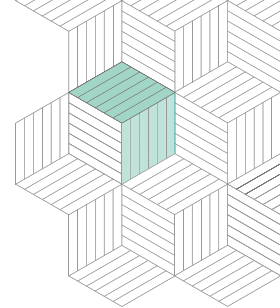


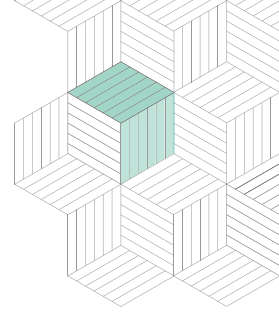
# An Introduction to Solana





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# Introduction

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Solana is a next-generation internet platform (Web 3.0) structured as a publicly traded blockchain-based crypto network. Solana’s open-source software network coordinates decentralized computers across the globe into a fully unified, user-owned and operated cloud platform. Solana supports high-speed and low-cost transactions on a single-layer blockchain alleviating the need for additional scaling solutions that other networks typically require.

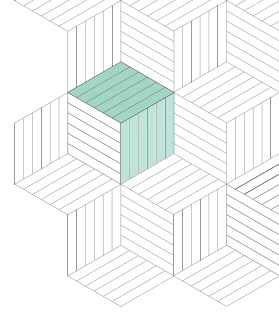
SOL is the native token of the Solana network and represents a piece of ownership in the ecosystem. The SOL token is utilized for (i) powering Decentralized Applications (dApps), (ii) making payments, (iii) paying network fees, (iv) providing network security via staking, and (v) facilitating network governance.

FIGURE 1: **SOLANA SUMMARY STATISTICS**

As of November 29, 2021

Asset	Solana (SOL)
Price (USD)	\$206
Market Cap (USD)	\$63 billion
Circulating Supply (SOL)	304 millions
Current Supply (SOL)	510 millions
Current Inflation Rate	7.5%
Maximum Supply	Uncapped
Market Segment	Web 3.0 Cloud Economy





# Solana's Approach

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The Solana network is designed to provide developers with a highly performant Web 3.0 cloud platform that offers scalability at the Layer 1 blockchain level. This approach aims to remove the complexities of Ethereum's Layer 2 solutions by optimizing for speed, cost, and decentralization, from a political and geographic standpoint. Specifically, these features quantify to:

- **Speed:** 400 millisecond block times
- **Cost:** 0.000005 SOL (~\$0.001) per transaction.
- **Decentralization:** 2,242 global nodes.

Solana is able to achieve this level of performance by leveraging a unique architectural approach that has eight core innovations and by optimizing for a different set of technology trade-offs. These trade-offs include relatively lower decentralization (compared to networks like Ethereum), which has allowed for network disruptions like the denial of service attack on September 14th, 2021, which took Solana's full functionality offline for ~24 hours. Nevertheless, Solana has continued to attract users who favor the network's design choices. As a result, Solana is expanding the size of the Web 3.0 blockchain cloud computing market by enabling:

- **New Users:** Solana empowers previously underserved cost sensitive users to access existing crypto applications like Decentralized Finance (DeFi), Non-Fungible Tokens (NFTs), and other Web 3.0 dApps.
- **Increased Usage:** Solana allows users to more actively adopt Web 3.0 applications by lowering transaction costs and increasing transaction speeds.
- **New Applications:** Solana enables new applications to emerge or become more mainstream.

Technology trends often appear in cycles, and the impact Solana is having on the Web 3.0 cloud computing market has similarities to the previous computing platform innovations that accelerated overall internet adoption:

- **Mainframe to PCs:** During the mainframe era, computers were large and expensive, which limited their access to academic researchers at select universities. The advent of the personal computer (PC) changed this dynamic by lowering costs and opening access for a new wave of consumers. Solana's lower fees are having a similar impact today.





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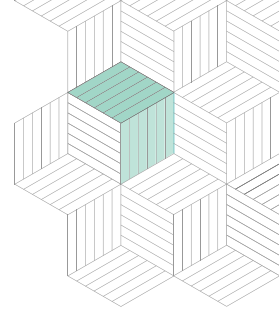
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- **On-Prem to Cloud:** During the on-premises era, organizations had to own and manage servers and other computer infrastructure to access software functionality. The move to cloud computing reduced this burden by off-loading the processes involved with on-prem hosting while increasing application agility. Solana is having a similar impact today by giving developers a single platform powerful enough to run Web 3.0 dApps while removing the complexities of Layer 2 scaling solutions.
- **Desktop to Mobile:** During the desktop era, the dominant applications were designed for computing platforms that were stationary and limited in the applications they could support. The move to mobile changed this dynamic by giving developers a computing platform that was on-the-go, which enabled the development of new applications, like Uber. Solana is having a similar impact today by increasing Web 3.0 cloud scalability and giving developers a new infrastructure medium to design dApps.

