



ROOM FOR MULTIPLE WINNERS IN WEB3

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BITCOIN VS. ETHEREUM VS. SOLANA

We see differentiation emerging among the predominant blockchains as the digital asset space matures. With that differentiation, it's clear there's plenty of room in the digital asset class for multiple winners. Bitcoin (BTC) is the strongest store of value digital asset. It has firmly secured its reputation as 'digital gold,' playing an important role in portfolios hedging against global uncertainty. The Ethereum blockchain is proving to be more flexible than Bitcoin, and its open-source rails allow decentralized applications to tap into smart contract capabilities. The Solana blockchain is proving to be quicker than Ethereum by maximizing throughput and information flow and achieving record-setting transactions per second (TPS) processing rates. What follows is a summary of these three blockchains and an analysis of their differentiating features in the unfolding digital asset economy.



BITCOIN

According to the Bitcoin whitepaper, creator Satoshi Nakamoto's goal was to create a digital representation of cash capable of fulfilling the role of today's fiat currency.¹ To do this, bitcoin needed to work as a medium of exchange, a unit of account, and a store of value. Therefore, when Satoshi created bitcoin, he focused on the principles of durability, intrinsic value, and scarcity.

These principles are crucial to how bitcoin functions today. While bitcoin is secure, it clocks in at 7 TPS, making it one of the slowest blockchains. Changes to the Bitcoin blockchain take a long time due to the requirement for a majority of nodes to agree on proposed adjustments. This requirement explains the four-year gap between bitcoin's recent Taproot upgrade and its 2017 upgrade. Other more agile blockchains gain traction across the sphere due to their ability to innovate and achieve consensus quickly. Lastly, bitcoin has a maximum supply due to its programmatic monetary policy, unlike Ethereum which has no limit on its maximum issuance.

ETHEREUM

The Ethereum whitepaper details how Vitalik Buterin liked the Bitcoin blockchain's technology but felt it wasn't flexible enough for applications.² Seeing this window of opportunity, Vitalik set out to create Ethereum to help developers build decentralized applications with the ability to interact with each other efficiently. The resulting Ethereum blockchain introduced a built-in Turing-complete programming language, allowing anyone to write smart contracts and decentralized applications. Within each application built on Ethereum, developers can create their own arbitrary rules for ownership, transaction formats, and state transition functions.

The creation of smart contracts initiated the demand for token standards that ensure smart contracts remain composable and compatible with existing decentralized exchanges.³ This environment led to the development of tokens like ERC-20, which opened the door to the creation of NFTs and other smart contract-enabled digital assets. It's worth noting that the Ethereum blockchain was never created with the sole purpose

of supporting a cryptocurrency. Instead, the Ether (ETH) cryptocurrency was created to provide an in-house currency for decentralized apps on Ethereum.

All Ethereum users pay fees to use decentralized apps. These fees - referred to as "gas" - are currently high on Ethereum due to congestion and popularity. You may think of this congestion due to popularity as the Ethereum blockchain exceeding its bandwidth to support activity across all apps on the chain. The more users seen operating on the blockchain, the higher the congestion, resulting in more power required for chain processing activity. This increased activity, or congestion, leads to higher gas prices for those transacting on the chain. High gas fee fluctuations impede some users' ability to interact on the chain and have led many to look to other blockchains for lower transaction fees that support smart contract capabilities.

SOLANA

Anatoly Yakovenko, the creator of Solana, believed that blockchain platforms could scale faster than 15 TPS because payment systems demanded higher transaction speeds (1500+). He, along with a colleague, created the Solana blockchain and its PoH framework as a solution to the slow transaction processing dilemma.

Yakovenko's research resulted in Solana, a web-scale, open-source blockchain protocol, similar to Ethereum, with a stronger focus on digital payment crypto functionality. To achieve the goal of reaching faster transaction processing rates, Anatoly focused on speed over security and decentralization. The result of Yakovenko's priorities produced the Solana blockchain, which we see reaching speeds far surpassing other blockchains.⁴

Solana is less decentralized and suffers from periodic downtimes, as the Solana Foundation has a central point of control over the network. However, these drawbacks are why Solana's gas fees are extremely low, resting currently at less than one cent of a US dollar, which is a significant reason why the NFT boom migrated to Solana this summer.

