

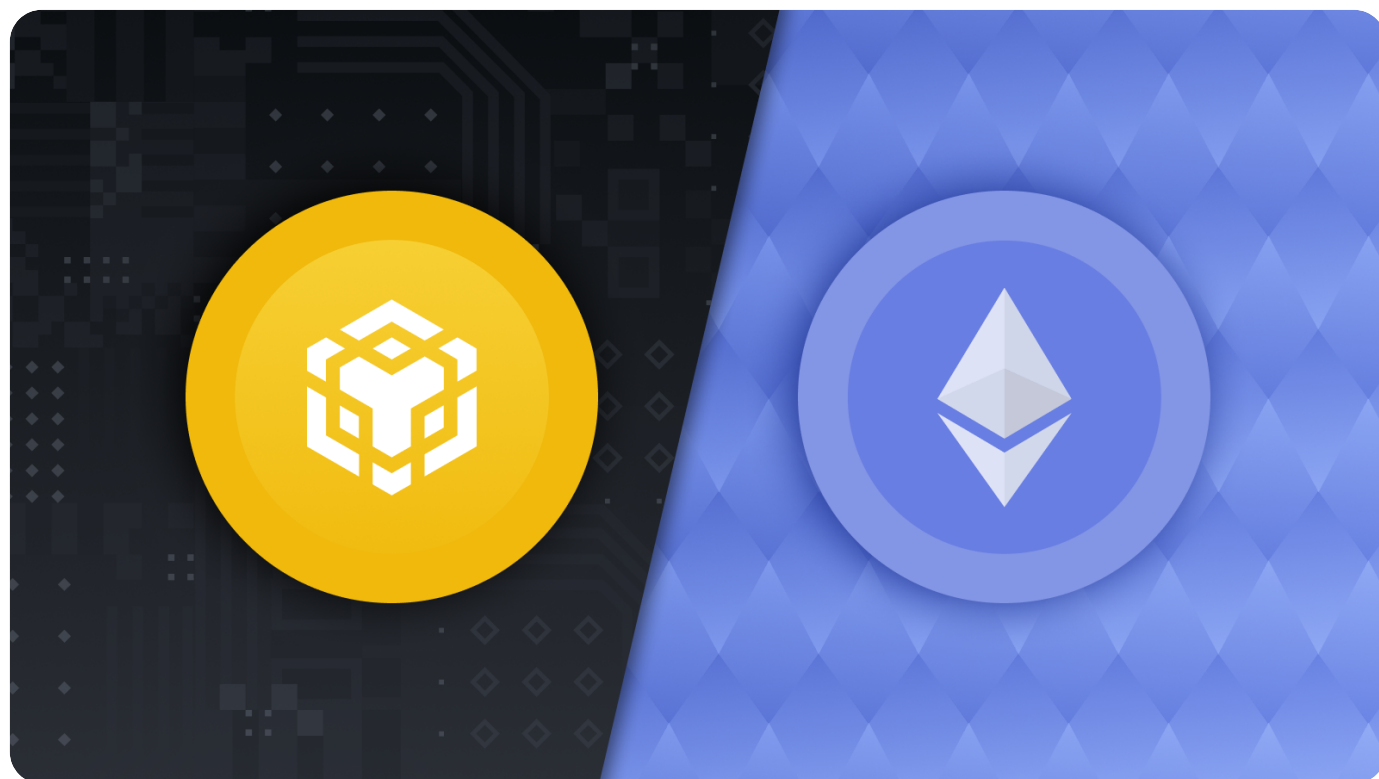
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BNB Smart Chain vs. Ethereum: What's the Difference?

Beginner

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🕒 8m

TL;DR

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Introduction

At first glance, BNB Smart Chain (BSC) and [Ethereum](#) look very similar. DApps and tokens built on BSC are compatible with the [Ethereum Virtual Machine](#) (EVM). You might have noticed that your public wallet addresses are the same on both blockchains. There are even cross-chain projects that operate on both networks. Nevertheless, there are some noticeable distinctions between the two chains. If you're wondering which one to use, it's best to know and understand the differences.

