

COS (Cosmicbyte Binance Smart Chain Layer 2)

White Paper

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1. foreword

1. Project background and overview

COS (Cosmicbyte Binance Smart Chain Layer 2) is a chain game platform based on the BSC (Binance Smart Chain) second-layer network and game engine. COS It aims to build a meta-universe platform that integrates virtual world and blockchain technology, providing users with an immersive gaming experience, real virtual asset ownership and unlimited creativity.

In traditional games, game assets and characters in virtual worlds are often limited by the control of game developers, and they are unable to freely trade and circulate between different games. In addition, the ownership of virtual assets in games is also controversial and opaque.

COS The goal is to solve the limitations and problems of traditional games through the deep integration of blockchain technology and game engines. By recording virtual assets on the blockchain, COS ensures real ownership of assets and verifiability of transactions. Users are free to own, trade, and manage a variety of virtual assets, such as digital currency, game items, and virtual land.

COS Also focuses on real-time interaction and social experience. Through the powerful features of the game engine, users can communicate, cooperate, compete and interact with other players in real time to build real and meaningful social relationships.

Security and privacy protection are also key considerations for COS projects. COS Use data encryption and authentication to protect users' sensitive information and transaction data. At the same time, COS uses smart contract security audit and vulnerability repair strategies to ensure the security and reliability of the system.

COS The project will continue to develop and improve, through continuous functional iteration and user feedback, to constantly meet user needs and market development. COS We are committed to building a new chain game ecosystem, connecting the game world and the blockchain world, bringing users unlimited creativity and new chain travel experience.

2. Problem statement and market demand

The blockchain platform faces the following problems:

Traffic congestion: Network congestion is a serious problem due to the increasing traffic volume on the BSC. High transaction fees and slower transaction confirmation time limit the user experience and trading activities.

Scalability challenge: As the number of users and projects increases, the BSC needs to address the scalability challenge. Current network architecture may not meet the needs of large-scale users and complex transactions.

Security and Vulnerability: Any blockchain network faces security challenges, including smart contract vulnerabilities, network attacks, and protection of user data. Ensuring the safety of the BSC is an important task.

Chain tourism market demand:

The chain travel market has a growing demand for solutions and products with the following characteristics:

Decentralized virtual asset management: The chain game market needs solutions that enable real ownership of virtual assets, secure transactions, and circulate assets across games. This will enhance player trust and value in virtual assets.

Real-time interaction and social experience: The chain game market requires a real-time interaction and social gaming experience, allowing players to cooperate, compete and socially interact with other players. This will enhance the social element and the fun of multiplayer.

High performance and low cost transaction processing: The chain travel market

requires high performance and low cost transaction processing power to ensure fast transaction recognition and low transaction costs. This will promote the development of user trading activities and markets.

Safe and credible game environment: The chain game market needs to establish a safe and credible game environment, protect users' data and assets, and prevent cheating and fraud.

Creativity and sharing opportunities: The chain game market needs to provide users with opportunities to create and share to create unique game content, characters, and art, and get off for it.

3. Solution overview and objectives

Solution overview:

COS Is a chain game project based on BSC (Binance Smart Chain) second-layer network and game engine, aiming to solve the challenges of traditional game industry and blockchain technology, and bring a new chain game experience to users. COS Through the deep integration of game engine and second-layer network, we build a meta-universe platform integrating virtual world and blockchain technology, providing immersive game experience, real virtual asset ownership and unlimited creativity.

In COS, the second layer network and the game engine are two parallel modules, each with independent functions and functions, but they are closely integrated and coordinated with each other. This makes the performance of the chain tour has been unprecedented improvement, and is also the world's first architecture design.

Second layer network: The second layer network of COS is a separate technical layer built on the BSC (Binance Smart Chain). It is mainly responsible for processing the batch processing, verification and compression of transactions, and submitting the results to the BSC main chain for verification and confirmation. The second-layer network manages the status and data of transactions through smart contracts on the chain, and provides high-performance, low-cost transaction processing power.

Game engine: The COS's game engine is one of the core technologies used to

build chain games. It is responsible for the execution of game logic, the management of virtual assets, the design of scenes and the implementation of interaction. The game engine provides a wealth of features and tools for developing and running various types of games, providing users with an immersive gaming experience.

The second layer network and the game engine are separate modules, but they work closely together in the COS to achieve an excellent chain travel experience. The game engine can interact with the second-layer network and transmit in-game transactions and state updates to the second-layer network for verification and processing. At the same time, the second-layer network can also provide transaction results and data to the game engine to update the state and display of the game. This parallel architecture enables COS to make full use of the advantages of the second layer network and game engine to provide an efficient, secure and rich chain game experience.

COS Goals of:

Provide an immersive gaming experience: COS combines the powerful functions of the game engine with blockchain technology to provide users with an immersive gaming experience, realistic graphics rendering, and smooth interactive animation.

Realize real virtual asset ownership: COS has established a decentralized virtual asset management system to ensure that users own and trade the real ownership of virtual assets, and enhance users' trust and value of assets.

Provide real-time interaction and social experience: COS focuses on real-time interaction and social functions, where users can communicate, cooperate, compete and interact with other players in real time to build real and meaningful social relationships.

Promoting creativity and sharing opportunities: COS provides users with opportunities to create and share to participate in the creation of game content, the customization of characters, and the presentation of art.

Realize high performance and low cost transaction: COS Use the high performance and low cost advantages of BSC second layer network to achieve fast transaction processing and low cost transaction experience, and improve the transaction efficiency and experience of users.

Building a secure game environment: COS uses smart contract security audit

and vulnerability repair strategies to ensure the security and variability of the system, and provide users with a secure and credible game environment.

COS The goal is to become a leader in the chain game industry, meeting users' needs for high-quality game experience, safe asset management, and creative interaction through technological innovation and user feedback. COS Will continue to develop and improve, build an active, secure and prosperous chain game ecosystem, connecting the game world and the blockchain world, bringing unlimited creativity and new chain game experience to users.

2. Technical architecture

1. Overall architecture diagram

The overall architecture of COS is an innovative platform that integrates the Binance Smart Chain two-layer network and the game engine, aiming to build a meta-cosmic chain tourism ecosystem. Here are the main components of the overall COS architecture:

BSC 2 network: COS Based on Binance Smart Chain 2 network, using its high performance and low cost to process transactions and data storage. The BSC second 2 network provides fast transaction confirmation and scalable transaction throughput for COS.

Game Engine: COS integrates a powerful game engine to provide an immersive gaming experience, graphical rendering, and interactive animation. The game engine provides rich content and interactive features for COS's virtual world.

Smart contracts: COS uses smart contracts to manage virtual assets, implement transactions, and execute game logic. Smart contracts ensure the real ownership of virtual assets and the security of transactions, while providing validation and transparency.

User interface: COS provides a user-friendly interface that allows users to easily access and manage their virtual assets, participate in game activities, and interact with other players. The user interface provides an intuitive operation and a personalized experience.

Virtual asset management system: COS A decentralized virtual asset management system is established to record and manage users' virtual assets. The system ensures the true ownership, tradability, and security of the assets.

Real-time interaction and social features: COS focuses on real-time interaction and social experience, where users can communicate, cooperate, compete and interact with other players in real time. Real-time interaction and social features enhance the social elements and the fun of multiplayer.

Data storage and access rights: COS uses the distributed data storage and access rights control of blockchain technology to ensure the security and privacy protection of user data.

The COS's architecture is designed to provide a secure, scalable, and immersive

chain travel experience. By integrating the BSC second-floor network and game engine, COS has built a metauniverse platform that provides users with real virtual asset ownership, rich game content and opportunities for social interaction.

