An Overview of UNIT and The Metaverse Economy

UNIT Overview and TCG World Integration

Abstract

UNIT is a next-generation cross-chain cryptocurrency designed to optimize the user experience in the TCG World Metaverse. Built on both the Ethereum and SKALE networks, UNIT leverages advanced blockchain technologies to enhance scalability, reduce transaction costs, and facilitate cross-chain interoperability. UNIT aims to redefine decentralized finance (DeFi) by integrating seamlessly into the TCG World ecosystem, empowering users with true ownership of their digital assets and enabling frictionless, cost-effective transactions. This whitepaper details the technical framework, economic model, and core features that set UNIT apart as a pivotal player in the metaverse and DeFi landscape.

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Introduction

The metaverse is reshaping the future of digital interaction, transforming the way we socialize, work, and create value. At the forefront of this evolution is TCG World, an expansive 900 km² open-world metaverse built with cutting-edge technology that seamlessly bridges the gap between real world and digital economies. Utilizing Unity Technologies, TCG World delivers a vibrant and immersive experience that spans entertainment, education, commerce, and gaming, enabling players to explore, create, and thrive in a dynamic virtual environment. At the core of TCG World is UNIT, the primary medium of exchange that powers every aspect of the in-game economy. From purchasing virtual land and assets to participating in events and accessing exclusive content, UNIT makes all transactions seamless and secure. Leveraging blockchain technology, UNIT eliminates the friction of high gas fees and interoperability challenges commonly faced in decentralized finance. By integrating both the Ethereum and SKALE networks, TCG World ensures scalability, reduced transaction costs, and an

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accessible gateway to decentralized finance for all participants. Whether users are large enterprises looking to establish a commercial presence, entrepreneurs pursuing new business opportunities, adventurers exploring uncharted territories, or creators building unique digital experiences, TCG World offers an expansive and innovative platform for all. With state-of-the-art graphics, dynamic digital assets, and player-driven content, TCG World is redefining the possibilities of the metaverse, creating a next-generation virtual economy driven by community, creativity, and meaningful digital ownership.

Economic Ecosystem of TCG World

TCG World is built on a thriving, player-driven economy that encompasses both residential and commercial opportunities. Players can cultivate virtual farms, raise livestock, and craft valuable tools on residential plots, creating opportunities to generate income through in-game activities. At the same time, commercial real estate plots provide unique opportunities for businesses to establish a virtual presence, including building storefronts, hosting events, or leasing space to other players. Together, these elements make TCG World a dynamic, immersive economic ecosystem where every player can create, grow, and succeed.

Unique Features of TCG World

Virtual Land Ownership

Users can acquire virtual land plots in one of the four distinct regions: Northern Tundra, Los Solaris, Sakura Valley, and Emerald Forest, each offering unique environmental themes, attributes, and opportunities for resource collection and economic development.

100,000 Plots of Residential Virtual Real Estate

With a substantial inventory of 100,000 virtual plots, TCG World offers ample opportunities for players to own land. Each plot can be customized, giving players a chance to build and personalize their virtual space, whether for residential or small business purposes.

Land Regions and Unique Attributes

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Each of the four regions in TCG World features distinct characteristics that influence gameplay and create diverse strategic opportunities. While farming yields remain consistent across all regions, activities like resource gathering, artifact collection, and fishing vary by region, offering unique challenges and rewards. Owning land in multiple regions provides players with diverse in-game benefits and opportunities, enriching their overall experience within the metaverse.

Income Opportunities

Owning virtual land in TCG World provides various income-generating opportunities. Players can cultivate valuable in-game resources, lease or sell their plots, and develop small businesses. Commercial property owners can host enterprises such as entertainment venues, educational facilities, and virtual headquarters and offices, creating engaging spaces and revenue streams for participants. These opportunities encourage active player engagement and reward those who invest time in building their virtual properties.

Dynamic Digital Assets with Real Utility

TCG World integrates dynamic digital assets that provide true ownership and in-game utility. All assets are blockchain-backed, meaning that items such as vehicles, creatures, and properties are not only collectible but functional within the world. One of the key differentiators of TCG World is the ability for digital assets to evolve and be upgraded. Vehicles, for example, can be enhanced to improve their performance or appearance. Other assets can be upgraded with features that increase their value and enhance their functionality within the game.

Creature Evolution and Interaction

Digital assets extend beyond static items; creatures (called "Sprites") in TCG World are dynamic and can be captured, trained, and evolved. The environment in which players interact with their creatures impacts their evolution, making the choice of land region an important gameplay factor. This unique approach connects digital ownership with gameplay mechanics, making these assets integral to the player's journey.

Community and Social Interaction

TCG World provides a robust platform for community engagement, encouraging social interaction, collaboration, and shared experiences. Players can join events, compete in tournaments, and work together on large-scale building projects.

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Live Events and Competitions

Regular live events, concerts, and tournaments are hosted within the virtual world, providing opportunities for players to interact and compete. Competitions include e-sports events, where players can showcase their skills, and building competitions, where players demonstrate creativity by constructing unique virtual structures on their plots.