1) Source: [Bitcoin.org](https://bitcoin.org)

2) Source: [Ethereum.org](https://ethereum.org)

3) Source: [Ethereum.org](https://ethereum.org)

4) Source: [Solana.com](https://solana.com)



ROOM FOR MULTIPLE WINNERS IN WEB3

In this nascent asset class with breakthrough technology unfolding in real-time, we see room to explore multiple competitive advantages. The world continues adopting crypto for varying use cases, including Web3, the metaverse, digital payments, and more. Differentiation amongst blockchain capabilities creates room for BTC, ETH, SOL, and additional competitors entering the space to claim a hold on their niche within this market.

Web2 elevated centralization across industries as an interactive and interconnected internet with massive app stores dominated by large media and tech companies. The dependency on centralized gatekeepers across Web2 allows for vulnerability via a single point of failure, making it possible to hack an entire platform from one entry point while encouraging abuse of user data and access, a problem Web3 is addressing.

Multiple leaders emerged in Web2, including Google, Facebook, and Amazon, among others. These tech leaders organized their product offerings in ways that benefited developers and consumers alike. Audience data was essentially monetized in Web2, enabling large tech companies to capitalize on the ability to sell targeted media products and brands to run targeted marketing campaigns.

The natural progression from Web2 to Web3 is fueled by artificial intelligence, blockchain technology, and demand for data autonomy. Just as multiple leaders emerged in Web2, we see room for multiple winners across the blockchain industry within Web3. Different audiences will need the use of various blockchain software based on their personal use cases, including store of value, smart contract enabling, and transaction processing-focused, scalable cryptocurrencies.



DIFFERENCES IN WEB2 OPERATING SYSTEMS (OS)

COMPUTER

MAC OS

- *The OS which works best with all Apple computer products*
- *One of the best looking OS*
- *Has an amazing UI and UX*

WINDOWS

- *Most commonly used*
- *Popular due to its familiarity: most individuals have grown up using a computer with a version of Windows (from Windows 95 to the current Windows 11)*

LINUX

- *Considered too sophisticated for many average computer users*
- *Requires a specific use case to install Linux on the computer*

PROS

- Streamlined interfacing with your iPhone/iPad/AirPods
- More secure – viruses are most often targeted for Windows devices
- Content creators benefit from applications (music, videos, photos, graphic designs, etc.)
- Considered the most innovative OS

PROS

- Largest library of applications
- Largely considered the most beneficial to learn, as its applications are most widespread

PROS

- Allows user the most control over computer
- Most secure – built-in firewall and virus protection
- Open-source – can be downloaded by anyone anywhere for free

CONS

- Cannot easily use applications use applications that are solely native to Windows
 - Note: There are workarounds requiring some technical prowess or downloading Windows onto your Apple product

CONS

- An “ugly” interface
- Least common OS

MOBILE PHONE

IOS / APPLE

PROS

- Security threats are rare due to the “locked” nature of iOS
- Easy interfacing with other Apple products (Mac, iPad, etc)
- iMessage/FaceTime

ANDROID / GOOGLE

PROS

- 100+ languages
- Available on the largest number of devices
- Most popular phone OS
- Easy file transfer between phone and computer
- More control over your device: alternative app stores, most customizable, open source software (Android is based on Linux)

BLACKBERRY OS / BLACKBERRY

PROS

- Security (old and simple OS)
- Physical keyboard
- Better battery life
- Does not break as easily as other mobile phones
- Blackberry Hub enables email review without using data



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Different from Directly Owning Bitcoin, Ethereum or Other Digital Assets. The performance of the Fund will not reflect the specific return an investor would realize if the investor actually purchased a Digital Asset. Investors in the Fund will not have any rights that Digital Asset holders have.

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