Blockchain traffic and DApp ecosystem

As of June 2021, Ethereum hosts more than 2800 DApps on the blockchain compared to roughly 810 on [BSC](#). It's a significant difference, but considering BSC's young age, it shows a strong and growing ecosystem.

Active addresses are also an important on-chain metric to consider. Despite being a newer blockchain, BSC recorded a high of 2,105,367 addresses on June 7, 2021 – more than double Ethereum's all-time high of 799,580 addresses on May 9, 2021.

So what's the reason behind BSC's sudden massive growth? A lot of it comes down to faster confirmation times and low fees. The BSC growth might also be related to the growing hype around NFTs and the compatibility with popular crypto wallets, such as Trust Wallet and MetaMask.

If we look at daily transactions, there's an even larger difference between the two. On BSC, it's quicker and more cost-efficient for users to move their funds and interact with [smart contracts](#). You can see below BSC's peak of around 12 million daily transactions and its current status at over four million.

Binance Smart Chain Daily Transactions Chart

Source: BscScan.com

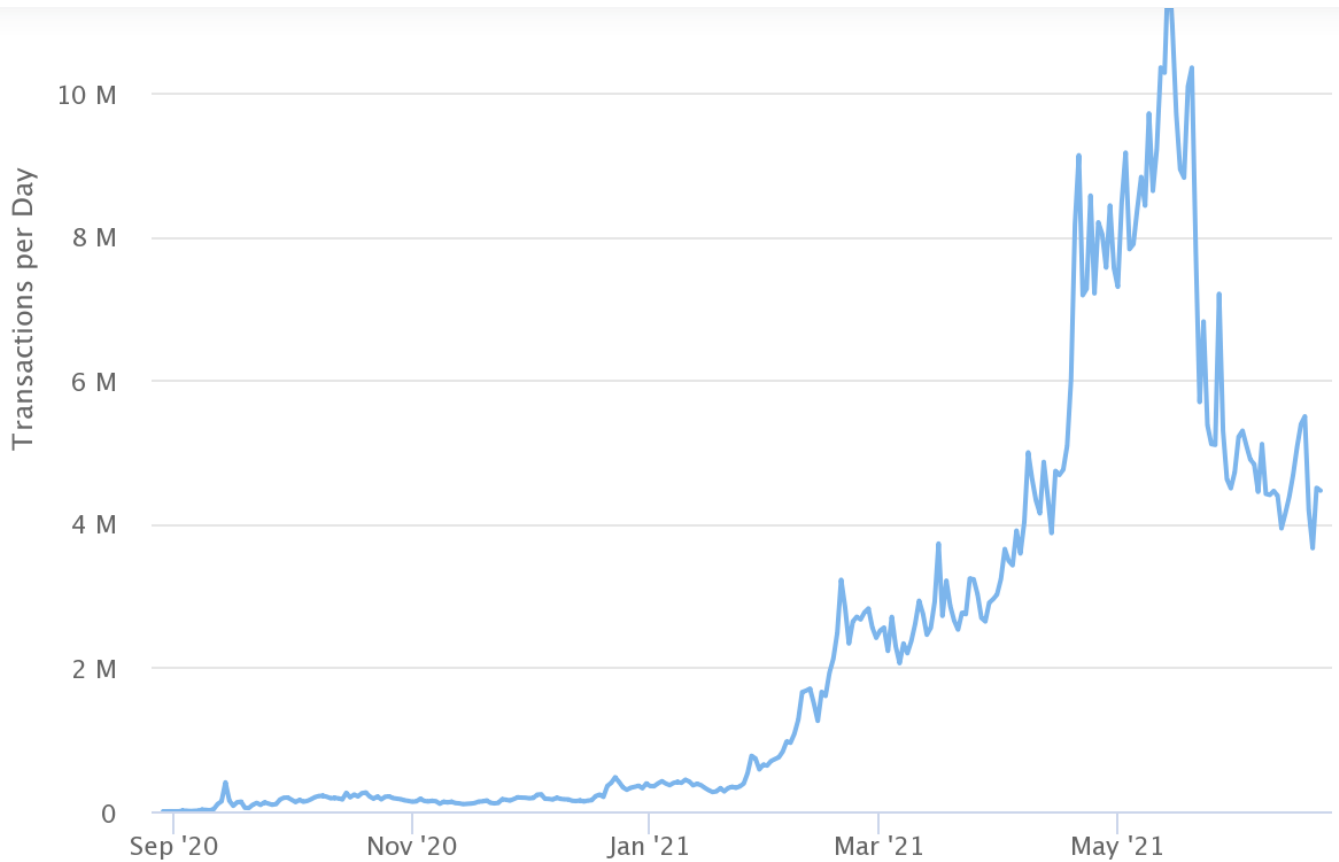
Click and drag in the plot area to zoom in