Commercial Real Estate and Business Marketplaces in TCG World

Commercial Real Estate Opportunities:

In TCG World, players have the opportunity to own and develop commercial real estate that serves as a hub for various enterprises and community activities. These properties can be used to establish income-generating ventures, such as marketplaces, concert venues, sports arenas, and educational institutions. Commercial plots are designed to be centers for player interaction, commerce, and entertainment, making them a cornerstone of the virtual economy.

Create Your Own Virtual Store:

TCG World empowers businesses to build and customize their own virtual shopping centers, malls, or storefronts. Companies can showcase and sell both digital and real-world products directly within the metaverse, offering a seamless shopping experience for users. This world-wide commerce integration bridges the gap between physical and virtual economies, enabling players to sell real-world items alongside in-game goods, and expanding their reach to a broader audience.

Customizable Business Models:

Whether you're an entrepreneur launching a new product line or an established retailer seeking a virtual expansion, TCG World offers the flexibility to design unique shopping experiences. From branded showrooms to interactive product displays, businesses can harness the creative potential of the metaverse to engage customers and create memorable experiences. Beyond traditional markets, the metaverse enables businesses to connect with entirely new audiences they might not have reached otherwise, opening doors to untapped customer bases and innovative marketing opportunities.

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Enterprise-Grade Solutions for Virtual Commerce:

Commercial landowners can integrate advanced features like secure payment systems, dynamic product catalogs, and loyalty rewards programs. These tools provide robust solutions for managing virtual retail operations and creating immersive customer experiences, ensuring businesses can effectively monetize their virtual presence.

Advertising and Revenue Streams:

TCG World allows virtual landowners to integrate advertising opportunities into their properties, such as billboards and sponsorship placements. Businesses can use these advertising spaces to market products, services, or even other in-game events, creating an additional revenue stream. This type of in-game advertising encourages real-world businesses to establish a presence in TCG World, further blurring the line between virtual and physical commerce.

Collaborative Commercial Ecosystems:

By building interconnected marketplaces, businesses can partner with others to establish bustling virtual districts. These collaborative spaces enhance user engagement and create thriving commercial ecosystems within TCG World, where players can explore different shops, attend events, and interact in meaningful ways. These districts become vibrant hubs of activity, attracting users and encouraging community interaction.

Business and Social Ventures:

Players can establish virtual businesses, host events, and lease space for other users. The collaborative opportunities are immense; players can create and manage enterprises ranging from entertainment venues to educational hubs. Commercial land can be used to build theaters, sports arenas, training facilities, and interactive learning centers that cater to specific user needs. These ventures add depth to player engagement and provide diverse commercial opportunities for participants.

Virtual Offices and Real-World Applications:

TCG World also provides utility for businesses and professionals seeking to establish a digital presence. Virtual office spaces can be constructed on commercial plots, providing a venue for holding

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meetings, conducting training sessions, or hosting clients. These offices can also be subleased to other businesses, offering flexible solutions that align with modern digital trends. Virtual environments can be designed to simulate specific workflows, offering hands-on training that helps users develop practical skills applicable in real-world scenarios, making TCG World a dynamic and useful tool for both training and business operations. The opportunities provided by TCG World's commercial real estate plots create a fertile ground for innovation, collaboration, and commerce. Whether establishing a storefront, hosting events, or leasing space to other players, the potential for building and sustaining thriving enterprises in TCG World is boundless. The interplay between commercial and residential activities forms a cohesive economic ecosystem that blends entertainment, entrepreneurship, and social engagement in a seamless virtual landscape.

Multiple Game Modes

Legends of Meta:

Legends of Meta is the core experience within TCG World, encompassing a wide range of activities that define the immersive metaverse. Players have the opportunity to explore, build, and shape the world in a meaningful way. Legends of Meta features creature capture, training, and evolution. Players can capture various creatures called Sprites, which are dynamic digital assets that can grow, evolve, and gain new abilities based on player actions and choices. Sprites are more than just collectibles, they are valuable companions that can assist players in exploration, battles, and in achieving specific in-game goals.

Farming, Resource Management, and Crafting:

Farming, resource management, and crafting are integral aspects of Legends of Meta. Players who own designated farm plots can cultivate virtual farms, planting, growing, and harvesting crops that serve as crafting materials or tradable assets in the marketplace. Farm owners can also raise livestock, producing animal products that enhance gameplay and trade opportunities. For all players, resource gathering and crafting remain accessible, allowing them to collect essential materials, upgrade their equipment, and create valuable items, tools, and armor. These interconnected systems enable players to enhance their properties, contribute to the marketplace, and drive the growth of the player-driven economy. By offering diverse opportunities for progression and creativity, these features ensure a rewarding and engaging experience for all participants in the metaverse.

Building and Customization:

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Building and customization are key aspects of Legends of Meta, allowing players to construct and personalize their own homes, bases, or outposts within TCG World. Buildings can serve different functions, such as providing a safe haven, storing resources, or offering strategic advantages in various game modes. Customization options allow players to express their creativity and make their mark on the evolving landscape of TCG World. Whether it's constructing an elaborate estate or a simple outpost, players have the freedom to shape their surroundings and leave a lasting impact on the metaverse.