2. Introduction of the key components and modules

COS As a chain game project that integrates BSC second-layer network and game engine, it involves multiple key components and modules. Here is a brief introduction to the key components and modules of the COS:

BSC Network Network: As the underlying infrastructure of COS, BSC Network provides high performance transaction processing and low cost transaction costs. It supports COS and transaction confirmation and data storage and ensures scalability of the system.

Game engine: COS integrates a powerful game engine for graphic rendering, physical simulation and interactive animation of virtual worlds. The game engine provides rich content and features for the COS gaming experience, allowing users to immerse themselves in the virtual world.

Smart contracts: Smart contracts are a core component of COS to manage virtual assets, implement transactions and execute game logic. Through smart contracts, COS ensures the real ownership of virtual assets and the security of transactions, achieving transparency and verifiable of assets.

User interface: The COS user interface provides an interface for users to interact with the platform. It can be a web application, a mobile app, or a game client. The user interface enables users to access and manage their virtual assets, participate in game activities, and interact with other players.

Virtual asset management system: COS A decentralized virtual asset management system is established to record and manage users' virtual assets. The system ensures the real ownership, tradability and security of assets, providing users with a trusted virtual asset storage and trading platform.

Real-time interaction and social functions: COS focuses on real-time interaction and social experience, providing real-time communication, cooperation, competition and social interaction functions. Through these features, users can connect with other players, form teams, compete, and participate in the creation and interaction of the

game world.

Data storage and access rights: COS uses the distributed data storage and access rights control of blockchain technology to ensure the security and privacy protection of user data. The users' virtual assets and transactions will be stored on the blockchain, while protecting the user's personal information and sensitive data.

Together, these key components and modules constitute COS's technical architecture, providing users with a secure, scalable and immersive chain travel experience. With these components and modules working together, COS enables real virtual asset ownership, rich game content, and opportunities for social interaction.

3. The interaction and communication between components

In COS, the interaction and communication between the various components are achieved in many ways. Here are some of the common ways to interact and communicate:

Smart contract calls: Individual components can interact and communicate by invoking smart contracts. Functions defined in smart contracts can be called by other components to read, write, and state update the data. Through smart contract calling, the components can realize the transaction of virtual assets, the execution of game logic and other functions.

Event Monitoring: Components can listen to events defined in smart contracts for critical updates or notification of status changes. Through event monitoring, components can obtain real-time transaction confirmation, asset change and other information, so as to make corresponding responses and processing.

API call: Each component can communicate through an API call. COS May provide a set of API interfaces for data transfer and function calls between components. Components can obtain, send and process data through API call to realize the exchange and sharing of information.

Distributed messaging: The COS can use a distributed messaging mechanism, such as a message queue or a publish-subscription mode. Components can communicate by publishing messages and subscribing messages, passing information to other components and receiving messages sent by other components.

State sharing: The individual components in the COS can share state information for closer interaction and collaboration. By sharing states, components can understand the state changes of other components and deal accordingly.

The choice of these interactions and communication modes depends on the specific design and requirements of the COS. The interaction and communication mode between different components can be flexibly configured and adjusted according to the actual situation to achieve efficient data transfer and functional collaboration.

3. The BSC second-floor network integration

1. Selection reasons and advantages of BSC

COS Choosing a BSC (Binance Smart Chain) as its underlying blockchain network has the following reasons and advantages:

High performance and low cost: BSC is an Ethereum-based parallel chain with high performance and low cost. It adopts the PoSA (Proof of Staked Authority) consensus mechanism to achieve rapid transaction processing and low-cost transaction confirmation through the second-layer network of BSC. This enables COS to provide a fast, efficient and low-cost chain travel experience, attracting more users to participate.

Compatibility and Ecosystem: BSC compatibility with Ethereum enables smart contracts and tools in existing Ethereum ecosystems to be seamlessly migrated to the BSC. This brings rich development resources and ecosystem support to COS, accelerating the development and promotion of the project.

Decentralization and security: BSC is based on blockchain technology and is characterized by decentralization and security. COS Use the decentralized nature of BSC to ensure the real ownership of virtual assets and the security of transactions. Through security audit and vulnerability repair strategies for smart contracts, COS has built a secure and trusted game environment on BSC.

Ecosystem Support and Development tools: The BSC ecosystem provides a wealth of development tools and support that enable COS to quickly develop, deploy, and expand its functions and applications. Development tools and documentation on BSC are rich, providing a good development environment and support for the COS team and developers.

Community and user base: BSC has a large community and an active user base, which provides a good opportunity for COS to promote and grow its users. COS As a BSC-based chain game project, it can use the power and user base of the BSC community to promote its development and attract more players and developers to participate.

COS The selection of BSC as its underlying blockchain network is based on the advantages of BSC's high performance and low cost, compatibility and ecosystem, decentralization and security, ecosystem support and development tools, as well as the

community and user base. These advantages enable COS to build a fast, secure, scalable and dynamic chain travel platform, providing users with excellent gaming experience and virtual asset trading services.

2. Architecture and function of the BSC second layer network

COS Based on the BSC (Binance Smart Chain) layer 2 network construction, the following is a brief description of the BSC layer 2 network architecture and functions of COS:

Overview of architecture:

The BSC second 2 network architecture is an innovative chain swim solution based on BSC. It takes advantage of the high performance and low cost of BSC to improve the transaction throughput and performance of chain games and improve the user experience by migrating a part of the transaction and computing tasks to the second layer network.

function Introduction:

Fast transaction processing: COS BSC second-layer network realizes fast transaction processing capability through BSC parallel chain architecture and high-performance consensus mechanism. This means COS's chain users can trade more quickly without having to wait for long to get confirmed.

Low cost transaction: The low cost advantage of BSC second floor network enables COS to provide low-cost transaction services. COS Users can trade at a lower cost, reducing the economic burden of chain travel transactions.

Highly scalable: The COS BSC second-layer network is highly scalable to handle a large number of concurrent transactions. This means that COS's chain game platform can accommodate more users and support large-scale virtual asset transactions and game interactions.

Smart Contract Support: The BSC second layer network supports the deployment and execution of smart contracts, enabling COS to develop and run smart contracts on its second tier network. This provides COS with a rich functionality and flexibility to achieve complex game logic and virtual asset management.

Virtual asset management: COS's BSC second-layer network provides the management function of virtual assets to ensure that users' virtual assets have real ownership and tradability. Users can buy, sell, transfer and customize virtual assets through COS BSC second 2 network, so as to realize the comprehensive management of virtual assets.

Security and credibility: The security and credibility of BSC second 2 network is an important guarantee for COS. COS Through the smart contract security audit and vulnerability repair strategy, to ensure the security of users' transactions and assets, and to provide users with a reliable chain travel environment.

COS BSC second 2 network architecture and features are designed to provide a fast, efficient, low-cost, secure and scalable chain travel experience. By taking advantage of the advantages and functions of BSC, COS can meet the needs of chain game users for transaction speed, cost, scalability and virtual asset management, bringing high-quality chain game services to users.