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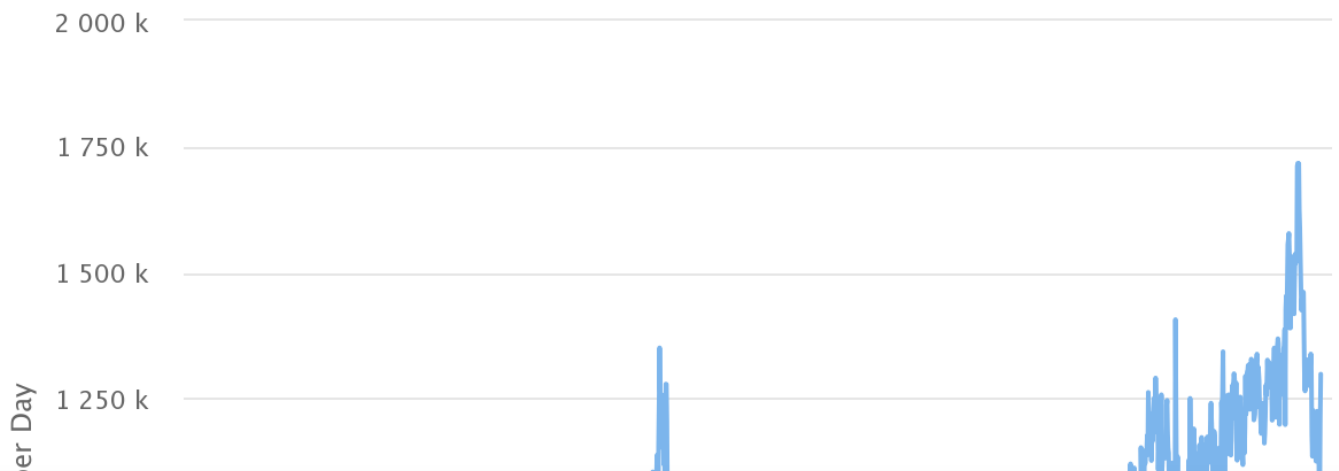
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On the other hand, Ethereum never exceeded 1.75 million daily transactions. For users who need to move their funds regularly, BSC seems to be the more popular choice. Daily transactions need to be seen in the context of active addresses too. As of writing, BSC currently has a higher number of users who also transact more on average.

Ethereum Daily Transactions Chart










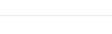
Source: Etherscan.io
Click and drag in the plot area to zoom in








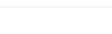



Most used DeFi DApps on Ethereum and BSC

When it comes to decentralized finance, there's a large amount of [DApp](#) cross-over between BSC and Ethereum due to the blockchains' compatibility. Developers can easily port applications from Ethereum to BSC, and new BSC projects often reuse [open-source](#) code from Ethereum under a different name. Let's take a look at the top five DApps on Ethereum by users on DAppRadar.