Exploration and Adventure Quests:

Legends of Meta features exploration and adventure quests that encourage players to traverse TCG World’s vast 900 km² of diverse landscapes. The open-world environment is filled with hidden treasures, ancient artifacts, and a wide variety of collectibles, interactive NPCs, and challenging quests that provide valuable rewards. Players can venture into various biomes, each with unique characteristics and resources, to uncover mysteries, discover rare items, and unlock new areas. Completing quests and challenges not only yields rewards but also advances a player’s character progression and enhances their abilities. The emphasis on exploration ensures that every journey in TCG World is filled with surprises and opportunities for growth, adding depth to the overall player experience.

The Purge Hour:

The Purge Hour is a massive multiplayer survival mode that stands apart from Legends of Meta while integrating many of its elements. In this battle royale-style competition, players engage in a last-person-standing format using resources, armor, and tools they have gathered or crafted in Legends of Meta. The Purge Hour leverages TCG World's expansive landscape to create a fast-paced, highly competitive experience where strategy, quick thinking, and adaptability are key to survival. Players can form alliances, establish traps, and use crafted weapons and armor to outwit their opponents, making each match unique and unpredictable. The integration of crafted assets and player abilities from Legends of Meta into The Purge Hour ensures a cohesive and persistent world. Players who have invested time in farming, resource gathering, and crafting in Legends of Meta will find their efforts pay off as they bring their accumulated assets into The Purge Hour. This interconnectedness between game modes creates a sense of continuity and progression, making The Purge Hour an exciting, high-stakes challenge that tests players’ skills and resourcefulness. Winners are rewarded with prize pools, making The Purge Hour both thrilling and satisfying for those who emerge victorious. TCG World's multiple game modes offer diverse experiences that cater to different player interests, from cooperative farming and exploration in Legends of Meta to intense, high-stakes competition in The Purge Hour. These varied experiences ensure that every player finds their niche in TCG World, building their skills, accumulating assets, and forming connections within an evolving virtual universe.

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By incorporating persistent elements across these modes, TCG World maintains continuity that empowers players to seamlessly shift between casual play and high-intensity challenges.

Technical Architecture and Core Components of UNIT

Motivation

UNIT addresses several key challenges within the existing DeFi and metaverse ecosystems: 1. Scalability: The growing number of users and transactions in metaverse environments leads to congestion on traditional blockchain networks. UNIT Token's hybrid integration with SKALE ensures scalability and high transaction throughput, enabling smooth real-time interactions. 2. Transaction Costs: High gas fees are a barrier for many users, particularly in developing regions. SKALE's gas-free environment allows for zero-cost transactions, making UNIT accessible and attractive to a broad user base. 3. Cross-Chain Interoperability: Users often need flexibility in choosing which blockchain to utilize for different transactions. UNIT Token solves this by providing a cross-chain bridge between Ethereum and SKALE, allowing seamless token transfers.

Core Components of UNIT Token

1. Blockchain Architecture

UNIT Token operates on a dual blockchain architecture, utilizing both Ethereum and SKALE networks. Ethereum is leveraged for its robust DeFi ecosystem, while SKALE provides a high-throughput, gas-free environment ideal for in-game and metaverse interactions. • Ethereum Integration: UNIT Token is implemented as an ERC-20 token on Ethereum, enabling compatibility with major DeFi protocols such as Uniswap for liquidity provision and token swapping. • SKALE Integration: The SKALE network offers a scalable sidechain solution with no transaction fees, making it perfect for in-game transactions and frequent micro-transactions that would otherwise be prohibitive on Ethereum.

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2. Cross-Chain Bridge

The cross-chain bridge between Ethereum and SKALE provides interoperability for UNIT Token, allowing users to transfer tokens between the two networks seamlessly. This functionality is critical for giving users the flexibility to choose the network that best meets their needs, whether for liquidity trading on Ethereum or for in-world interactions on SKALE. The cross-chain bridge is based on a hashlock mechanism that ensures secure, atomic transfers between blockchains. This mechanism leverages cryptographic primitives, such as hash functions and time locks, to enforce the conditions of the transfer. The protocol utilizes HTLC (Hashed Time-Locked Contracts) to ensure the transfer is completed securely, or the funds are returned to the sender. • Hashlock Audit: The UNIT Token's cross-chain bridge underwent an extensive audit by Hashlock, a leading blockchain security firm. The audit focused on potential vulnerabilities related to the cross-chain bridging mechanism, including the security of hashlocks and time locks. The findings indicated that the implementation was secure against common threats such as replay attacks, man-in-the-middle attacks, and unauthorized fund access. Additionally, the audit recommended further optimizations to the efficiency of Merkle proofs, which are used to validate cross-chain transactions.

3. Smart Contract Architecture

UNIT Token's smart contract architecture is built using Solidity and follows best practices for secure and scalable code. The architecture is composed of multiple modules that provide the token's core functionalities, including liquidity management, access control, and interoperability. • Upgradability: The contracts leverage the OpenZeppelin upgradable library, allowing for modifications and improvements without redeployment. This ensures that UNIT Token can adapt to future changes in blockchain technology or address any unforeseen vulnerabilities. • Access Control: Implemented via OpenZeppelin's AccessControl module, this feature ensures that critical functions are restricted to designated roles, such as admin, manager, and upgrader roles. This fine-grained control reduces the risk of unauthorized actions. • SafeMath for Secure Arithmetic: The smart contract utilizes SafeMath, a library that ensures the safety of arithmetic operations, preventing common issues like integer overflow and underflow. This provides an extra layer of security, ensuring that transactions and calculations are processed reliably without vulnerability to arithmetic errors.