The Web 3.0 cloud computing market is a large and fast-growing opportunity for networks like Solana, Ethereum, and others. Multiple Web 2.0 cloud providers—including AWS, Google Cloud, Microsoft Azure, Alibaba Cloud, and Tencent Cloud—have achieved success by serving different customer needs. The Web 3.0 cloud market is following a similar path with networks like Ethereum and Solana emerging as leading contenders in the space.





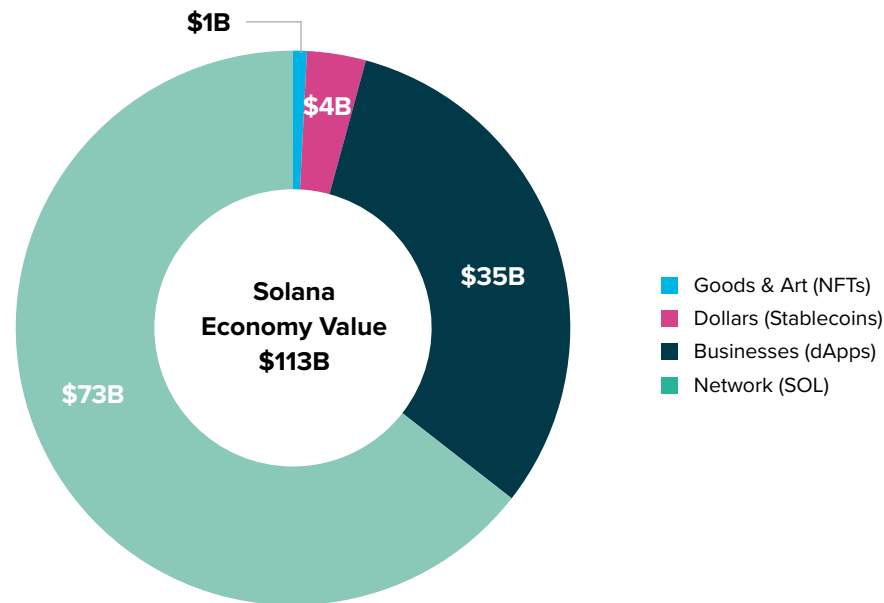
# Practical Applications

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The Solana cloud economy has seen rapid growth over the past year, pushing the total value of the ecosystem to over \$110 billion. The ecosystem consists of the Solana Network (SOL) and the assets issued on top of the network, which the SOL community has jurisdiction over. These include assets like the Digital Businesses (smart contract dApps), Digital Dollars (dollar-backed stablecoins), or Digital Goods & Art (i.e. NFTs) issued on the Solana Network. The following is an overview of the distribution of value between these categories:

- **Solana Network (SOL)** has captured most of the digital economy’s value with a market cap of \$73 billion or ~65%.
- **Digital Businesses (dApps)** on Solana’s network represent ~1/3 of the economy’s value at \$35 billion or ~30%.
- **Digital Dollars (Stablecoins)** circulating within the Solana economy stand at \$4 billion or ~3% of the economy.
- **Digital Goods & Art (NFTs)** based on Solana represent \$1 billion in value or ~1% of the total economy’s assets.

