

October 23, 2025

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# What is Solana (SOL)?

Explore how this altcoin works.



## Key takeaways

Solana is currently one of the largest altcoins by market cap.

Similar to Ethereum, it allows third-party developers to build apps and smart contracts using its infrastructure.

Supporters praise its speed and low costs, while critics question its reliability and degree of centralization.

Feedback

Solana has long been one of the most hotly debated altcoins. Hardcore supporters hail it as Ethereum's most significant competitor and the future of crypto, while its fiercest critics think it's too centralized and unreliable to make that kind of impact.

Why are opinions so divided? Let's dive into how Solana works.

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### What is Solana (SOL)?

Solana was founded in 2020 by software engineer Anatoly Yakovenko and entrepreneur Raj Gokal, and is one of the largest blockchain networks in the cryptosphere. Its cryptocurrency, SOL, currently ranks in the top 10 cryptocurrencies by market cap.

In recent years, the network has received some mainstream attention, including landing a partnership with a major credit card processor involving stablecoins. It has also become a popular blockchain for [NFT](#) and memecoin projects.

### How does Solana work?

Solana runs on a consensus mechanism that combines the widely used [proof of stake](#) method with its own mechanism, Tower BFT (short for "Byzantine Fault Tolerance"). Remember that proof of stake works a bit like a lottery system where stakers are randomly chosen to validate each ledger on the blockchain (staking is when one voluntarily locks their cryptocurrency in an account that prevents them from doing anything other than holding it).

Meanwhile, Tower BFT uses a timestamp tracking system called proof of history, which creates a tamper-proof record that tracks the details of each transaction. Solana combines the 2 methods to validate blockchain transactions faster than if it were to use just proof of stake or the more traditional [proof of work](#).

As far as the [tokenomics](#) go, the SOL cryptocurrency has an unlimited supply (as opposed to a maximum supply, like [bitcoin's](#) 21 million). It also uses an inflation schedule, which plans how much new supply it wants to create to reward stakers and other participants for using its network. This schedule can be altered if the Solana community (which is made up of Solana token holders, core and third-party developers, validators, and investors, among others) successfully votes in a new proposal.

Like with many other blockchains with unlimited token supplies, Solana aims to balance the potentially negative effects of inflation with a burning mechanism ("burning" essentially deletes units of cryptocurrencies, removing them from circulation and lowering the total supply). However, there is debate in the crypto community over whether its current structure burns enough to fight inflation.

### How is Solana used?

Like Ethereum, Solana allows third-party developers to build blockchain and smart contract applications using its infrastructure. As a cryptocurrency, it can also be used to make transactions and transfer money.

As mentioned earlier, Solana is currently a popular blockchain for memecoins, NFTs, [DeFi applications](#), and stablecoins.

### Potential advantages of Solana

**One of the fastest and cheapest blockchains to use**

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Solana processes roughly 60,000 transactions per minute on average, whereas Bitcoin processes roughly 250 and Ethereum processes roughly 800. Solana's fees can also be as cheap as fractions of a cent per transaction, whereas Bitcoin and Ethereum tend to average at least \$0.50.

Supporters champion Solana's efficiency and argue that this gives it a clear advantage over its competitors. You may hear its most die-hard enthusiasts say it will eventually make Ethereum irrelevant. However, critics argue that there are other blockchain networks that are both faster and cheaper than Solana, which we'll explore further below.

### May be well positioned for future blockchain innovations

Supporters argue Solana's efficiency will continue to make it an attractive platform for emerging blockchain use cases, particularly for facilitating payments, trading, and new blockchain-powered financial products.

One factor that determines the usability of a blockchain is whether it can handle a high volume of transactions at fast speeds. This ability is especially important for the most prominent new developments in digital assets, including stablecoins and real-world asset tokenization (where the ownership of physical assets is tracked and transferred on a blockchain).

Supporters believe Solana's efficiency has already proven itself. In addition to the aforementioned stablecoin partnership with a major credit card processor, the network has also already become a go-to destination for memecoin projects, which require a blockchain capable of handling a lot of transactions very quickly.

## Potential disadvantages of Solana

### A history of outages

In the past, Solana has struggled with reliability and has periodically experienced network outages that have lasted as long as 17 hours. It should be noted they've made some progress in this area, as their last incident was over a year ago in February 2024 (when the network was down for 5 hours). But skeptics point out that other blockchains don't typically experience periodic outages, and believe these incidents cast doubt on whether Solana can dependably support future blockchain innovations.

Solana also isn't exempt from congestion issues. In March 2025, the network became exceptionally slow and essentially unusable for many users after a popular memecoin launch triggered a large surge in usage. These factors have skeptics questioning whether it can truly achieve reliability going forward.

### Too centralized?

One criticism of Solana's operating structure is that it may be more centralized than some of its competitors. Its validators currently number in the thousands, whereas Ethereum has over 1 million. And while its unique consensus mechanism makes Solana's processing times more efficient, it also requires more expensive hardware to run. This may make becoming a validator less accessible to many, which may in turn make it less decentralized.

Another criticism is that there are now rival blockchains that are even faster and more efficient, which could impact its attractiveness as a blockchain platform. However, supporters argue these competitors achieve their speed by operating with an even greater degree of centralization.

## Solana vs. Bitcoin

### Similarities

- Both of their cryptocurrencies aim to be used as a medium of monetary exchange.
- Both operate on blockchains.

### Differences

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- Bitcoin currently has more mainstream adoption than any other cryptocurrency (for example, several world governments have strategic bitcoin reserves).
- The Solana network is more commonly used to develop blockchain applications, whereas Bitcoin is more commonly used as a store of value via its cryptocurrency.
- Bitcoin runs on proof of work and has a limited maximum supply, whereas Solana runs on a hybrid consensus mechanism and has no maximum supply.
- The Bitcoin network has a significantly greater degree of decentralization compared to Solana.

## Solana vs. Ethereum

### Similarities

- Both allow third-party developers to create apps and smart contracts using their infrastructure.
- Both use consensus mechanisms that involve proof of stake.
- Both have cryptocurrencies with unlimited maximum supply, but also have burning mechanisms that attempt to control inflation.

### Differences

- Solana transactions are faster and cheaper compared to those of both Bitcoin and Ethereum.
- Ethereum has a stronger track record of stability, whereas Solana has a reputation for network outages.
- The Ethereum network is more decentralized compared to Solana.
- Thus far, Solana has been the more popular network for memecoins, while Ethereum has been more popular for DeFi apps.

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