4. Liquidity and Tax Mechanisms

UNIT Token includes features designed to promote market stability and ensure liquidity: • Liquidity Management: A portion of transaction fees is directed towards adding liquidity to Uniswap pools, enhancing market stability and reducing price volatility. The smart contract automates liquidity provision by converting a percentage of each transaction into liquidity provider tokens, which are then staked in Uniswap pools. • Buy and Sell Tax Structure: An adaptive tax rate on transactions helps deter automated trading bots and funds treasury initiatives like development and in-game rewards.

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Initially, the tax rate is set at a higher level to prevent market manipulation, and over time, the rate is adjusted to a sustainable level.

5. Decentralized Ecosystem Evolution

UNIT Token fosters an ecosystem where all participants have an opportunity to contribute to the evolution of the platform through active engagement. Community members are encouraged to propose improvements, new features, and other contributions to the ecosystem's growth. It is important to note that UNIT Token holders do not have voting rights or governance powers. UNIT Token is not a security, and ownership of UNIT does not represent company ownership or voting power. Instead, community feedback is welcomed and integrated into the platform's development through non-binding community discussions.

Tokenomics, Legal Considerations, and Conclusion

Tokenomics

The total supply of UNIT Token is capped at 250 million, split between the Ethereum and SKALE blockchains. This dual blockchain approach provides flexibility and enhances cross-chain functionality, allowing participants to bridge UNIT Tokens between Ethereum and SKALE seamlessly. The token distribution is designed to support the long-term sustainability of TCG World's economy.

Adaptive Tax System:

The buy and sell tax for UNIT is adaptive, initially set at a higher rate upon launch to deter speculative trading and automated bot activity. This higher tax rate helps stabilize the market by preventing early manipulation and ensuring a fair launch for all participants. Funds collected through taxes will be strategically used for ecosystem development, including gameplay incentives, liquidity management, and funding for in-game rewards. Over time, as the ecosystem matures, the adaptive tax rate will be gradually reduced, with the goal of ultimately achieving a stable 2% tax rate for sustainable, long-term economic growth.

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Treasury Allocation and Ecosystem Development:

The UNIT treasury is built from the adaptive tax system rather than allocating a pre-minted reserve. The treasury will be used to reinvest into the ecosystem by funding strategic initiatives, marketing, ecosystem growth, and community rewards. The emphasis is on fostering an organic, community-driven economy where all tokens in circulation are used to directly support users and in-game activities, rather than for fundraising purposes.

Token Supply Breakdown:

Unlike many new projects, UNIT Token does not allocate any portion of its supply to a team or advisor reserve. Instead, the entire 250 million supply is dedicated to the community and operational functionality of the TCG World ecosystem. The breakdown is as follows: • Ethereum and SKALE Split: UNIT tokens have a total circulating supply of 250 million, available on both the Ethereum and SKALE networks. Tokens will be bridged between these two networks, ensuring that the total supply remains consistent across both chains. This approach maximizes liquidity and provides users with seamless flexibility for transactions and gameplay. • Community and Ecosystem Rewards: The focus is on community incentives, including rewards for gameplay, active participation in events, and contributing to the growth of the TCG World ecosystem. This ensures that those who actively engage with TCG World are able to earn UNIT Tokens. • Liquidity Management: To ensure market stability and a healthy trading environment, liquidity pools on decentralized exchanges will be continuously supported using part of the funds derived from the adaptive tax. This approach will provide sufficient liquidity for participants wishing to buy or sell UNIT Tokens without significant slippage. The design of the tokenomics for UNIT prioritizes sustainability, community participation, and ecosystem development. By leveraging an adaptive tax and dual blockchain strategy, UNIT aims to create a robust and dynamic economy for TCG World that supports both new users and established community members.

Utility in TCG World

In-Game Currency:

UNIT Token is the primary medium of exchange in TCG World, enabling users to acquire virtual assets such as land, vehicles, enhancements, and other in-game items. This functionality is made possible through an integrated wallet that supports both Ethereum and SKALE assets, providing

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users with a seamless experience. UNIT ensures a unified currency across TCG World, allowing participants to transact without needing multiple different tokens, simplifying the in-game economy.

Participation in Events:

UNIT can be used to participate in exclusive events, tournaments, social activities, and special quests within TCG World, fostering community engagement. These events are governed by smart contracts that manage ticket sales, rewards distribution, and participation metrics, ensuring a fair and transparent process. UNIT can also be used for The Purge Hour game mode, tournament entry, and prize pools for gaming competitions, adding further excitement and competition to the gameplay experience.

Peer-to-Peer Transactions:

Users can trade digital assets directly with each other via the TCG World Marketplace, where all transactions are backed by blockchain technology to ensure transparency and security. The UNIT smart contract includes escrow functionality, ensuring that both parties fulfill their obligations before the assets are exchanged, minimizing risk and building trust between users. Players can list and sell virtual assets such as land, vehicles, NFT-based creatures, and enhancements in a secure, peer-to-peer environment.