FIGURE 2: SOLANA CRYPTO ECONOMY MARKET VALUE<sup>1</sup>



1. Solscan, CoinGecko, Solanalysis (Date: 11/9/2021)

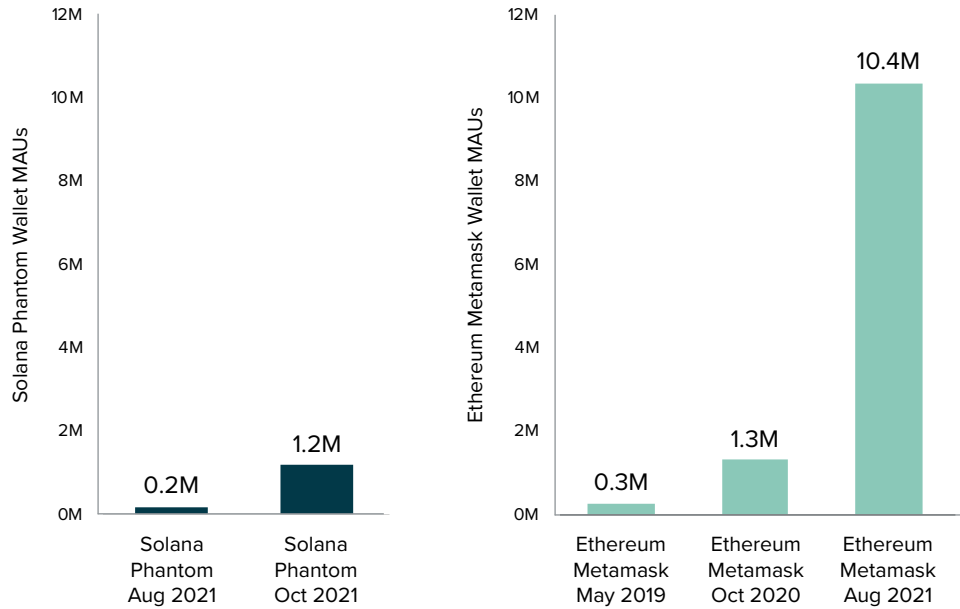




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Solana has managed to build a large and fast-growing community of users. The most popular Solana wallet, Phantom, has seen Monthly Active Users (MAUs) grow from 200,000 in August 2021 to 1.2 million in October 2021. Comparing Phantom to the most popular Ethereum wallet, Metamask, Solana user growth is roughly where Ethereum was in October 2020.

FIGURE 3: SOLANA PHANTOM & ETHEREUM METAMASK MONTHLY ACTIVE USERS<sup>2</sup>



Developer interest in Solana has been rising sharply over the past year since the network launched. Open-source developer attention is a key metric for Web 3.0 cloud networks since it is these builders who create the application ecosystems that ultimately attract users to the network. To that end, Solana hackathon events continue to draw an increasing number of developer registrations and project submissions, fueling further dApp ecosystem growth.

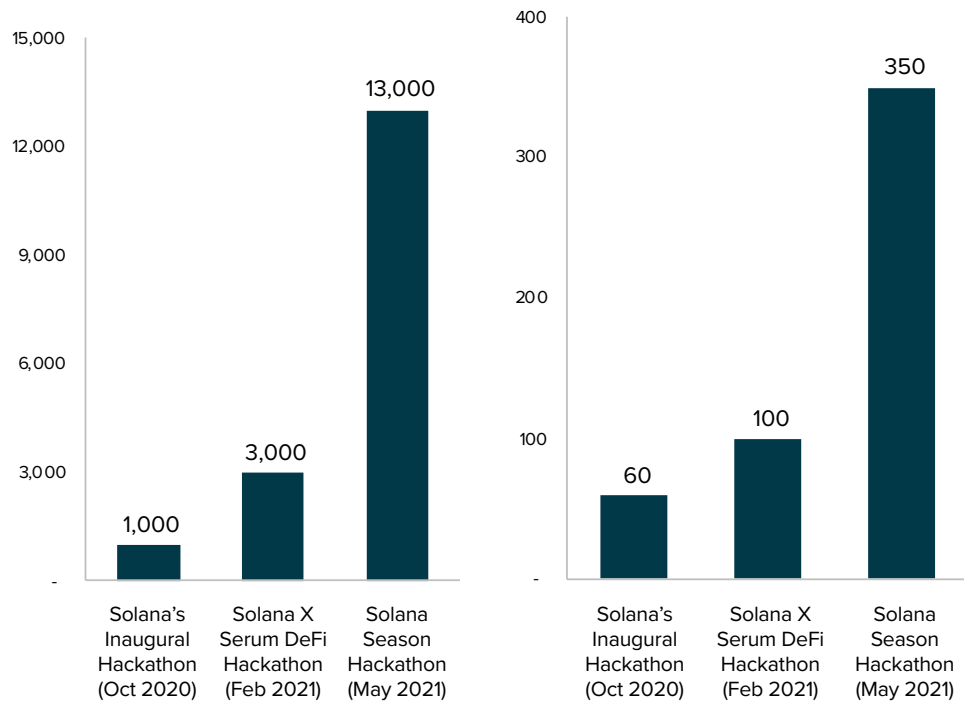


2. [Phantom Wallet](#), [Consensys](#), [Metamask](#)