3. COS Two-layer network technical architecture

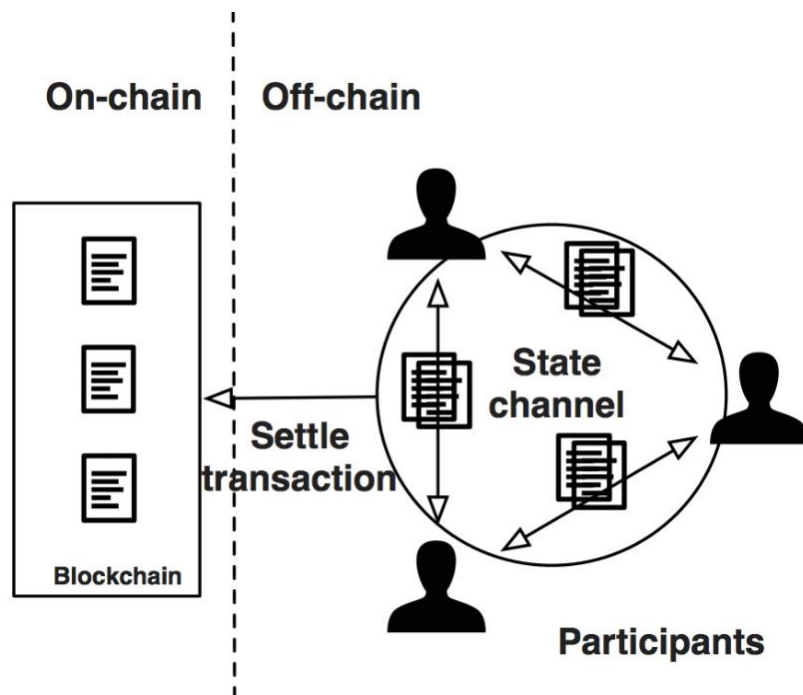
COS Adopt Rollup and state channel as its second layer network technical architecture. The following is a brief description of the Rollup and state second layer network technical architecture adopted by COS:

Rollup layer:

The Rollup layer of COS is a second layer network built above the BSC (Binance Smart Chain). This layer is mainly responsible for squeezing and packaging a large amount of transaction data, and submitting the verification results to the BSC main chain. The Rollup layer adopts a design principle similar to Plasma, processing multiple transactions into one block, and generating verification certificates to ensure the correctness and security of the transaction.

Under-chain verification:

The state channel of COS is a sub-chain communication protocol for handling frequent interactions and state updates. It allows users of COS to make multiple transactions under the chain, only submitting the final status to the Rollup layer and the BSC main chain at the final moment. The state channel enables fast transaction processing and low-cost transaction confirmation through bilateral signatures and status update agreements under the chain.



(Figure 1)

Smart Contract Integration:

The smart contract of COS is deployed on the BSC backbone and integrated with the Rollup layer and state channels. Smart contracts process users' transaction requests, verifying the legitimacy of transactions, and maintaining the user's virtual assets and game status. Through the integration of smart contracts, COS realizes the game logic execution, virtual asset management and trading functions.

Data storage and verification:

The COS second-layer network technology architecture uses the Rollup layer to

compress and package the transaction data, and submit the verification results to the BSC main chain for verification. Transaction data and status updates are stored in the Rollup layer and are validated and synchronized with smart contracts on the BSC mainchain when needed. This ensures the security, reliability, and consistency of the data.

By using Rollup and state channels as COS's two-layer network technology architecture, COS can provide a high-performance, low-cost, and scalable chain game experience. The Rollup layer improves transaction throughput and transaction confirmation speed by squeezing transaction data and verification, while the state channel provides a fast interaction and state update mechanism under the chain. This combined technical architecture allows COS to take full advantage of BSC to provide fast, secure, and scalable chain travel services.

4. COS Mode and mechanism of integration with the BSC second-layer network

COS The integration mode and mechanism with BSC second-layer network mainly involve the following aspects:

Smart contract deployment: The core functions and logic of COS are implemented through smart contracts. First, the development team writes and tests the COS's smart contract code. Then, the smart contract is deployed to the BSC network using the BSC tools and interface. In this way, the core functions of COS can run on the BSC second layer network.

Data storage and state management: COS uses BSC's second layer network to store and manage user data and status. User's virtual assets, transaction records and game progress are recorded in the BSC's second 2 network to ensure the security and reliability of the data. The COS smart contract can interact and operate with the data through the BSC interface.

Transaction processing and fees: COS Use BSC's second 2 network to process users' transactions. The high-performance consensus mechanism and low-cost transaction characteristics of BSC enable COS to provide fast transaction processing and lower transaction costs. By integrating with the BSC second-tier network, COS can provide users with an efficient and affordable chain travel trading experience.

Event Monitoring and Communication: The COS's smart contract can communicate with other components by listening to events in the BSC. COS You can subscribe to the key events in the BSC network and trigger the corresponding operations based on these events. This event listening and communication mechanism enables real-time interaction and data synchronization between COS and BSC second layer network.

Development tools and interfaces: COS The development team can use the development tools and interfaces provided by BSC to integrate the functions of COS. The BSC provides rich development documentation, API interfaces, and development tools that make it easier for development teams to integrate and interact with the BSC second-tier network.

Through the above integration methods and mechanisms, COS can make full use of the advantages of BSC's second-layer network to provide a fast, safe and reliable chain travel experience. COS Integration with BSC allows link-game users to enjoy high-performance, low-cost transaction processing, reliable data storage and management, as well as real-time interaction and social capabilities with other users.

4. Game engine integration

1. Selection and reasons of the game engine

COS Choose a game engine as one of its core technologies, mainly based on the following reasons:

Rich features and tools: The game engine provides a wealth of features and tools for developing and building complex game worlds and interactive experiences. COS Choose the game engine, you can use its powerful functions and tools to achieve a variety of game content, scene design, animation effects, physical simulation, etc., so as to provide a rich variety of chain game experience.

Development efficiency and flexibility: The game engine provides efficient development tools and editors that accelerate the game development process and improve the development team. COS By choosing a game engine, you can quickly build and iterate chain game projects to meet the changing market needs and user expectations.

Cross-platform support: Game engines typically have cross-platform features that can be run on different devices and operating systems. COS Select the game engine, you can publish and run chain games on multiple platforms, including PC, mobile devices, consoles, etc., so as to expand the user base and improve the market coverage.

Beautiful visual effects: The game engine has powerful rendering and graphics capabilities, presenting stunning visual effects and a realistic game world. COS Choose the game engine to provide high-quality visual effects through its excellent graphics rendering ability, and enhance the user's immersion and game experience.

Community and ecosystem support: Mainstream game engines often have a large developer community and a rich ecosystem. COS Choose the game engine, where you can obtain technical support, learning support, plug-ins and tools to accelerate the development and advancement of the project.

COS The choice of the game engine as its core technology is based on the rich features of the game engine, development efficiency, cross-platform support, beautiful visual effects, and community and ecosystem support. With the choice of game

engines, COS can provide a diversified, high-quality and immersive chain game experience, meet user expectations and drive the development of the chain game market.

2. Features and features of the game engine

COS As a chain game platform, combine the functions and features of the game engine to provide the following features and features:

Game logic and Scene Design: COS's game engine allows developers to create complex game logic and design a variety of game scenarios. Developers can build a rich and diverse game experience by defining the rules, tasks, levels, and interactions through the tools and editors provided by the engine.

Virtual Asset Management: COS's game engine supports the creation, customization, trading, and management of virtual assets. Developers can define different types of virtual assets, such as characters, props, equipment, etc., and provide users with the ability to buy, own and trade virtual assets. This allows users to have real virtual assets on the chain, and to have flexible asset interaction and management in the game.

Physical simulation and animation effects: The game engine provides support for physical simulation and animation effects, allowing the objects and characters in the game to have realistic movements and interactions. Developers can use the physical engine and animation system provided by the engine to give real physical properties and vivid animation effects to the objects and characters in the game, enhancing the game's realism and interactivity.

Multiplayer and social interaction: The COS's game engine supports multiplayer and social interaction functions, allowing players to play, cooperate, and socially interact with other players in real time. Through the multiplayer game function and network communication system provided by the engine, players can explore the game world together, group missions, fight, and communicate and interact with other players in real time.

Cross-platform support: COS's game engine has cross-platform features and running on different devices and operating systems. Whether it is on PC, mobile devices or console platforms, users can play COS chain games on different devices and enjoy a consistent gaming experience.