Earning Through Gameplay:

UNIT can be earned in TCG World by actively participating in the game. Unlike traditional staking mechanisms, players accumulate UNIT Tokens by completing quests, participating in events, cultivating resources, and engaging in various activities. This play-to-earn model encourages users to immerse themselves in the game and create value through their actions, promoting long-term engagement and sustainability in the ecosystem. Players can also earn in-game items such as tools, collectibles, and special enhancements, which can be listed for sale on the TCG World Marketplace in exchange for UNIT. For example, players can engage in farming activities by planting seeds, growing crops, harvesting, and selling their produce in the marketplace. They can also engage in fishing, catch fish, and sell them, or participate in crafting, where they make unique crafts that can be sold for UNIT. These activities provide various opportunities for players to earn, trade, and monetize their efforts, thereby enhancing engagement and economic participation.

Commercial Real Estate and Advertising:

Virtual landowners, particularly those with commercial real estate plots (excluding farms), can use UNIT Tokens to establish virtual businesses, entertainment venues, or educational centers. These

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landowners have the opportunity to advertise within TCG World by purchasing in-game ad space with UNIT Tokens, creating marketing opportunities for both in-game activities and real-world businesses. This feature enhances the value of UNIT Tokens by providing a utility for virtual advertising and commercial operations within the metaverse.

Access to Exclusive Content:

UNIT provides access to exclusive events, premium content, and special in-game features within TCG World. Players can use UNIT Tokens to participate in private events, such as shows or unique tournaments, creating a premium experience that incentivizes token usage. Exclusive items, including special vehicles, upgraded tools, or rare creatures, can also be purchased only with UNIT Tokens, giving holders unique benefits within the game.

Resource Management and Crafting:

UNIT can be used to acquire and manage in-game resources for crafting new items, upgrading properties, and maintaining equipment. Players can purchase resources directly or use UNIT to trade for raw materials, which can then be crafted into valuable items that may also be sold on the marketplace. Activities such as mining for resources, gathering materials, and refining them into high-value items provide additional layers of engagement, allowing players to create unique, marketable products that contribute to the in-game economy.

Guilds and Collaborative Ventures:

UNIT can also be used to create or join guilds within TCG World. Guilds may have pooled resources and communal goals, such as establishing large-scale projects or competing in guild-specific challenges. Players can contribute UNIT Tokens to help fund guild activities, infrastructure, or special group-based quests, creating incentives for collaboration and shared success. Guild members can also collectively invest in commercial real estate or unique land plots, furthering their reach and influence within the TCG World Metaverse. The design of UNIT’s utility within TCG World is aimed at maximizing user engagement, fostering a player-driven economy, and providing both individual and group opportunities to benefit from the token's use. By expanding the use cases and integrating UNIT into multiple aspects of the gameplay experience, TCG World ensures that UNIT serves as an essential and versatile asset within the ecosystem.

Technical Features

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ERC-20 Compliance: UNIT is an ERC-20 compliant token, ensuring compatibility with a wide range of wallets, decentralized applications, and exchanges. This compliance also allows for seamless integration with DeFi protocols such as Uniswap. The ERC-20 standard defines the fundamental functions of the token, including: • totalSupply: Returns the total supply of UNIT. • balanceOf: Returns the balance of a specific address. • transfer: Transfers tokens from the sender to a recipient. • approve: Allows a spender to withdraw tokens from the owner's account multiple times, up to a specified value. • transferFrom: Enables a spender to transfer tokens on behalf of the owner. • allowance: Returns the remaining number of tokens that a spender is allowed to withdraw from the owner.

Contract Security

Security is paramount in UNIT's design, with multiple layers of protection: • Smart Contract Audits: UNIT contracts have undergone extensive third-party audits, ensuring compliance with industry security standards. The Hashlock audit specifically evaluated potential vulnerabilities, including reentrancy attacks, integer overflows, and underflows, and verified the integrity of cross-chain functionalities. • Bug Bounty Program: An active bug bounty program incentivizes developers to identify and report vulnerabilities. Participants in the program can earn rewards for finding bugs, contributing to the security of the network. Hashlock Audit Analysis: The Hashlock audit report is a crucial document that establishes the security credentials of UNIT. The audit focused on the following key areas: • Reentrancy Protection: The audit ensured that all smart contract functions were protected against reentrancy attacks by utilizing OpenZeppelin's ReentrancyGuard library, preventing malicious actors from exploiting repeated contract calls to drain funds. • Integer Overflow and Underflow: The contracts utilize SafeMath, a library that automatically checks arithmetic operations to prevent overflows and underflows, ensuring that numerical operations remain within acceptable limits. • Cross-Chain Security: The cross-chain bridge was evaluated for potential vulnerabilities related to transaction replay and data manipulation. The implementation of Merkle proofs and cryptographic Hashlocks ensures that transactions are secure and only processed once, preventing double-spending and replay attacks. • Time-Locked Security: The use of Hashed Time-Locked Contracts (HTLCs) adds a layer of time-based security, ensuring that cross-chain transactions either complete within a specified time or are automatically reverted. This prevents funds from being locked indefinitely. • Role-Based Access Control: The audit confirmed that the role-based access control mechanisms effectively restrict sensitive functions to authorized roles, reducing the risk of unauthorized actions or privilege escalation.

