The Indian Journal for Research in Law and Management

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Editor-in-Chief – Dr. Muktai Deb Chavan; Publisher – Alden Vas; ISSN: 2583-9896

SMART CONTRACTS IN THE METAVERSE

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A vast virtual universe mimicking the real one, the metaverse offers a rich and interactive environment for its users to engage in virtual activities similar to those undertaken in the real world. The users may access the virtual world through their own 3D customized avatars and engage in virtual gaming, exchange of digital assets, social networking and collaboration. There are 3D models of real entities from the world, such as stores, conference rooms and buildings created in a virtual landscape.

Smart contracts play a crucial role in the metaverse as they provide security and automation for the execution of agreements, enabling transactions and eliminating intermediaries. These self-executing contracts on a blockchain ensure confidence and transparency in digital transactions, which makes them ideal for managing virtual property rights, executing secure transactions and automating various activities within the metaverse.

Centralized v Decentralized Metaverse

In a centralised metaverse, singlehandedly administered by one entity, the users must comply with the internal servers, terms, rules and restrictions of that metaverse. To access Facebook and Microsoft's centralised metaverse initiatives, for instance, individuals must surrender their data and trust these companies. Users are confined to operating within the boundaries of the specific metaverse they log into in such systems, restricting their ability to communicate with other users in parallel metaverses or engage in intraplatform activities such as trading and exchanging.

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Conversely, the goal of a decentralized metaverse is to solve the interoperability problems that come with centralised metaverses. This idea aims to create an open-source environment with linked virtual worlds that are controlled by smart contracts. These contracts contain restrictions that allow users to enjoy cross-metaverse trading without worrying about compliance. A Decentralized Autonomous Organisation (DAO) is used to run a blockchain based metaverse unlike by one entity like in a centralized metaverse.

Through smart contracts, the users can be involved in voting, governance, and other important functions, developing a democratic and user-run virtual world. Decentralized metaverse promises a transparent, safe and connected digital arena where people have the power and control over their virtual interactions and transactions by using blockchain and smart contracts.

Role of Smart Contracts in the Metaverse

Smart contracts are another important technology that will revolutionize the way people interact and do business in the metaverse. Smart contracts are self-executing contracts deployed on the blockchain technology. They eliminate third parties by automatically enforcing the rules and carrying out the penalties or actions when certain conditions are met.

Smart contracts make transactions within the metaverse more efficient and trusted by simplifying processes and removing unnecessary negotiations and intermediaries. Using smart contracts also ensures transparency and security. All steps performed are permanently visible and immutable because they are executed on the blockchain, reducing fraud risks and building user trust. In the metaverse, virtual assets and digital identities are constantly created and transferred which makes transparency and security crucial.

Since smart contracts are automated, they ensure that the agreed terms are carried out timely, accurately and properly by the parties in agreement unlike the traditional existing systems. This is useful in numerous cases, especially when the transaction speed is important like in e-Commerce within the metaverse. As manual processing is discarded, so is the possibility for human error.

Running smart contracts incurs low maintenance costs. They are highly attractive for developers and enterprises as they enable rapid development and cost-effective operation of various metaverse projects. By eliminating the middleman in the process, a lot of resources and costs are saved allowing the money to be regenerated and utilized in other fields to improve the experience.

Smart contracts can regulate and stabilize metaverse activity by the imposition of rules and conditions which are agreed upon making sure there is reliability and fair operation for all the users. By automating governance and compliance tasks, like property deeds, rentals and virtual asset and intellectual property management, a user-friendly experience is promised to everyone. This simplifies the workflow as well as makes sure that all parties follow the conditions without the need for a human to monitor and enforce compliance.

To create a secure virtual platform, integrating smart contracts in the metaverse is a necessity. These smart contracts, which are self-executing are the base for the blockchain-based interactions and ensure that the metaverse operates smoothly and fairly for all its users.

FAT Contracts

Feature-Advanced Transactions contracts, or FAT contracts, are a development in the field of smart contracts and blockchain technology. These contracts incorporate intricate computing operations and integrate services that might not run on a blockchain, hence expanding the capabilities of standard smart contracts. The blockchain technology can be applied to more complex systems like the metaverse itself via FAT contracts.

FAT contracts have pre-determined terms and conditions which helps users seamlessly trade across metaverse products in the metaverse. Smart contracts are deployed on the blockchain and operated by miners, but what distinguishes them from typical internet applications is that operations cannot be retracted. The outputs of operations are non-revocable since all prior input is recorded and verified on the blockchain. This means that smart contracts are ideal for introducing non-fungible tokens (NFTs), or digital financial crypto tokens, that provide protection and trust in online transactions.

However, smart contracts aren’t without drawbacks, especially in the metaverse. The metaverse introduces more advanced computing responsibilities than merely maintaining NFT ownership and account balances. Examples include game server logic and rendering. While characters or in-game tokens can be stored on the blockchain, centralized servers are often still used to power the decentralized world.

FAT contracts eliminate these shortcomings by acting more like traditional internet applications while maintaining the decentralized and trust less properties of blockchain technology. They allow

for low latency, high performance, anonymity, and reusability of existing services, which are not necessary blockchain based. FAT contracts can perform game server logic and render it like in the game ‘Decentraland’, where land deeds and related transactions are managed by smart contracts. Decentralizing real-time game mechanics and interactions using FAT contracts could enhance the gaming experience. Allowing complex, real-time compute intensive processes, FAT contracts are a significant advancement in blockchain tech that bridges the gap between the centralized and decentralized world.

Smart contracts are a prerequisite for the metaverse. They lay the groundwork for safe, open and efficient exchanges. With the ability to regulate and automate, stability and growth in the digital realm is a guarantee irrespective of it being centralized or decentralized. As the idea and concept of metaverse evolves, smart contracts and blockchain technology will be leading the process through innovation and transformation of interaction.