COS The chain game platform combines the functions and features of the game engine to provide a rich variety of game logic and scene design, virtual asset management, physical simulation and animation effects, multiplayer games and social interaction, cross-platform support, and beautiful visual effects. These features and features together create an interactive, creative and immersive chain travel experience to meet the diverse needs of users for on-chain games.

3. COS Deep integration and interoperability with the game engine

COS Deep integration and interoperability between the game engine is the key to realizing the chain game. The following are several aspects of the deep integration and interoperability of COS and the game engine:

Data interaction and sharing: COS realizes the interaction and sharing of data on the game engine and on the chain through the deep integration with the game engine. The game engine can transmit in-game data and states to the chain, to be verified and processed through the COS's smart contract. Conversely, the data on the chain can also be transmitted back to the game engine for in-game logical processing and display.

Virtual asset exchange: The deep integration of COS enables the virtual assets in the game engine to communicate with the virtual assets on the chain. Users can acquire, own, and customize virtual assets in the game, and sync them to the chain for real transactions. This interoperability provides users with an experience of seamlessly interacting inside and outside the game, enhancing the value and availability of virtual assets.

Event triggering and contract calling: The COS allows events in the game engine to trigger the operation of the COS smart contract. The game engine can perform specific logic and operations by calling a smart contract on the chain by triggering events. For example, in-game task completion can trigger reward distribution operations in the contract, or in-game social interaction can trigger NFT transactions in the contract.

The integration of game logic and smart contracts: The deep integration of COS enables the logic of the game engine and the execution of smart contracts. The game

engine can entrust part of the game logic to the smart contract execution on the chain to ensure the fairness and transparency of the game. The execution results of smart contracts can also be fed back into the game engine for in-game status updates and displays.

Game social and on-chain interaction: The deep integration of COS with the game engine also promotes the combination of game social and on-chain interaction. With COS, players can have real-time social interactions with other players in the game and synchronize these interactions to the chain. This makes the game social activities have real value and traceability on the chain.

Through the above deep integration and interoperability, COS realizes the close combination of the game engine and blockchain, creating a seamless chain game experience. Players can enjoy the rich game content and interactive experience provided by the game engine, while combining the value of these experiences and virtual assets with the security and transparency of the blockchain. This deep integration brings more possibilities of innovation and diversification for chain tourism.

5. Smart contract design and implementation

1. The role and function of smart contracts

COS Smart contract plays a key role in the chain game platform, with a variety of functions and uses. Here are some of the main roles and functions of COS smart contracts:

Virtual asset management: COS Smart contract is responsible for managing the virtual assets on the chain tour platform. It can define and create various types of virtual assets, such as characters, props, equipment, etc., and record their properties, ownership, and transaction history. Smart contracts also manage the creation, transfer, destruction, and trading operations of virtual assets to ensure their legitimacy and security.

Game logic execution: COS Smart contract undertakes the task of executing the core game logic of the chain game. It defines the game rules, mission objectives, reward mechanisms, etc., and ensures the fairness and reliability of the game through the logical execution of smart contracts. Smart contracts can handle user interaction behavior, task progress, achievement unlocking, etc., so that game processes and results can be reliably recorded and verified.

User Authentication and Authorization: The COS Smart Contract is responsible for verifying and licensing the identity of users. It validates the user's wallet address and permissions, ensuring that only legitimate users can participate in the chain tour. Smart contracts also manage users' assets and permissions to ensure users' rights and data security in games.

Transaction processing and settlement: COS Smart contract processing the transaction request and settlement process in the chain tour. It manages asset transactions between users, verifies the legality and validity of transactions, and ensures the correct execution of transactions and the safe transfer of assets. Smart contracts are also responsible for calculating and distributing rewards, tokens, and virtual assets in the game, ensuring that transactions are accurate and traceable.

Social interaction and contract triggering: COS Smart contracts support social interaction and contract triggering in chain games. It records social behavior, messaging and interactive history between users and synchronizes it to the chain for trusted validation. Smart contracts can also trigger specific events to perform

corresponding contract operations, such as task completion, social interaction, and achievement unlocking.

Data storage and query: COS Smart Contract is responsible for the data storage and query on the chain tour platform. It saves game-related data, user asset information, transaction records, etc., and provides a query interface for users and developers to query and access the data. Smart contracts also ensure the security and consistency of data to provide reliable data storage and retrieval services.

COS Smart contracts play several key roles in the chain game platform, including virtual asset management, game logic execution, user authentication and authorization, transaction processing and settlement, social interaction and contract triggering, data storage and query, etc. The combination of these functions and roles enables COS to provide a secure, credible and diversified chain travel experience, and to ensure the security of users' rights and data.

2. Data structure and logical design of the contract

COS The data structure and logical design of the contract can be designed according to the specific chain travel requirements and functions. Here are some common data structure and logical design considerations:

data structure:

User information: including user ID, wallet address, virtual asset holding situation, game achievements, etc.

Virtual assets: Define different types of virtual assets, including characters, items, equipment, etc., each with specific attributes and status.

Transaction record: records the transaction history of assets between users, including transaction type, transaction party, transaction time and other information.

logic design:

Registration and authorization: design the logic of user registration and authorization to ensure that only legitimate users can participate in the chain tour.

Asset management: including the logic of creating, transferring, destroying and trading virtual assets to ensure the legitimacy and security of the assets.

Game logic execution: define game rules, task objectives, reward mechanism, etc., and process user interaction behavior and task progress.

Transaction processing and settlement: process asset transaction requests

between users, verify the legality and validity of the transaction, and conduct settlement and distribute rewards.

Event trigger and contract call: design the appropriate event trigger conditions to trigger the corresponding operations in the contract, such as task completion, social interaction, etc.

Data storage and query: Design the data storage and query interface to ensure the security, consistency and accessibility of the data.

When designing the data structure and logic of the COS contract, it is necessary to fully consider the specific needs and functions of the chain game, flexibly use the programming language and functions of the smart contract to meet the needs of users, and ensure the security and efficiency of the contract. At the same time, the contract design should be well scalable and maintainable to allow for future updates and iterations based on changes in requirements.

3. Safety and verifiability considerations

Safety and verifiability are crucial considerations in the design of the COS. Here are some key aspects of ensuring safety and verifiability in the COS:

Smart Contract Security Audit: COS smart contracts should undergo a comprehensive security audit to identify and fix potential vulnerabilities and security risks. Through the review and testing of the contract code, you can ensure the security of the contract, and prevent potential attacks and vulnerabilities.

Access control and rights management: COS Access control and rights management mechanisms should be adopted to ensure that only legitimate users and contracts can access and modify sensitive data and operations in contracts. By limiting access to the contract, potential attacks and irregularities can be reduced.

Safety audit and risk management: COS Safety audit and risk management should be conducted regularly to identify and address potential safety risks. This includes assessing the system's weaknesses, attack vectors, and potential vulnerabilities, and taking appropriate risk management measures, such as strengthening security protection, and fixing vulnerabilities.

Data encryption and privacy protection: COS The appropriate encryption mechanism should be adopted to protect sensitive data and user privacy. This includes

encrypted storage and transmission of user identity, transaction records, and asset information to prevent unauthorized access and information leakage.

Transaction verification and traceability: COS Verification and traceability of the transaction to ensure the legality and authenticity of the transaction. The verification and recording of transactions through smart contracts on the chain can ensure the traceability of transactions and prevent tampering and fraud.

Code open source and community review: COS code should be open source so that the community can review and provide feedback. Open-source code increases the transparency and credibility of the system and enables community members to help identify and fix potential security issues.

COS Safety and verifiable factors should be fully considered in the design. Through security audit, access control, encryption protection, transaction verification and traceability, to ensure COS security and provide a verifiable chain travel experience. In addition, COS should maintain close cooperation with the community and receive review and feedback from the community to further enhance the security and credibility of the system.