Advanced Smart Contract Functionalities

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Automatic Liquidity Management: Smart contracts manage a portion of taxes to provide liquidity to Uniswap pools, maintaining a stable market. The automated liquidity mechanism uses algorithms to determine the optimal timing for liquidity injections, preventing sudden price fluctuations.

Cross-Chain Bridge Security

The cross-chain bridge facilitates secure token transfers between Ethereum and SKALE by employing advanced cryptographic protocols. It uses Merkle proofs to validate transactions across different blockchains, ensuring that data integrity is maintained. Additionally, multisignature wallets are part of the backend bridge security, adding resilience and reducing the risk of unauthorized actions.

Merkle Proofs and Verification:

Merkle proofs are a core component in ensuring data integrity within the cross-chain bridge. Each transaction is represented as a leaf in a Merkle tree, and Merkle proofs allow the bridge to verify that a particular transaction is part of the blockchain without needing to download the entire chain. This enhances the security and efficiency of cross-chain operations, ensuring that transactions are valid and have not been altered.

Multisignature Wallets for Bridge Operations:

The bridge employs multisignature wallets to secure the backend operations of the cross-chain bridge, such as managing liquidity or performing updates. This means that any critical action related to the bridge’s liquidity or security must be approved by multiple, independent parties. This mechanism ensures that no single entity can unilaterally execute sensitive transactions, adding a layer of protection to the bridge itself. It is important to note that individual token holders do not require multisignature approval when bridging their UNIT tokens between Ethereum and SKALE; this process is user-friendly and can be done independently by each user. The multisignature feature is purely a backend security measure designed to maintain the integrity and safety of the bridge's infrastructure.

Economic Model

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The UNIT Token's economic model is designed to promote ecosystem growth and community engagement: • Treasury Management: The treasury is responsible for reinvesting tax proceeds into the ecosystem, including funding new features, marketing campaigns, and community initiatives. The treasury operates under a multi-signature wallet, ensuring that no single party can unilaterally make decisions regarding fund allocation. Funds are utilized strategically to promote ecosystem growth, support community initiatives, and enhance the player experience.

Conclusion

UNIT is the driving force behind the economy of TCG World, designed to seamlessly integrate into an evolving metaverse that will transform the way we interact, build, and create value. With its dual blockchain architecture, UNIT offers flexibility and scalability, ensuring a seamless user experience and paving the way for mainstream adoption. Its thoughtfully designed economic model, paired with robust security and continuous improvements, provides a sustainable foundation for users, developers, and enterprises within TCG World. The journey of TCG World is just beginning, and the opportunities for early participants are vast. Whether you seek to be part of the next generation of digital economies, are a developer looking for fertile ground to innovate, or a player eager to experience an expansive and engaging virtual world, UNIT opens the door to limitless possibilities. Now is the time to join the TCG World metaverse, acquire virtual land, shape new ventures, and help build a player-driven ecosystem that redefines digital ownership and economic opportunity. TCG World is at the forefront of the metaverse evolution, creating a vibrant virtual society where creativity, community, and commerce come together. At the core of this experience is UNIT, empowering every interaction, transaction, and possibility within TCG World. Become part of this transformative journey and help shape a digital future where virtual experiences seamlessly merge with real-world value to unlock limitless potential and redefine what is possible.

Glossary

1. AccessControl: A mechanism implemented via OpenZeppelin's AccessControl module that manages permissions for smart contract functions. It allows critical functions to be restricted to specific roles (e.g., admin, manager, upgrader), enhancing security by limiting who can execute certain actions within the UNIT Token smart contract. 2. Audit: A systematic examination of a system, process, or organization to evaluate its effectiveness, compliance with regulations, and identify areas for improvement. In the context of TCG World, an audit refers to the thorough review of smart contracts and blockchain infrastructure to ensure security and functionality. 3. Blockchain: A distributed ledger technology that records transactions across a network of computers. TCG World uses blockchain technology to ensure the security, transparency, and ownership of digital assets