1		Uniswap	Exchanges	ETH	\$4.00B	34.63k +0.42%	\$1.72B	
2		Uniswap V3	DeFi	ETH	\$3.94	13.06k +3.02%	\$289.06M	
3		Axie Infinity	Games	ETH	\$17.33M	5.75k +32.58%	\$2.96M	
4		OpenSea	Marketplaces	ETH	\$23.19k	4.18k +19.87%	\$3.74M	
5		SushiSwap	Exchanges	ETH	\$2.78B	3.76k -7.35%	\$294.07M	

Here you can see a mixture of two DeFi [Automated Market Makers](#) ([Uniswap](#) and [SushiSwap](#)), a crypto game ([Axie Infinity](#)), and a peer-to-peer marketplace (OpenSea). If you take a look at BSC's top five, you'll see a lot of similarities.

1		PancakeSwap	DeFi	BSC	\$1.92B	230.27k -2.81%	\$502.61M	
2		Autofarm	DeFi	BSC	\$2.82B	46.66k -5.47%	\$16.73M	
3		Biswap	DeFi	BSC	\$331.11M	11.52k -11.73%	\$113.51M	
						8.66k		

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[PancakeSwap](#) was created as a [hard fork](#) of Uniswap. Autofarm and Pancake Bunny are [yield farms](#) – a category we don't see in Ethereum's top five. Biswap and Apeswap are both Automated Market Makers. As fees are so cheap on BSC and transactions significantly quicker, yield farms tend to be more efficient on BNB Smart Chain. These factors make them a popular choice for BSC users.

When it comes to [crypto games](#), Ethereum really is the home of the most popular titles out there. Although there are projects on BSC that are very similar to CryptoKitties and Axie Infinity, they failed to get as big audiences as the classic games on Ethereum.

Transfers between networks

If you've made any [BEP-20](#) or ERC-20 deposits into your [wallet](#), you might have noticed your Ethereum and BSC wallet addresses are identical. So, for example, if you choose the wrong network when withdrawing your tokens from an exchange, you can easily retrieve them from the other blockchain.

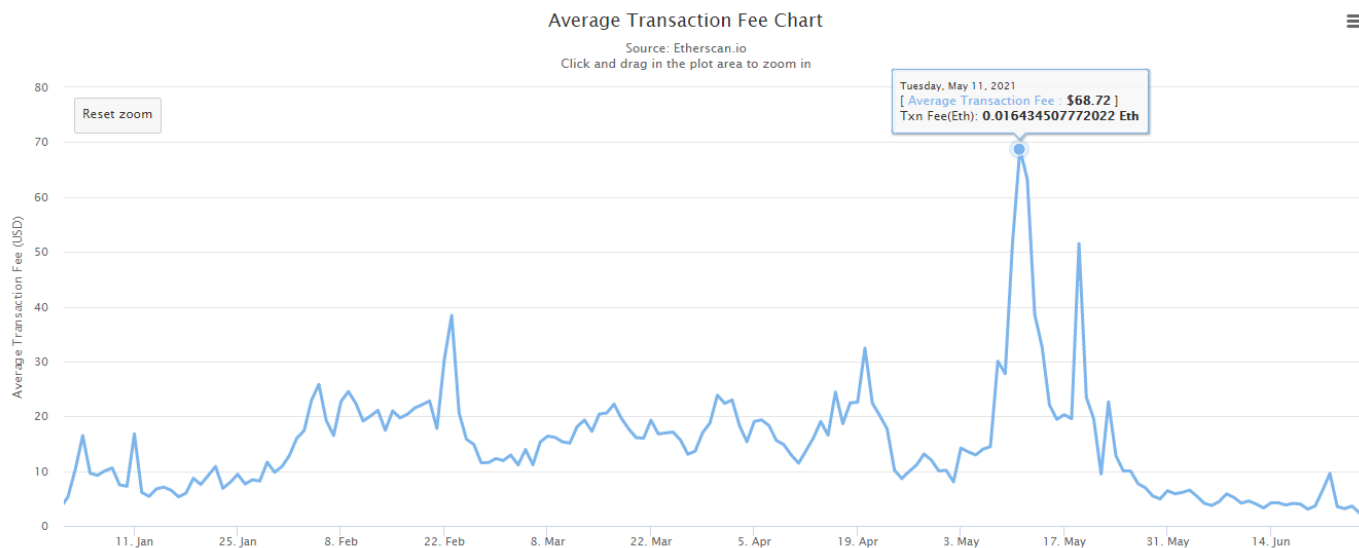
If you accidentally withdraw [ERC-20](#) tokens to BSC, you can still find them in the corresponding BSC address. You can also go through the same process if you accidentally send tokens from BSC to Ethereum. In both these cases, your funds are fortunately not permanently lost. For a more detailed guide, check out [How to Recover Crypto Transferred to the Wrong Network on Binance](#).