6, the second floor network and game engine contract agreement

1. Agreement Name: COS GameNet Protocol (CGP)

summary:

COS GameNet Protocol (CGP) is the contract protocol of the second-layer network and game engine pioneered by COS, aiming to achieve innovation and progress in the field of chain game. The protocol integrates COS's two-layer network and game engine to provide developers and users with a more secure, efficient and interactive chain travel experience.

2. Protocol Features and Features:

Game contract registration and interaction: CGP allows the registration and management of game contracts. Developers can interact with the second-layer network of COS through the address of the registered game contract, so as to realize the hosting and execution of game logic.

Pledge mining mechanism: CGP introduces the pledge mining mechanism. Through the COS network, the pledgers can get the mining reward and contribute to the security and stability of the network.

Virtual asset trading and ownership protection: CGP supports the creation, trading and ownership management of virtual assets, ensuring the uniqueness and clarity of ownership of virtual assets in the game.

User Authentication and Authorization: CGP implements the user authentication and authorization mechanism, allowing users to bind to Google, Apple and other accounts through contract agreements, so as to realize the convenience of logging in to multiple games with one account.

Game data encryption and privacy protection: CGP adopts advanced data encryption technology and privacy protection measures to ensure the security and privacy and confidentiality of users' game data.

High performance and low latency: By optimizing the network structure and data transmission mode, CGP realizes the high concurrency and low latency chain

game experience, providing smooth and real-time game interaction.

Scalability and interoperability: CGP supports parallel processing and horizontal expansion, with good scalability and interoperability, making it easier for developers to build complex and diverse chain game applications.

As COS GameNet Protocol core protocol of COS, CGP) will promote innovative development in the chain game field, providing users with better game experience and more powerful tools and ecosystem for developers. Through the close combination of COS's second-layer network and game engine, CGP will bring new possibilities and opportunities to the chain game industry.

3. Contract code example:

```
// COS Layer 2 Network Contract
contract COS Layer2Network {
// Store game contract addresses
mapping(uint256 => address) public games;
// Register game contract address
function registerGame(uint256 gameId, address gameContract) public {
require(games[gameId] == address(0), "Game already registered");
games[gameId] = gameContract;
}
// Call a specific game contract function
function callGameFunction(uint256 gameId, bytes memory data) public {
address gameContract = games[gameId];
require(gameContract != address(0), "Game not registered");
(bool success, ) = gameContract.call(data);
require(success, "Failed to call game function");
}
}

// Game Engine Contract
contract GameEngine {
// Define game data structure
struct Game {
```

```

uint256 gameId;
string name;
// More game-related data
}
// Store game data
mapping(uint256 => Game) public games;
// Create a new game
function createGame(uint256 gameId, string memory name) public {
    require(games[gameId].gameId == 0, "Game already exists");
    games[gameId] = Game(gameId, name);
}
// Execute game logic
function playGame(uint256 gameId) public {
    Game storage game = games[gameId];
    require(game.gameId != 0, "Game not found");
    // Execute game logic
}
}

```

7, economic model

1. Token economy:

Token Name: COS (Cosmicbyte Binance Smart Chain Layer 2)

Token abbreviation: COS

Total tokens: The total supply of COS tokens is 1 billion pieces

Issue again mechanism: never issue again

2. Token allocation:

Ecological construction: 500 million (50%) - for the ecological construction of the project, including partnership promotion, ecosystem development and community construction, and ecological rewards.

Code contributor: 150 million (15%) - used to reward developers who contribute to the project.

Consultant team: 50 million (5%) - assigned to the consultant team of the project for professional support.

Early investors: 100 million (10%) - for early supporters and investors of the project.

Airdrop: 200 million (20%) - for airdrop to early participants, sharers, ecological applications, etc.

3. detailed rules and regulations:

Pledge mining reward: COS The pledge rules and reward mechanism will be set, and the mining reward will be calculated according to the number of COS tokens pledged by users and the pledge period. The pledge will receive a corresponding proportion of mining rewards, and the number of rewards will increase with the amount of pledge and term.

Node pledge rules:

Pledge token: The node pledge token of COS is BNB.

Quantity and term of pledge: 100 BNB by core node and 1 BNB by cellular node. Tokens that cannot be traded or withdrawn during the pledge period.

Pledge reward: The core node and cellular node of the pledge BNB to COS will receive the corresponding pledge reward. Rewards are issued in the form of COS tokens, and will vary depending on the amount of pledge and duration. Specific reward mechanisms can be obtained in the future through COS's economic model and community consensus voting.

Pledge process:

Select the pledge type: the currency holder chooses the node type to be pledged, and can select the core node or cellular node.

Calculate the quantity of pledge: calculate the quantity of pledge according to the type of pledge. The core node pledge 100 BNB, and the cellular node pledge 1 BNB.

Connect the pledge platform: use the wallet tool that supports COS pledge to connect to the COS pledge platform.

Select node and pledge quantity: select the node type (core node or cellular node) and the number of pledge quantity to be pledged on the pledge platform. The core node pledgers choose 100 BNB, and the cellular node pledgers choose 1 BNB.

Initiate pledge operation: initiate pledge operation on the pledge platform through the wallet tool to confirm the pledge quantity and pledge term.

Lock-up period: the pledged BNB will be locked up for a two-year period, during which no transaction or withdrawal can be made.

Pledge reward: After the end of the pledge period, the pledgee will get the corresponding pledge reward, and the reward will be issued in the form of COS tokens. The reward proportion shall be calculated according to the reward model, and the pledgee may withdraw the reward or pledge again at any time after the expiration of the pledge period.

Gradually open: first open the pledge of cellular nodes, and then open the pledge of core physical nodes after the cellular node pledge is full.

4. Pledge rules and earnings rules:

Pledge reward: The pledger will be rewarded according to the number of COS token pledged and the pledge period. The reward will be calculated on the basis of each pledge cycle and increased by the increase in the pledge amount and duration.

Game engine revenue: As a pledge, you will enjoy a share of the COS game engine revenue. This includes game usage fees, transaction fees, and sales of virtual assets. You will receive a percentage of the proceeds, which will be distributed according to the amount and duration of the pledge.

COS The second floor network chain GAS revenue: the pledgee will share the fee income of transactions on the second floor network chain. The amount and duration of the pledge will determine the share of GAS revenue you receive in the on-chain transaction.

Pledge:

Pledges can participate in the COS network by pledBNB tokens. The pledge will enjoy the pledge mining reward, game engine revenue and COS network chain GAS revenue.

The pledgee can choose the quantity and term of the pledge according to his own needs and risk tolerance. Higher amounts of pledge and longer periods will bring higher returns.

The pledgee can release the pledge at any time, but may be subject to certain lock-up period of the pledge.

developer:

Developers are important players in the COS ecosystem that can leverage the COS platform's gaming engines and tools to build games, virtual assets, and applications.

Developers will receive incentives through revenue share and ecological building incentives. Revenue share will be distributed based on how much the developers contribute to the platform, such as a percentage of game sales revenue.

The ecological construction award will reward developers who have made important contributions to the platform ecosystem, such as participating in technical support, creating quality content, introducing partners, etc.

user:

As the end users of the COS platform, users will enjoy a variety of gaming experiences and potential benefits.

Users can participate in various games, trade virtual assets, participate in community activities, etc., and get rewards through pledge rewards and game experience.

Users can also receive additional rewards and incentives by participating in COS community activities, promotion platforms, etc.

The economic model of COS aims to balance the interests of all parties and encourage participants to actively participate in the construction and development of the COS ecosystem. Specific pledge rules, income ratio and reward mechanism will be carefully adjusted and optimized according to the project development needs and market conditions to ensure the sustainability and fairness of the economic model.