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within the game. 4. Cross-Chain Bridge: A mechanism that allows the transfer of assets between different blockchain networks, such as Ethereum and SKALE. This enhances interoperability and allows players to use their assets seamlessly across different platforms in TCG World. 5. Cross-Chain Bridge Security: A set of protocols used to transfer digital assets between different blockchain networks. In UNIT Token, cross-chain bridges between Ethereum and SKALE use advanced cryptographic mechanisms like Merkle proofs and hashlocks to maintain the security and integrity of transactions across different blockchains. 6. Data-Oriented Technology Stack (DOTS): A set of technologies in Unity's game engine that focuses on data-oriented design principles, enabling high-performance and scalable game development. DOTS allows TCG World to handle complex simulations and large numbers of concurrent players efficiently. 7. Decentralized Application (dApp): An application that runs on a decentralized network, utilizing blockchain technology to operate without a central authority. TCG World functions as a dApp, providing a decentralized gaming experience where players have control over their assets and interactions. 8. Decentralized Finance (DeFi): A financial ecosystem based on blockchain technology that operates without central intermediaries, allowing users to engage in financial transactions directly. TCG World's use of UNIT as an in-game currency brings DeFi functionality to the metaverse. 9. Dynamic Digital Assets: Digital items within TCG World that can evolve, grow, or be upgraded based on player actions. These assets have real utility within the game and can represent entities like vehicles, creatures, properties, and tools. 10. EVM (Ethereum Virtual Machine): A virtual computing environment that enables developers to create and deploy smart contracts on the Ethereum blockchain. TCG World leverages EVM compatibility for smart contract functionality and interoperability across different chains. 11. Ethereum: A decentralized, open-source blockchain featuring smart contract functionality. TCG World utilizes Ethereum to provide a secure foundation for managing digital assets and in-game transactions. 12. Gas Fees: Transaction fees required to process and validate transactions on a blockchain network. In TCG World, gas fees may apply when performing certain actions on the blockchain, such as transferring assets or executing smart contracts. 13. Guild: A group of players who come together in TCG World to collaborate, pool resources, and achieve shared objectives. Guilds can establish joint projects, participate in group quests, or build communal properties within the metaverse. 14. Hashed Time-Locked Contracts (HTLCs): A type of smart contract used to facilitate secure, atomic cross-chain transactions. HTLCs involve a time limit and a cryptographic hash to ensure that transfers complete successfully or revert automatically if the conditions are not met, adding security to cross-chain bridges. 15. Hashlock: A company specializing in blockchain and Web3 security audits. Hashlock conducted a comprehensive audit of TCG World's smart contracts and blockchain infrastructure to ensure security and reliability. 16. Layer 2 Solution: A secondary framework or protocol built on top of an existing blockchain to improve scalability and efficiency. SKALE serves as a Layer 2 solution for TCG World, enhancing transaction speeds and reducing costs. 17. Merkle Proof: A cryptographic proof used in blockchain to verify data integrity. Merkle proofs allow efficient verification that a particular piece of data belongs to a larger set without downloading the entire set. This is used in UNIT's cross-chain bridge to validate transactions between Ethereum and SKALE. 18. Metaverse: A collective virtual space where users can interact with each other and the environment in real time. TCG World represents a metaverse that combines elements of gaming, social interaction, commerce, and digital ownership. 19. Multisignature Wallet: A type of cryptocurrency

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wallet that requires multiple private keys to authorize a transaction, enhancing security. In TCG World, multisignature wallets are used for critical operations, ensuring that no single party can unilaterally execute high-risk transactions. 20. Non-Fungible Token (NFT): A unique digital asset that represents ownership or proof of authenticity of a specific item or piece of content on the blockchain. In TCG World, NFTs can represent unique in-game items, properties, or collectibles that players can own, trade, or sell. 21. Persistent World: A virtual environment that retains changes and player interactions even when players are not actively online. In TCG World, this means that player-created structures, cultivated resources, and other contributions remain and evolve over time. 22. Play-to-Earn (P2E): A model where players can earn in-game rewards, such as UNIT tokens or digital assets, through participation in gameplay activities. In TCG World, players can accumulate assets through farming, completing quests, or other activities, and then trade or sell those assets for profit. 23. SafeMath: A Solidity library that helps prevent common mathematical errors such as integer overflow and underflow by providing safe arithmetic operations for smart contracts. UNIT's smart contracts use SafeMath to ensure security and reliability in token calculations and transactions. 24. SKALE: A scalable blockchain network that integrates with Ethereum, designed to enhance performance and reduce transaction costs. SKALE is employed in TCG World to improve the scalability and efficiency of in-game operations. 25. Smart Contract: A self-executing contract with the terms of the agreement directly written into lines of code. Smart contracts are used in TCG World to manage transactions and in-game activities securely and transparently. 26. Sprites: Unique digital creatures that players can capture, train, and evolve within TCG World. Sprites serve as valuable companions, aiding in exploration, combat, and achieving specific in-game objectives. 27. UNIT: The primary in-game currency of TCG World, facilitating transactions within the metaverse. UNIT allows players to purchase land, participate in events, trade assets, and access exclusive content, creating a seamless gateway into decentralized finance. 28. Virtual Land: Parcels of digital land in TCG World that players can purchase, own, and develop. Virtual land can be customized for residential, commercial, or social use, serving as a foundation for player-created experiences.

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Legal Disclaimer

This whitepaper is for informational purposes only and does not constitute an offer to sell, a solicitation of an offer to buy, or a recommendation to purchase UNIT or other assets. The UNIT Token is a utility token intended solely for use within the TCG World Metaverse and is not intended to constitute a security, financial instrument, or investment in any jurisdiction. Participation in the UNIT Token ecosystem should be done at your own risk, after careful consideration of the associated risks and your own circumstances.