Transaction fees

BSC and Ethereum both use a [gas model](#) for transaction fees that measure the complexity of a transaction. BSC users can set a gas price according to network demand, and miners will prioritize transactions with higher gas prices. Ethereum's [London hard fork](#) does, however, bring in some new modifications that will likely remove the need for high fees.

The Ethereum update creates a new pricing mechanism with a base fee per block. The base fee changes depending on the demand for transactions, removing the need for users to decide on

more expensive.



Let's look at the average costs for Ethereum from Etherscan to get a better picture. The top three figures show current gas prices on Ethereum. For both BSC and Ethereum, one gwei is equal to 0.000000001 [BNB](#) or ETH respectively. If you pay the lower price, your transaction will take much longer to go through.

For a simple transfer of an ERC-20 token to another wallet, the average price at the time of writing is \$2.46. This number increases to \$7.58 when using a Uniswap [liquidity pool](#) that involves multiple transactions.

Mon, 28 Jun 2021 11:17:50 UTC



😊 Low

7 gwei

\$0.29 | ~ 16 mins:0 secs

😊 Average

14 gwei

\$0.80 | ~ 45 secs

😊 High

15 gwei

\$1.09 | ~ 30 secs

Estimated Cost of Transfers & Interactions:

[View API](#)

	Low	Average	High
🔍 ERC20 Transfer	\$0.91	\$2.46	\$3.37
🔍 Uniswap Swap	\$2.79	\$7.58	\$10.37

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Below, we can see a transaction on BSC with a fee of just \$0.03, equivalent to the ERC-20 transfer in the Ethereum gas tracker. BSC has calculated this by multiplying the gas used by the transaction (21,000) with the gas price (5 [gwei](#)).

② Value:	0.799789425 BNB (\$194.20)
② Transaction Fee:	0.000105 BNB (\$0.03)
② Gas Limit:	42,000
② Gas Used by Transaction:	21,000 (50%)
② Gas Price:	0.000000005 BNB (5 Gwei)

