Ethereum vs Solana: Networks Compared

The ecosystems of Ethereum and Solana are two of the most well-known blockchains that are frequently compared, yet many people are unaware of the differences they possess.

The consensus process used by Solana and Ethereum is different, as Proof of Work (PoW) is used by Ethereum, which results in a more decentralised network with less scalability. Solana uses Proof of History (PoH), which is less secure but more efficient, resulting in transactions that are fast and low-cost.

While both blockchains have their supporters, Ethereum is the clear winner as a blockchain that provides a far more transparent and mature ecosystem of DApps. However, the great features offered by Solana should not be overlooked, and there are significant differences between the two that must be considered.

In this article, we will look at the major distinctions between the two blockchains, while also examining the underlying technology and key characteristics of each blockchain.

What is Ethereum?

Ethereum is a decentralised blockchain technology that creates a peer-to-peer network for securely executing and verifying smart contract code. Participants can transact with one another without relying on a trusted central authority.

Ethereum provides everyone, regardless of background or location, with open access to digital money and data-friendly services. It's the technology that powers the cryptocurrency ether (ETH) and thousands of other apps available today.

Ethereum, which was founded in 2013, provides a highly flexible framework for developing decentralised applications utilising the native Solidity scripting language and the Ethereum Virtual Machine. Decentralized application developers that use Ethereum to create smart contracts benefit from the robust ecosystem of developer tools and well-established best practices that have accompanied the protocol's maturation.

What is Solana?

Solana is a highly functional open source project that develops a new layer-1 blockchain that is permissionless and fast. Solana was founded in 2017 by Anatoly Yakovenko, a former

Qualcomm executive, with the goal of scaling throughput beyond what is currently possible with popular blockchains while also keeping transaction prices low.

Solana is a high-performance decentralised blockchain that was created with the purpose of allowing user-friendly applications to scale.

This blockchain network is regarded to have one of the world's fastest-growing ecosystems, with thousands of projects spanning Defi, NFTs, Web3, and beyond, second only to Ethereum.

The Solana blockchain is noted for its lightning-fast and low-cost transactions, thanks to its scalability, which keeps all transactions under $0.01 and transaction speeds under 400 milliseconds per block.

Ethereum and Solana Networks Breakdown

The two blockchain networks are clearly distinct, despite some similarities, as evidenced by the definitions above.

However, below are some of the characteristics of a blockchain network in which the Ethereum and Solana networks differ.

Consensus mechanism

The consensus techniques used by both the Ethereum and Solana networks are fundamentally different. Solana uses the Proof of History (PoH) consensus mechanism, whereas Ethereum uses the Proof of Work (PoW) consensus mechanism.

Proof-of-Work, which is also used by bitcoin, is the technique that lets the decentralised Ethereum network reach a consensus, or agree on things like account balances and transaction sequence. This prohibits users from "double spending" their currencies and makes the Ethereum network extremely difficult to hack or control by a single entity.

Solana, on the other hand, uses the Proof of History (PoH) protocol to tackle the issue of time agreement by using a cryptographic method to construct a trustworthy ordering of transactions/events recorded to the 'ledger.'

Levels of security

The Ethereum network is safer from a security standpoint. Proof-of-work has proven to be the most effective means to preserve consensus and security in a distributed public network, as it involves an initial investment in hardware as well as continuous resource expenditures, rather than a single upfront cost to join in other consensus processes.

Unlike PoW, Proof of Stake and Proof of History is slightly less safe due to the fact that their security is established by individuals rather than mathematical answers. Validators, on the other hand, are less inclined to betray the system because they have, at least, invested in the coin.

Decentralization

Ethereum continues to be the most diversified and transparent decentralised application ecosystem. However, in order to ensure security, censorship resistance, and an open, transparent monetary policy, Ethereum is decentralised on numerous levels.

The Solana blockchain's proof of history process is less decentralised than PoW, but it also incorporates the Tower Byzantine Fault Tolerance (BFT) algorithm to support its network and existing protocols.

Scalability and efficiency

A blockchain network's scalability refers to its ability to handle a large number of transactions at once. Ethereum can only execute about 13-15 transactions per second, making it a slow blockchain. Although layer-two scaling solutions such as sidechains, Plasma (Polygon), Validium, and rollups (Optimism) make up for what Ethereum's layer-one blockchain lacks in scalability.

On the other hand, a key feature that distinguishes Solana from its competitors is that the blockchain is scalable at its core, meaning it does not require layer-two solutions to develop its scalability. When compared to Ethereum, Solana offers faster transactions at a lower cost, as it can execute up to 65,000 transactions per second (tps).

Transaction Cost

Significant gas fees are always required due to the high computational power required for validating transactions and the massive applications deployed on the Ethereum network.

Solana has a cheaper transaction fee than Ethereum and most other cryptocurrencies. As a result, Solana is an excellent choice for frequent transactions and money transfers.

Closing thoughts

In many ways, Ethereum and Solana are dissimilar, particularly in terms of the underlying technology and consensus process they employ. While Ethereum is now based on PoW, Solana is based on PoH. Solana was launched in 2020, and Ethereum was developed in 2013. Solana promises high-speed and low-cost transactions, whereas Ethereum offers a much more established and decentralised network.

Because the crypto field is constantly growing, we may expect significant growth in the use of these platforms in the future. However, as an investor or crypto enthusiast, you should be aware of a coin's technologies and long-term viability.