Not a Security, No Governance, or Ownership Rights

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The UNIT Token is a utility token intended solely for use within the TCG World Metaverse and is not a security or financial instrument under any applicable securities laws. Holding UNIT Tokens does not confer any form of ownership, stake, share, or voting rights in TCG World or any affiliated entity. UNIT Token holders are not entitled to dividends, profit-sharing, voting rights, or any other rights commonly associated with securities or equity ownership. The UNIT Token's purpose is exclusively to provide access to and facilitate interactions within the TCG World Metaverse, enabling users to participate in transactions, purchase virtual assets, and engage in in-game activities. Nothing in this document should be construed as a promise of future profits or returns, nor should it be seen as an invitation to make an investment with an expectation of gain. Participants should carefully assess their personal goals, risk tolerance, and circumstances before choosing to engage with the UNIT Token ecosystem. UNIT is not designed for speculative purposes and should be used only for its intended utility within TCG World.

Jurisdictional Restrictions

The purchase, sale, or use of UNIT Tokens may be subject to legal restrictions in certain jurisdictions. It is the responsibility of each participant to understand and comply with any local laws or regulations that may be applicable to them. The UNIT Token may not be available for purchase or use in jurisdictions where it is prohibited by applicable law. By purchasing or using UNIT Tokens, you represent and warrant that you are legally permitted to do so in your jurisdiction.

Forward-Looking Statements

This whitepaper may contain forward-looking statements, including anticipated developments, future milestones, and goals. These statements are based on current expectations and are subject to uncertainties, risks, and changes that may occur in the future. Such forward-looking statements are not guarantees of future performance, and TCG World disclaims any obligation to update these statements if circumstances change.

No Financial Advice

The information contained in this whitepaper does not constitute financial, investment, tax, or legal advice. It is intended to provide general information about the UNIT Token and the TCG World Metaverse. You should consult your own advisors before making any decisions regarding participation in the UNIT Token ecosystem. Neither TCG World nor any of its affiliates accepts any liability for any loss or damage, direct or indirect, arising from reliance on this document or participation in the UNIT Token ecosystem.

Risk Acknowledgment

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Participation in the UNIT Token ecosystem involves significant risk, including but not limited to the potential loss of value, market volatility, and technical risks associated with blockchain technology, such as smart contract vulnerabilities, system failures, and the inherent risks of digital assets. Participants should carefully evaluate their risk tolerance before purchasing or using UNIT Tokens. TCG World makes no guarantees regarding the price, liquidity, or future value of UNIT Tokens.

Technology Risks - Smart Contract Failures

UNIT Token operates using blockchain technology, which includes smart contracts that may have vulnerabilities or fail to function as intended. These failures could impact the availability or functionality of UNIT Tokens and may result in a loss of value. TCG World makes no guarantees regarding the flawless operation of smart contracts and advises participants to understand these risks before engaging with the ecosystem.

Regulatory Changes

Regulatory changes or actions may impact the UNIT Token, TCG World, or participants' ability to engage with the platform. Such changes are beyond the control of TCG World, and TCG World assumes no liability for any resulting effects on the availability, value, or use of UNIT Tokens.

Data Privacy

Participation in the UNIT Token ecosystem may involve the collection and use of personal data. Any personal information collected will be handled in accordance with TCG World's privacy policy. By participating, you consent to the collection, use, and processing of your data as described in our privacy policy.

Tax Obligations

Participants are solely responsible for determining and complying with any tax obligations applicable to their purchase, holding, or use of UNIT Tokens. TCG World does not provide tax advice, and participants are advised to consult with a qualified tax professional regarding their specific tax situation.

No Partnership or Agency

Holding UNIT Tokens does not constitute any form of partnership, agency, or fiduciary relationship between the holder and TCG World or any affiliated entities. The purchase or use of UNIT Tokens

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does not create any obligation or liability on the part of TCG World beyond the intended use of the token within the TCG World Metaverse.

Force Majeure

TCG World shall not be liable for any delays or failures in performance resulting from circumstances beyond its reasonable control, including but not limited to natural disasters, governmental actions, acts of terrorism, network or internet failures, or other unforeseen events. Such events may impact the availability or functionality of the UNIT Token ecosystem.

No Liability

TCG World, its officers, directors, employees, and affiliates shall not be held liable for any direct or indirect loss, damages, or expenses arising from participation in the UNIT Token ecosystem or reliance on the information contained in this whitepaper. All participants are advised to conduct their own due diligence and proceed with caution when acquiring digital assets.

Token Utility and Limitations

The UNIT Token is intended solely for use within the TCG World Metaverse. There is no guarantee that UNIT Tokens will hold any value outside of this ecosystem or have any marketable resale value. The utility of the token is limited to the intended services within TCG World, and participants should not expect any form of financial return or profit from holding the token.

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UNIT Token as a Digital Collectible

UNIT is a digital collectible designed exclusively for use within the TCG World Metaverse. It does not possess intrinsic value and should not be considered an investment, security, or financial instrument. Ownership of UNIT does not confer any rights to profits, dividends, or financial returns.

Digital Assets as Collectibles

All digital assets within TCG World—including land, vehicles, avatars, and other NFTs—are classified as digital collectibles. These assets lack intrinsic value and do not represent ownership of real-world property or financial instruments. They are intended for entertainment and functional use within the

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TCG World Metaverse. Users should not expect financial gain from acquiring these digital collectibles.

User Acknowledgment

By participating in TCG World and acquiring UNIT or other digital assets, users acknowledge and accept that these items are digital collectibles without intrinsic value. Users should engage with these collectibles for personal enjoyment and in-game utility, without any expectation of financial return.

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