5. Data encryption and privacy protection scheme

COS Attach great importance to data encryption and privacy protection. The following are some solutions and measures adopted by COS:

Data encryption: COS uses advanced encryption algorithms to protect the confidentiality of user data. Sensitive data is encrypted during transmission and storage to prevent unauthorized access and data leakage. Common encryption algorithms include AES (advanced encryption standard) and RSA (asymmetric encryption algorithm).

Anonymity and identity protection: COS allows users to interact with anonymous identities on the platform to protect their personal privacy. Users can choose to use anonymous accounts or use encryption to protect their identity and personal information.

Data permissions and access control: COS adopts a strict permission control mechanism, only authorized users can access specific data and functions. By using access tokens, role permissions, and authentication, COS ensures that only legitimate users can access sensitive data.

Decentralized storage: COS With the decentralized features of blockchain technology, user data is distributed stored on multiple nodes. Such a design reduces

the risk of a single point of failure and data tampering, and improves data security and reliability.

Blockchain privacy protection scheme: COS enhances user privacy protection in on-chain transactions and data processing by introducing privacy protection scheme (SMS), such as Zero-Knowledge Proof and ring signature (Ring Signature). These technologies can ensure the effectiveness and consistency of transactions, while hiding the identity of transaction participants and transaction details.

Security audit and monitoring: COS Implement a strict security audit and monitoring mechanism to timely detect and respond to security threats and vulnerabilities. With regular security audits, vulnerability scanning, and real-time monitoring, COS can respond to and address potential security issues in a timely manner.

In general, COS is committed to protecting the security and privacy of users' data, adopting a variety of encryption and privacy protection solutions, and combining the features of blockchain technology to ensure the maximum protection of users' data and transactions on the platform. At the same time, COS will continue to pay attention to and adopt the latest data encryption and privacy protection technologies, to continuously improve the security of the system and user trust.

6. User authentication and authorization mechanisms

COS Contract agreement and authorization mechanism are introduced to allow users to bind with their blockchain address through third-party authentication services such as Google and Apple accounts, so as to realize the login scheme of multiple games with one account. The following are the specific processes and implementation methods:

User binding: Users choose to log in with Google or Apple account on the COS platform and authorize through the authorization page. COS The platform uses protocols such as OAuth or OpenID Connect to interact with third-party authentication services to obtain the user's identity information.

Blockchain address binding: The COS platform links a user's blockchain address with its authorized Google or Apple account. This can be done either by generating a unique identifier or by using an encryption algorithm.

Contract Agreement licensing: COS's game engine uses a smart contract protocol, which verifies the user's identity and licensing information. When a user logs in to the game, the game engine will interact with the COS platform to authenticate the user's identity and authorization information through a smart contract protocol.

Multi-game login: Once the user's identity and authorization information are verified, the COS platform will provide users with login options for multiple games. Users can choose to log in with their bound blockchain address in any game, without having to authenticate again.

Through this scheme, users can log in to the COS platform through Google or Apple account, and seamlessly switch between multiple games, realizing the convenience and convenience of multiple games with one account. At the same time, the binding of blockchain addresses and the authorization mechanism of smart contracts ensure the security of the user's identity and the legitimacy of the authorization. This scheme helps to improve the user experience and facilitate user engagement and interaction in the COS ecosystem.

Multi-factor authentication: COS supports a multi-factor authentication (MFA) mechanism to improve the security of user accounts. Users can enable two-factor authentication (2FA) to further verify their identity through SMS, verification codes generated by applications, or hardware security tokens.

Rights control and role management: COS implements a strict permission control mechanism, and users gain access to specific functions and data according on their roles and permission levels. Through role management, COS can refine authorization to ensure that users can only access the functions and data they need, reducing potential security risks.

Security tokens and Token authorization: COS Use security tokens to verify the user's identity and authorized access. Users log given a security token that will be verified as the user performs the operation, ensuring that only a legitimate user can perform the operation.

Audit log and monitoring: COS Record the audit log of user activity and conduct real-time monitoring to detect abnormal behavior. This helps to identify potential security threats and illegal operations and take timely measures.

Third-party authentication: COS can integrate third-party authentication services such as OAuth or OpenID Connect to verify the user's identity and

authorization. This approach can provide a higher level of security and convenience, and reduce the burden on users to remember multiple accounts and passwords.

With the above user authentication and authorization mechanisms, COS ensures that only legitimate users have access to the platform's functions and data, and protects the security and privacy of users' accounts. COS We will continue to focus on and adopt the latest authentication and licensing technologies to continuously improve the security and user experience of the platform.

7. Strategies for security auditing and vulnerability repair

COS Use the following security audit and vulnerability repair policies to ensure the security and stability of the platform:

Security audit team: COS hire a professional security audit team to conduct regular security audit on the platform. The audit team will conduct a comprehensive security assessment and vulnerability scanning of COS's smart contracts, code bases, network architecture, etc., to find potential security problems and vulnerabilities.

Vulnerability Reporting and Feedback: COS Establish a vulnerability reporting pipeline to encourage users and security researchers to report discovered vulnerabilities and security issues to the platform. COS Will respond and verify in a timely manner, and work with the reporter to fix the vulnerability.

Vulnerability repair process: Once a vulnerability or security issue is found, COS takes immediate action to fix it. In the repair process, there will be a strict vulnerability repair process, including assessing the impact degree of vulnerabilities, formulating repair plans, testing the repair effect and other links. After the repair, a comprehensive test and verification will be conducted to ensure that the vulnerability is effectively repaired.

Security updates and version control: COS regularly releases security updates to fix known vulnerabilities and enhance security. Users will be notified of updates and can download the latest version of the COS client or use the online version.

Security awareness training: COS Focus on security awareness training, to educate users and developers about the best security practices, password management, phishing prevention and other knowledge. By increasing security awareness among users and developers, security risks and potential threats can be reduced.

Real-time monitoring and response: COS Establish a real-time monitoring system to monitor the security status and abnormal activities of the platform. If any abnormal or suspicious behavior is found, the COS will take immediate action, including suspending the relevant function, isolating the affected part, or performing emergency repair.

Through the above security audit and vulnerability repair policies, COS is committed to protecting users' data security and platform stability. COS We will continue to focus on the latest security technologies and threat dynamics, and work together with security experts and communities to improve the platform's security and user trust.

8. Performance optimization and scalability

1. System performance consideration and optimization scheme

An important consideration is system performance. The following are the optimization schemes adopted by COS to improve the system performance:

Distributed architecture: COS adopts a distributed architecture to distribute various components of the system on multiple nodes to improve the concurrent processing capacity and expansibility of the system. With horizontal expansion and load balancing technology, COS is able to handle a large number of user requests and transaction operations.

Caching mechanism: COS introduces the caching mechanism, uses high-performance cache to store frequently accessed data, reduce the reading pressure on the database, and improve the response speed of the system. Common caching techniques include Redis, Memcached, etc.

Asynchronous processing: COS adopts the asynchronous processing mechanism to process some time-consuming asynchronous tasks and operations to avoid blocking the main thread, and improve the concurrent processing ability and response performance of the system. This can be achieved through message queues, asynchronous tasks, etc.

Database optimization: COS database performance optimization, including index optimization, query optimization, database partition and other technical means, to improve the data reading and writing efficiency and query speed. Choosing the right database type and configuration is also key, such as using high-performance relational databases or NoSQL databases.

Front-end optimization: COS attaches importance to front-end performance optimization, reduces front-end loading time by squeezing resources, merging files, caching static resources and other ways, and improves users' access speed and experience. At the same time, the front-end framework and technology are used to optimize the page rendering performance and interaction effect.

System monitoring and tuning: COS The system monitoring and tuning mechanism is established. Through real-time monitoring and analysis of the system

operating status, performance indicators and resource utilization rate, problems are found and optimized in time. This can be achieved by using monitoring tools, log analysis, performance testing, etc.

