

ETH VS Solana(An unbiased comparison)

Solana is often dubbed as the Ethereum Killer. Faster, cheaper, and more scalable – does the new chain have enough things going for it to topple the first-mover Ethereum?

Read on to see how the two chains size up against each other:

Speed

Solana, in theory, can carry about up to [50,000 transactions](#) per second which is higher than VISA (24,000 TPS), and leaps ahead of ETH which can perform around [15 transactions per second](#).

Once ETH 2.0 is fully functional, it is supposed to process around 100,000 transactions per second – but that is yet to be seen.

Solana uses a protocol called Turbine which breaks down the data being transferred between nodes into smaller data packets, increasing speed.

Another big factor that increases the speed of Solana is its consensus mechanism – Proof of History rather than Proof of Stake or Proof of Work used by ETH. This requires less computational power and hence increases speed.

Overall, Solana makes [many other optimizations](#) that compound on one another and vastly increase the speed and efficiency of the blockchain.

Scalability

Solana is definitely more scalable than ETH at the moment. Until Solana, no other chain has come close to being able to replace the financial services industry, which requires low costs and high TPS.

Solana's scalability also incentivizes developers to build on decentralized platforms rather than centralized ones.

While the low scalability of ETH affects and hinders institutional adoption, the 50k+ TPS capacity of Solana could definitely go a long way in winning over institutions.

But nothing is set in stone. With ETH 2.0 rolling out soon, it is yet to be seen whether this temporary advantage that Solana has over ETH translates to a long-term edge.

Network effects

It isn't the network with the best speed and best scalability that wins – but the one with the best network (i.e. community)

Every single app built on Ethereum makes it even more likely that the next one will be built on Ethereum too, especially given the “[composability](#)” of smart contracts.

Given Ethereum's head start, it is yet to be seen if Solana can attract enough developers to build on its chain, which in turn can attract more users, thus expanding the network effects.

Costs

Whereas it costs [~\\$3 today to do a transaction on the Bitcoin blockchain](#), and [~\\$8–40 on Ethereum](#), it costs [\\$0.0001 to do a transaction on Solana](#)

While most people won't mind paying a transaction fee of \$50 for a \$10,000 transaction, it definitely limits the network's ability to attract use cases where there are low value but high volume transactions, such as NFT's and gaming.

The ever-increasing gas fees make NFT transactions costly – which has been instrumental in the widespread adoption of crypto, and this could make a lot of upcoming NFT projects decide to launch on other blockchains, meaning ETH could take a hit (or may already be).

Most importantly, high transaction costs also act as a barrier to entry for a majority of the developing world – hindering widespread adoption.

Degree of Decentralization

Currently, the Solana blockchain is not as decentralized as it could be. For example, the Solana Foundation is the [only developer](#) of its node software, giving it centralized control over the software nodes are running. Moreover, Solana only has ~1,161 validators, compared to Bitcoin which has over 1,000,000 mining nodes.

However, when measuring decentralization using the [Nakamoto coefficient](#) (coined by Balaji Srinivasan), Sol scores higher than BTC or ETH.

This is because even though Ethereum and Bitcoin have more nodes than Solana, Bitcoin and Ethereum also have more “[pools](#)” that have the ability to collude, hence making it less decentralized.

But once again, it is too early to say whether Solana will be more decentralized than Ethereum once Ethereum moves to proof-of-stake.

The tipping point, or the “sweet spot” – the balance between Scalability, Security, and Decentralization – is yet to be achieved for both ETH and Solana.

How much is too much and how much is too little? Time will tell.

While a perfect utopian solution might not exist, there is definitely scope for improvement.

Closing thoughts

At the end of the day – if other chains did really deliver on the promise of “utility”, most people would have shifted to other chains and ETH fees would have already reduced substantially.

But they haven't.

ETH, with all its limitations, is the second-biggest cryptocurrency in the world. It also has a large support base owing to its first-mover advantage.

Simply a promise of scalability isn't enough – other blockchains simply haven't caught up to the network effects of ethereum. Anybody who is knowledgeable about building on Ethereum is well aware of other options but still chooses to build on Ethereum, and that says everything.