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Layer 2 platforms: an emerging blockchain ecosystem

The blockchain technology has rapidly gained popularity in recent years. So-called Layer 2 solutions are designed to increase the speed and efficiency of blockchain transactions while maintaining decentralization. The rapid rise to a market with daily transaction volumes in the triple-digit millions proves the legitimacy of these technologies.

One of the most significant innovations in the blockchain space is smart contracts: self-executing contracts based on blockchain technology that are automatically executed when certain conditions are met.

Smart contract-enabled blockchains emerged with the introduction of Ethereum in 2015. Since then, they have evolved through the emergence of additional platforms and have become an important tool for the decentralization of applications and transactions.

Blockchains that allow the integration of smart contracts have a broad range of applications, ranging from finance to identity management and supply chain tracking. They enable secure, transparent, and decentralized transactions.

However, with the increasing popularity of blockchain platforms and smart contracts, some challenges have also emerged regarding scalability and transaction speed. Ultimately, a compromise must be found between security, decentralization, and scalability - a property of the technology known as the "blockchain trilemma."

New technological innovations

Layer 2 solutions are technologies that build on existing blockchain networks and aim to increase their performance and efficiency. They enable faster transaction speed and reduce the fees typically associated with transactions on the blockchain. Layer 2 solutions achieve this by shifting a portion of

transaction processing to a separate second layer to reduce the load on the main blockchain. Some of the most well-known Layer 2 solutions include the Lightning Network for Bitcoin and Optimistic Rollups for Ethereum.

Lower fees allow for new use cases

Several use cases have been established on blockchains such as Ethereum, including decentralized financial applications (DeFi), non-fungible tokens (NFTs), and payment processing solutions. However, some areas, such as derivatives trading, micropayments, and gaming, struggle with broad adoption due to high transaction fees that make these applications economically unfeasible.

Layer 2 solutions provide these sectors with access to the blockchain ecosystem for the first time in a decentralized environment. It is no coincidence that there are now more transactions taking place on Layer 2 platforms than on the Ethereum main chain.

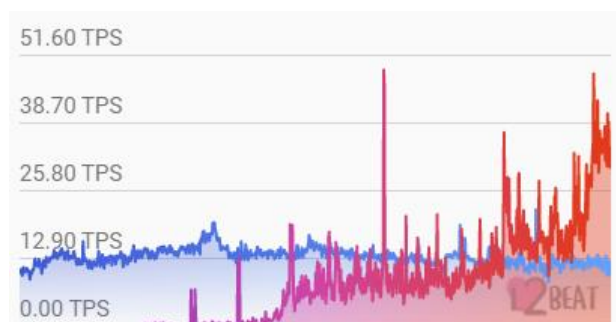


Figure 1: Transactions per second on Ethereum (blue) versus Layer 2 platforms (red) since 2020 | Source: L2Beat



With a daily transaction volume of sometimes over one billion USD, these platforms have established themselves as serious additions to the blockchain ecosystem despite being in their early stages.

Own ecosystems thanks to native tokens

The native tokens of these Layer 2 protocols are crucial to enabling benefits and creating new opportunities. Tokens are often created through airdrops, a method of distributing tokens to existing users of the platform.

They can serve as governance tokens, allowing holders to vote on the development and future of the protocols. By introducing their own tokens, projects and platforms can also create unique value and incentives for their users, leading to the emergence of new ecosystems.

A prominent example of such ecosystems is the area of decentralized finance (DeFi). DeFi is a rapidly growing space, with traditional financial services such as loans, trading, and other financial applications being replicated on the blockchain.

Arbitrum, a Layer 2 scaling solution for Ethereum, is now considered a preferred platform for DeFi applications. This has led to a significant increase in Total Value Locked (TVL). TVL is an important indicator that measures the capital locked up in a DeFi ecosystem. Improvements in transaction speed and cost efficiency have led numerous derivative platforms to settle on Arbitrum, whose functionality on other blockchains would have suffered from slow and expensive user experiences.

Optimism is another promising Layer 2 scaling solution for Ethereum, also based on Optimistic Rollups. Similar to Arbitrum, Optimism aims to increase transaction speed and reduce fees, ensuring a better user experience and scalability for applications.

The native token-based Ethereum scaling solutions Arbitrum and Optimism now have a TVL of over 8 billion USD in deposited assets.



Figure 2: Total Value Locked (TVL) on Layer 2 solutions since 2019 | Source: L2Beat