Regular optimization and upgrade: COS Regular system optimization and upgrade, function improvement and performance optimization according to user feedback and needs. Continuous optimization and upgrading can improve system stability and performance, and adapt to changing user needs.

With the above optimization scheme, COS is committed to providing high-performance systems that ensure that users can quickly and stably access and use the functions of the platform. COS Will continue to focus on the latest technology development and performance optimization means, and constantly improve the performance and user experience of the system.

2. Strategies for load balancing and horizontal expansion

COS Load balancing and horizontal expansion strategies are used to achieve high availability and scalability. The following are the main aspects of COS's load-balancing and horizontal scaling strategy:

Load balancer: COS Introduce a load balancer, such as Nginx, HAProxy, etc., to distribute user requests to multiple server nodes. The load balancer distributes requests equally to different servers according to certain algorithms (such as polling, weights, minimum connections, etc.) to avoid excessive load on a single server.

Horizontal expansion: COS adopts the horizontal expansion strategy, that is, the way to improve the processing capacity and throughput of the system by adding server nodes. When the system load increases, more server nodes can be dynamically added, to spread the load over multiple nodes, thus achieving higher concurrent processing capacity.

Stateless service: The service component of the COS is designed to be stateless, meaning that each request can be handled independently, without relying on the previous request status. In this way, the load balancer can freely allocate requests between different servers and improve the scalability of the system.

Data sharing and caching: COS adopts shared caching technologies, such as Redis, Memcached, etc., to cache some commonly used data into memory to reduce

frequent access to the database, and improve the response speed and concurrent processing capacity of the system.

Asynchronous processing: COS uses an asynchronous processing mechanism to process some time-consuming operations and tasks, such as message queues, asynchronous tasks, etc. This reduces the system's load and improves the system's concurrent processing capability and response performance.

Monitoring and automatic adjustment: COS has established a real-time monitoring system to monitor the load situation of server nodes, response time, resource utilization and other indicators. When the load is too high or fails, the adjustment mechanism can be automatically triggered, such as automatically adding or removing server nodes, to achieve load balancing and adaptive expansion.

With load balancing and horizontal scaling strategies, COS enables a system architecture with high availability, high performance, and scalability. This allows COS to cope with growing users and traffic, allowing users to steadily access and use the platform.

3. Target achievement with high concurrent and low latency

Achieving high concurrency and low latency is one of the goals of the COS. Here are some policies and measures that can help achieve high concurrency and low latency:

Introduce a caching mechanism: Use high-performance caching, such as Redis or Memcached, to cache common data and results and reduce frequent access to the database. This can greatly increase response speed and reduce latency.

Database optimization: Conduct the performance optimization of the database, including the appropriate index design, optimized query statements, partitions, etc. By reducing the time and resource consumption for database access, you can reduce latency and improve concurrent performance.

Asynchronous processing: It asynchronizes some time-consuming operations and tasks, such as using message queues to handle background tasks and batch operations. This can avoid blocking the main thread and improve the system's concurrent processing capability and response capability.

Horizontal expansion: Expand the processing capacity of the system by adding

server nodes. The requests are distributed to multiple nodes through the load balancing mechanism. This can effectively deal with the high concurrency situation, and improve the concurrency performance and stability of the system.

Use high-performance networks and hard devices: Select high-performance network devices and server hardware, such as high-speed network interfaces, fast storage devices, etc., to provide better data transmission speed and response capability.

Programming optimization: optimize code execution efficiency and resource utilization, and reduce unnecessary calculation and data processing. Use the cache and data structure reasonably to avoid double calculation and redundant operations.

Monitoring and tuning: real-time monitoring system performance indicators, including request response time, server load, resource utilization, etc. System tuning and optimization according to the monitoring data to find and solve performance bottlenecks and problems in time.

Using these strategies and measures, COS aims to provide a user experience with high concurrent and low latency. By optimizing the system architecture, using high-performance technologies and allocating resources, COS is committed to providing users with fast, stable and efficient services.

9. Development Roadmap and milestones

1. Development roadmap and milestones for the next five years

the first year:

Platform infrastructure: Establish the infrastructure of the COS platform, including building a second-layer network, developing a game engine, establishing a user authentication and authorization mechanism, etc.

Ecosystem building: Attract developers and users to participate in the COS ecosystem, and promote the development and release of a number of quality games and virtual assets.

User growth and promotion: Attract more users to join the COS platform through marketing, social media promotion and other ways to increase the user scale and activity.

the next year:

Expand the game content library: Cooperate with the game developers, introduce more excellent game content to the COS platform, enrich the game library, and meet the needs of different users.

Introduce blockchain integration: Promote the integration of COS with other blockchain projects, realize cross-chain interoperability, and expand the ecosystem boundaries and cooperation opportunities.

Technology upgrade and optimization: According to user feedback and market demand, the COS platform is technically upgraded and optimized to improve the performance, security and user experience.

The third year:

Building a meta-universe: Introduce more virtual reality and augmented reality technologies to build COS into a true meta-universe platform, providing immersive gaming and social experiences.

User autonomy and governance: Promote the governance model of the COS platform, introduce a decentralized decision-making mechanism, and allow users to participate in the development and decision-making process of the platform.

Global expansion: To further expand COS's influence and user base, expand the international market, and carry out global promotion and cooperation.

Fourth year:

Scientific and technological innovation and experimental functions: Explore new scientific and technological innovations, such as artificial intelligence, blockchain interaction, etc., and introduce experimental functions to provide more innovative games and services.

Open platform Ecological development: Build a COS open platform, attract more developers and partners to join us, and jointly build an ecosystem to promote innovation and collaboration.

The fifth year:

Continuous innovation and development: COS Platform continues to innovate, according to market demand and technological progress, introduce new functions and services, and constantly improve user experience and platform value.

Deep integration and cooperation: Carry out deep cooperation with enterprises and projects in other fields, integrate resources, achieve more win-win cooperation, and jointly promote the development of blockchain games and meta-universe.

These are the development roadmap and milestones of COS in the next five years. COS Will continue to strive to provide innovative, secure, high-performance games and services, and is committed to becoming the leading builder and promoter of the chain game platform and meta-universe ecosystem.

2. Function and optimization plans for the different stages

COS The functions and optimization plans at different stages are as follows:

Initial stage (initial stage):

Build the infrastructure of COS platform, including second 2 network, game engine and user authentication system.

Introduce basic game functions and virtual asset trading functions.

Optimize the user interface and interactive experience to ensure that users can easily participate in games and trading activities.

Development stage (growth period):

Expand the game content library and work with developers to introduce more great games.

Social features are introduced to allow users to interact, form teams and compete within the platform.

Optimize the game engine and second-layer network to improve the game performance and stability.

Mature stage (consolidation period):

The concept of metaverse was introduced to build COS into a complete metaverse platform.

Launch authoring tools that allow developers to create and publish their own games and virtual assets.

We will strengthen user autonomy and governance mechanisms, and let users participate in the decision-making and development of the platform.

Innovation stage (leading period):

Explore new technologies and features, such as virtual reality and augmented reality, to provide users with a richer immersive experience.

Introduce blockchain interaction and smart contract technology to provide more innovative gameplay and services.

We will strengthen cooperation with enterprises and projects in other fields, and promote cross-border integration and cooperative innovation.

Continuous optimization phase (stabilization period):

Continuous performance optimization and security audit to ensure the stability and security of the platform.

Supports multi-platform access, including mobile devices and desktops,

allowing users to participate in games and transactions anytime, anywhere.

Introduce mechanisms and incentive measures to encourage users to contribute and participate in ecological construction.

Through feature addition and optimization plans at different stages, COS will continue to improve user experience, enrich game content, promote technological innovation, and strive to become a leading builder and leader of the chain game platform and meta-universe ecosystem.

