ul style="list-style-type: none">Users can convert points to tokens at any time using the 'Convert points to tokens' feature in the appSince external URLs cannot access the contract, reference price of the token is stored periodicallyThe reference price and payout amount are determined by consensus through voting by validators
Withdrawal	<ul style="list-style-type: none">When a user calls withdrawal command with the wallet signature to the contract, the token recorded in the user's account within the contract are withdrawn to the in-app wallet address

3. Settlement for Stores

The system performs the following process when a shop redeems more loyalty points than the amount of points the store issued to its visitors.

- ① From the amount of points deducted from the user's account, points amount exceeding the value of the points issued by the store is recorded in the smart contract.
- ② The system issues 'Settlement Points' of the corresponding value to the store.
- ③ Store owner can withdraw these 'settlement points' for \$KIOS tokens of the same value.

All of this is done transparently and accurately through a smart contract, which compensates the store for any excess costs. To implement this feature, it is necessary to register shop's code, wallet address, and other necessary information within a smart contract. A separate smart contract will be developed for this purpose and make the information available to the Point-Token Ledger Smart Contract.

Requirements and Roles of Validators

1. The need for validators

Smart contracts consist of various functions and variables. When a function is called, variables change. These variables can be balances or exchange rates. Functions in a contract can be set to be called only by certain wallet addresses, by a large number of wallet addresses, or by anyone. If only certain wallet addresses are set to be called, a central authority can manipulate variables arbitrarily. To prevent this, it is essential to introduce decentralized validators. Validators, upon calling a function, provide their respective values as inputs. The function is designed to aggregate these values supplied by the validators. If a predetermined quorum is met through the validators' submissions, the function executes the corresponding condition.

2. Validator Qualifications

To become a validator, one is required to deposit 100,000 KIOS tokens. Initially, the first 100 validators can join by depositing the specified token amount. However, once this threshold is reached, new candidates must receive approval from at least 2/3 of the existing validators to join the network. The maximum number of validators is limited to 200 (for reasons including adequate validation, reasonable traffic burden, and maintaining reward rate motivation). Validators can withdraw from participating at any time and their token deposits will be refunded upon withdrawal.

3. Validator's Roles

A. Determining the reference price of KIOS token

[Table 1] Annual Token Rewards and Validator's Expected APR

Year	Accumulated rewards	Role	Daily rewards
0	0	A	15,400
1	20,002,000	B	24,000
2	40,004,000	C	15,400
3	60,006,000		
4	80,008,000		
5	100,010,000		
6	120,012,000		
7	140,014,000		
8	160,016,000		
9	180,018,000		
10	200,020,000		

Category	Value
No. of validators	200
Deposit amount	100,000
Yearly rewards	20,002,000
Expected return	100,010
APR	100%

Validators are required to record the price of KIOS within the contract once every 30 seconds, and the reference price of the token is determined through a consensus mechanism among the validators.

Validators who submit a price that aligns with the agreed-upon price by the consensus mechanism will be rewarded. However, if a validator fails to participate or submits a price that deviates from the agreed price by more than 10%, they will face penalties. Maximum daily rewards for validators is 15,400 KIOS tokens. The reward will be evenly distributed to all properly functioning validators.

B. Determine the amount of points to be awarded for purchases

Validators are responsible for determining whether and how many points to award based on the purchase history recorded by the kiosk system on the

blockchain and AWS S3. The consensus among validators determines how many points are awarded to purchasing users.

Validators receive rewards if their validation matches the consensus among validators. Conversely, validators will be penalized when they do not participate or if their validation differs from the agreed result. The maximum daily rewards is 24,000 KIOS tokens. These tokens will be distributed equally to all properly functioning validators for the number of lists validated for the day.

C. Validate point burn

Validators are tasked with validating the burning of expired points at a certain time daily. Through analysis of user data, including points collection and redemption history, a list of points to be burned is generated. Validators then vote to agree on the burning of these points.

If a validator validates the same result as the agreed result, the validator will receive rewards. When validators do not participate or if their validation differs from the agreed result, they will be penalized. The daily maximum rewards is 15,400 KIOS tokens. A total of 15,400 KIOS tokens will be equally distributed to all properly functioning validators.

4. Validator Rewards

Validators are provided with Validator Rewards, which can only be withdrawn in the form of rewards and are pre-issued and deposited into a separate smart contract.

During the initial 10-year period, Validator Rewards are pre-issued amount of 200,020,000 KIOS tokens. After the first 10 years, it will be decided by a vote of KIOS9.

[Table 1] below shows the amount of validator token rewards for the first 10-year period and calculated APR for validators. The amount of ‘yearly rewards’ is independent of the number of validators and always has the same value. Assuming the number of validators is 200, the expected return is 100,010 tokens when the ‘yearly rewards’ are divided equally among the validators. Since the amount of tokens required to become a validator is 100,000 tokens, the expected APR is approximately 100%.

5. Validator Penalties

Validators are pivotal in establishing and nurturing a transparent and resilient decentralized ecosystem. Therefore, if a validator does not perform or provides incorrect information, the validator will pay a penalty equal to the rewards amount they would have earned. Furthermore, validators will be disqualified if their deposited token amount falls below 50,000 tokens.

Other Core Services

1. User App

- Crypto wallet
- Points and tokens balance information
- Function to convert points to \$KIOS tokens
- Earned and redeemed points/tokens history
- Token deposit and withdrawal function

2. Store App

- Crypto wallet
- History and balance of points issued by the store for purchases
- History and total amount of points redeemed at the shop
- Settlement Points information
- Token withdrawal function

3. Participation and withdrawal service for validators

- Token deposit function
- Validator participation withdrawal function
- Function to add additional deposit