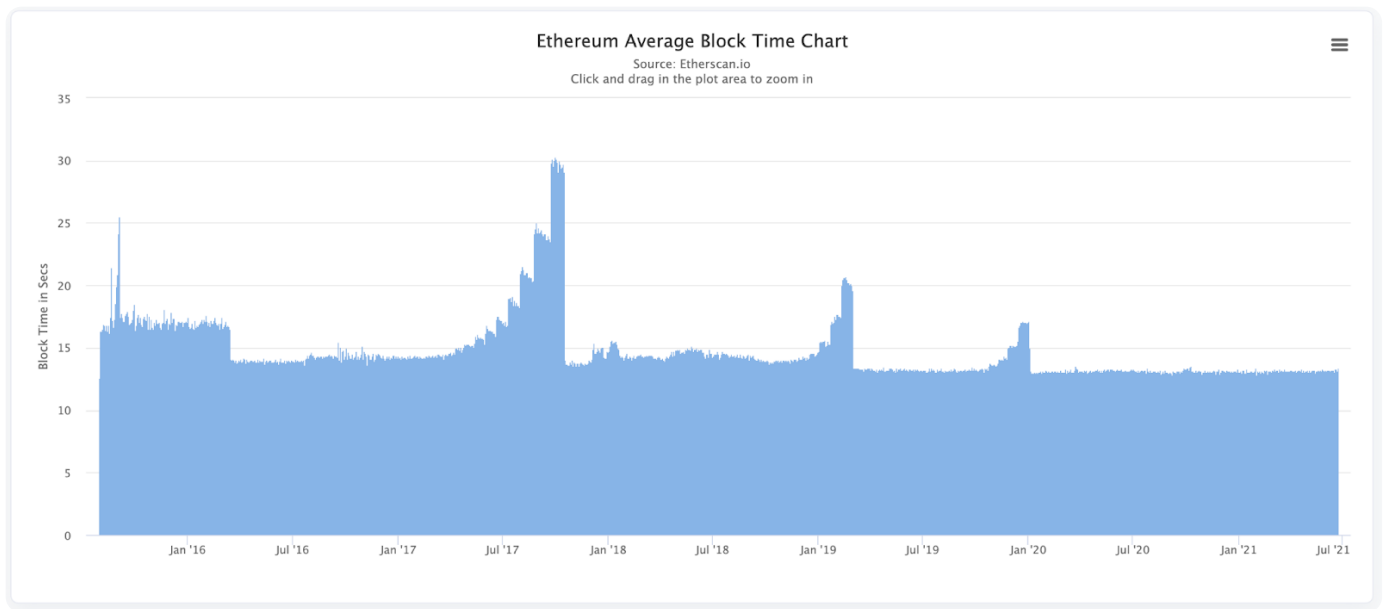
Transaction time

Measuring average transaction times on blockchains can be a bit tricky. While a transaction is technically complete once miners validate the block it is in, other aspects can affect the time you wait:

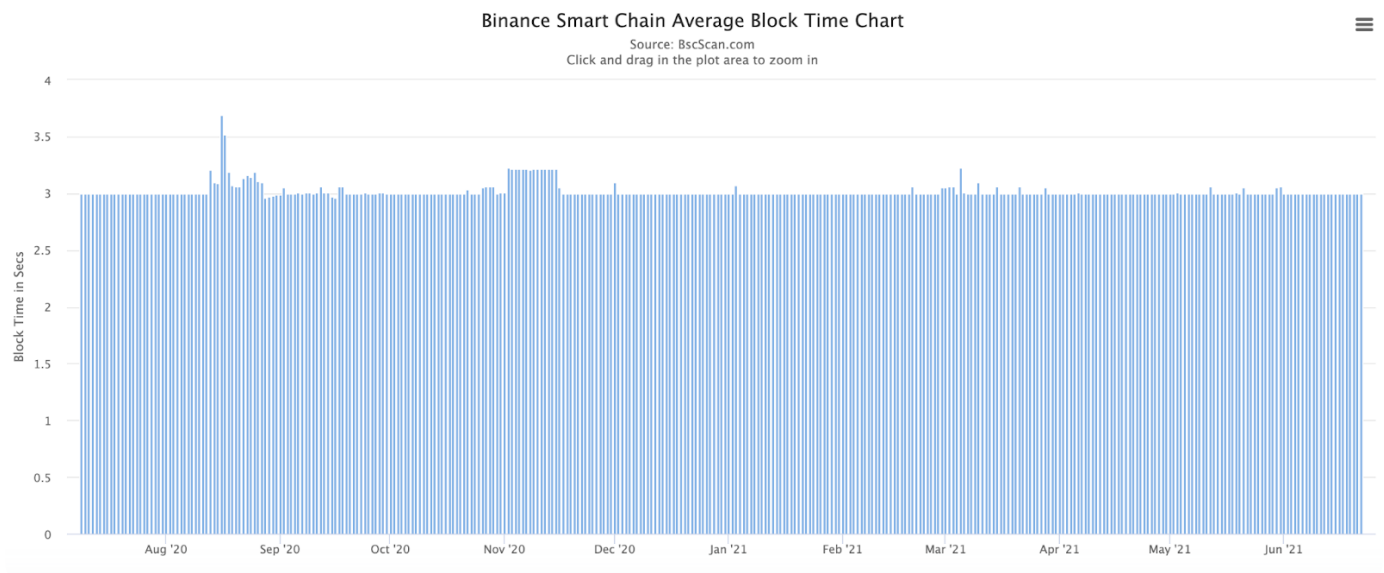
1. If you haven't set your fee high enough, miners might delay your transaction or even not include it in a block at all.
2. More complex interactions with the blockchain require multiple transactions. For example, adding liquidity to a liquidity pool.
3. Most services will only consider a transaction valid after a certain number of blocks are confirmed. These extra confirmations reduce the risk of merchants and service providers having the payments reverted in case the block is rejected by the network.