3. User feedback and iterative planning for continuous improvement

COS Value of user feedback and continuous improvement, the following is the iteration plan for COS:

User feedback collection: COS will establish an effective user feedback mechanism, including user support center, social media interaction, user survey, and so on, so that users can provide timely opinions and suggestions.

Feedback analysis and evaluation: The COS team will carefully analyze and evaluate user feedback, including problem reports, functional requests, and suggestions for improvement. Problems and needs are classified and prioritized to rationally allocate resources for improvement.

Iterative optimization plan: Based on user feedback and evaluation results, COS will develop a specific iterative optimization plan, including fixing problems, adding new features, improving user experience, etc. These plans will be integrated into the COS's development roadmap to ensure continued improvements and upgrades.

Agile Development Method: COS uses agile development methods to continuously improve the platform through iteration and rapid release. Each iteration cycle focuses on user feedback and needs, developing and testing based on priority in order to respond quickly to user needs and questions.

User participation and co-construction: COS Encourage users to participate in the co-construction and decision-making process of the platform. Through the community governance mechanism and user voting, users can participate in the voting and discussion of important decisions, and jointly decide the direction and priority of COS.

COS We will continue to improve the user experience, fix problems, add new

features, and continue to iterate based on user needs and feedback. Through close cooperation with users, COS is committed to building an excellent chain travel platform and meta-universe ecosystem that meets users' expectations and needs.

10, conclusion

1. Summary and outlook of the COS technology

sum up:

COS Technology is based on the integration of BSC second-layer network and game engine, aiming to build a high-performance, safe and reliable chain game platform and meta-universe infrastructure. COS By deeply integrating the game engine with the second-layer network, it provides low-cost and efficient chain game solutions. COS The second-layer network uses BNB as the pledge token to realize the transaction experience of 0gas fee, and encourage users to participate in network security and governance through the pledge mechanism. COS Also provides rich game features and virtual asset trading platform, bringing users an immersive gaming experience and potential revenue.

look into the distance:

COS Technology has a broad development prospect in the future. With the continuous development of the blockchain and game industry, the concept of chain game and metasmos attracts more and more attention. COS As an innovative chain tourism platform, it has the following prospects:

Ecosystem expansion: COS will continue to attract more developers and users to participate in the construction and development of the platform ecosystem. Through partnerships with game developers, virtual asset creators, and other ecological partners, COS's game library will continue to expand to provide users with a more diverse range of game options and virtual asset transactions.

Technological innovation: COS will continue to innovate in technology, exploring new ways of blockchain interaction, smart contract applications, and gameplay. COS We will pay close attention to the latest trends and technological developments of the industry, constantly optimize and upgrade the technical architecture of the platform, and provide better user experience and richer functions.

Community engagement: COS will continue to actively interact with the community and encourage users to participate in the development and decision-making process of the platform. Through the community governance mechanism and user voting, users can participate in the voting and discussion of important decisions, and jointly shape the development direction of COS.

In general, the prospect of COS technology is to continuously promote the development of chain game and meta-universe, providing users with better gaming experience, richer virtual asset trading, and committed to building a secure and reliable chain game platform and meta-universe infrastructure.

2. The prospect for the future development and applications

Development of the chain tourism industry: With the continuous development of blockchain technology and the maturity of the chain tourism market, COS is expected to become an important participant in the chain tourism industry. COS We will continue to expand the game library, provide a wider variety of games and virtual assets, attract more players and developers to join the platform, and promote the development of the chain game industry.

metaverse construction: COS's technical architecture and functions give it the potential to become metaverse infrastructure. COS Can provide a virtual world in which users can explore, interact, and create. With the rise of the concept of the metaverse, COS is expected to play an important role in the construction of the metaverse.

Cross-chain interoperability: COS will strive to achieve cross-chain interoperability with other blockchain networks. Through cooperation with other blockchain projects and technology integration, COS can realize the cross-chain transfer and transaction of virtual assets, providing users with a wider range of opportunities for interaction and participation.

Community Development and Governance: COS will work to build an active community that encourages users to participate in the development and governance of the platform. Through the community governance mechanism and user voting, users can participate in the voting and discussion of important decisions, and jointly shape the future development direction of COS.

Emerging applications: As blockchain technology continues to evolve, COS can work in more applications. For example, in the fields of virtual reality, augmented reality, and art creation, COS's technology and platform can provide completely new experiences and opportunities for creators and users.

Overall, COS has broad future development and application prospects. By

continuously promoting the development of the chain game industry, participating in the construction of the meta-universe, realizing cross-chain interoperability, and actively developing the community and exploring new application areas, COS will bring users better game experience, rich virtual asset transactions, and contribute to the application and development of blockchain technology.

11. References:

- "Lightning Network: Scalable Off-Chain Instant Payments" – Joseph Poon, Thaddeus Dryja. (<https://lightning.network/lightning-network-paper>)
- "Plasma: Scalable Autonomous Smart Contracts" – Joseph Poon, Vitalik Buterin. (<https://plasma.io/plasma>)
- "Roll-up: A Generalized Layer 2 Construction" – Barry Whitehat. (<https://ethresear.ch/t/roll-up-a-generalized-layer-2-construction/6447>)
- "State Channels: An Overview" – Jeff Coleman. (<https://statechannels.org/docs/statechannels>)
- "zkRollup: Scaling Ethereum with Transparency and Privacy" – Matter Labs. (<https://matterlabs.io/papers/zkrollup>)
- "Optimistic Rollup" – John Adler, Carl Beekhuizen, Steven Goldfeder, Alec Grieser. (<https://optimism.io/research/rollup>)
- "Validium: Efficiently Scaling Ethereum with Transparent Validity Proofs" – StarkWare. (<https://www.starkware.co/validium>)
- "The Raiden Network: Scaling Out Ethereum" – Brainbot Technologies. (<https://raiden.network/101.html>)
- "Payment Channels" – Christian Decker, Roger Wattenhofer. (https://www.comp.nus.edu.sg/~prateeks/papers/payment_channels)
- "Layer 2 Scaling: State of the Art and Open Questions" – Vitalik Buterin. (<https://vitalik.ca/general/2021/01/05/rollup.html>)
- "Ethereum 2.0 Beacon Chain" – Ethereum Foundation. (https://github.com/ethereum/eth2.0-specs/blob/dev/specs/core/0_beacon-chain.md)
- "zkSync: Scalable Privacy-Preserving L2 Payments" – Matter Labs. (<https://matterlabs.io/papers/zksync>)
- "Sidechains: Enabling Blockchain Innovations with Pegged Sidechains" – Adam Back, Matt Corallo, Luke Dashjr, Mark Friedenbach, Gregory Maxwell, Andrew Miller, Andrew Poelstra, Jorge Timón. (<https://blockstream.com/sidechains>)
- "Plasma Cash: Plasma with Much Less Per-User Data Checking" – Vitalik Buterin, Karl Floersch, et

al. (<https://ethresear.ch/t/plasma-cash-plasma-with-much-less-per-user-data-checking/1298>)

"Game Engine Architecture" - Jason Gregory.

(<https://www.amazon.com/Game-Engine-Architecture-Third-Jason/dp/1138035459>)

"Real-Time Rendering" - Tomas Akenine-Möller, Eric Haines, Naty Hoffman.

(<http://www.realtimerendering.com/>)

"Physics for Game Programmers" - Grant Palmer.

(<https://www.amazon.com/Physics-Game-Programmers-Grant-Palmer/dp/1435454278>)

"Game Programming Patterns" - Robert Nystrom.

(<https://gameprogrammingpatterns.com/>)

"Game Engine Gems" series - Eric Lengyel.

(<https://www.amazon.com/Game-Engine-Gems-Eric-Lengyel/dp/1568814135>)