If we look above at the gas statistics for Ethereum, we can see that the transaction time ranges from 30 seconds to 16 minutes. These numbers take into account successful transactions but not the extra confirmation requirements.

diagram below, this would add an extra 156 seconds when depositing ETH into your spot wallet.



On BSC, the average block time is 3 seconds. When we compare this to Ethereum's 13 seconds, we're looking at a speed improvement of roughly 4.3 times.



Consensus mechanism

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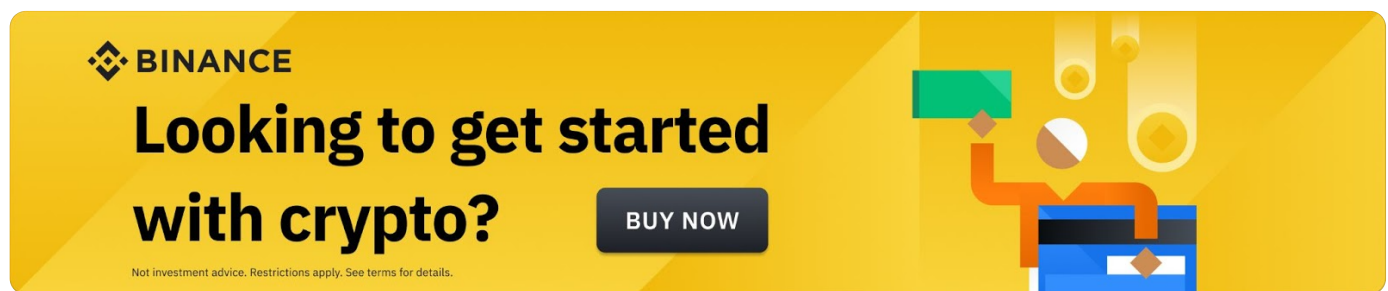
BSC's PoSA combines aspects of [Proof of Authority](#) (PoA) and [Delegated Proof of Stake](#) (DPoS). 21 validators take turns to produce blocks and, in return, receive BNB transaction fees as a reward. Becoming a validator requires running a node and staking at least 10,000 BNB to become an *elected candidate*.

Other users, known as *delegators*, stake BNB behind an *elected candidate*. The top 21 elected candidates by the amount staked will then take it in turns to process blocks. This whole process repeats every 24 hours. Delegators also receive a share of the rewards that validators earn.

Ethereum's PoW is an extremely different system. Instead of the community choosing validators, there is a race to solve a computational puzzle. Anyone can take part, but they will need to buy or rent specialized [mining](#) equipment. The more computation power you have, the more likely you will solve the puzzle first and validate a block. Successful miners receive transaction fees and an ETH reward.

While PoW is an effective way of creating [consensus](#) and ensuring network security, developers have since explored the use of other mechanisms. Their goal is to find more efficient and environment-friendly alternatives without compromising security.

For these reasons, the Ethereum network will eventually switch over to [Proof of Stake](#). Validators will stake ETH for a chance to produce blocks. Other validators will "attest" the block and check that it is correct. If someone produces a block containing false transactions, they will risk losing all of their staked coins. Validators then receive rewards for successful blocks and for any attestations they make. By directly depositing and staking large amounts of ETH, malicious validators risk losing their funds.

A yellow banner with the Binance logo in the top left. The text "Looking to get started with crypto?" is in large, bold, black font. Below it, in smaller text, is "Not investment advice. Restrictions apply. See terms for details." To the right of the text is a dark blue button with "BUY NOW" in white. On the far right is a stylized illustration of a person's head and shoulders in orange and blue, with a green square above it and a yellow circle to the right.

Closing thoughts

It's clear that there are lots of similarities between BNB Smart Chain and Ethereum. In part,

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