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FIGURE 4: HACKATHON REGISTRATIONS (LEFT) & PROJECT SUBMISSIONS (RIGHT)<sup>3</sup>



Solana is primarily a smart contracting platform or general-purpose crypto cloud platform for the development of dApps. The Solana community has built a large ecosystem of over [500](#) dApps in the short time since the network launched. Solana dApp projects across DeFi, Web 3.0, and NFTs include:

- **DeFi:** Use cases include open order book exchanges, automated market makers, lending and borrowing platforms, asset management software, and payments.
- **Web 3.0:** Use cases include Solana domain name services, data privacy web browsers, and off-chain data oracles.
- **NFTs:** Use cases include minting platforms, marketplaces, gaming, music streaming, social media, and Distributed Autonomous Organizations (DAOs).

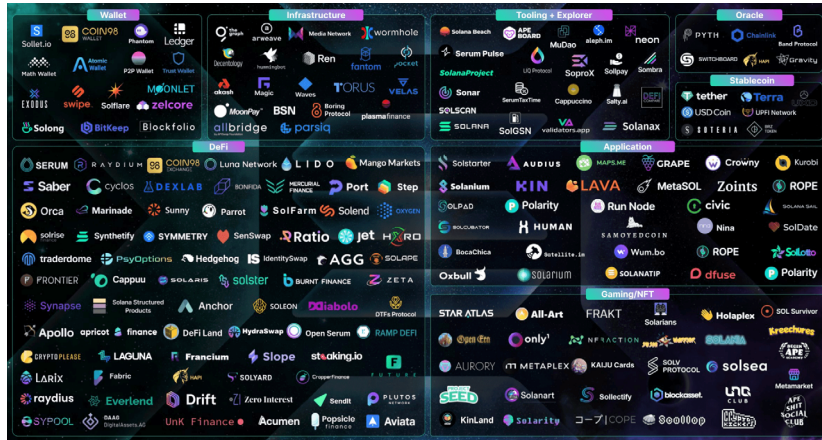
<sup>3</sup> Solana, Solanias





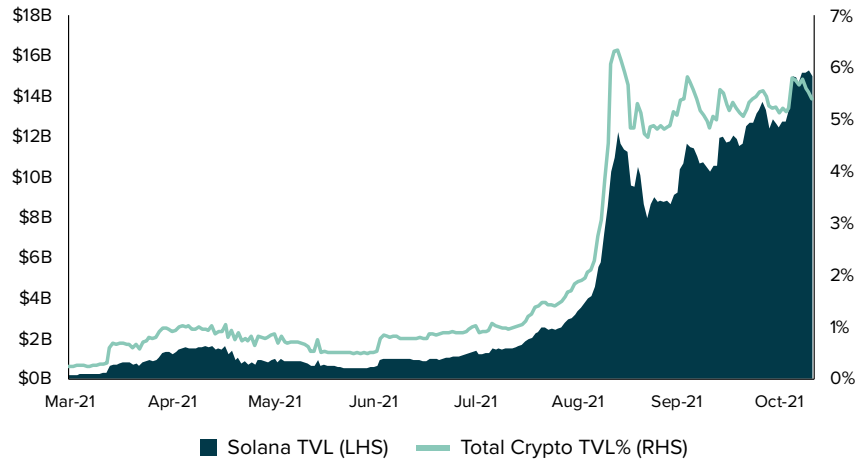


FIGURE 5: SOLANA DECENTRALIZED APPLICATION (DAPP) ECOSYSTEM<sup>4</sup>



The Total Value Locked (TVL) in Solana DeFi protocols has risen over the past year and reached nearly 6% of the total TVL across all crypto projects. This success is attributable to growing user interest in Solana, a rising number of applications, strong SOL performance, and the increasing issuance of Solana-based digital dollars (~\$4 billion stablecoin market cap).

FIGURE 6: SOLANA TOTAL VALUE LOCKED (TVL) & SHARE OF TOTAL CRYPTO TVL<sup>5</sup>



Finance is not the only sector of the Solana digital economy that has experienced growth -- Solana's consumer sector has been emerging as well. Non-Fungible Tokens (NFTs) representing ownership of digital property, such as art, consumer goods, or other assets, have also seen growth over recent months. The market value of Solana-based NFTs has risen to over \$1 billion. Solana NFT monthly sales volume has risen to ~\$250 million while unique buyers have increased ~4x over the last three months to ~60,000.

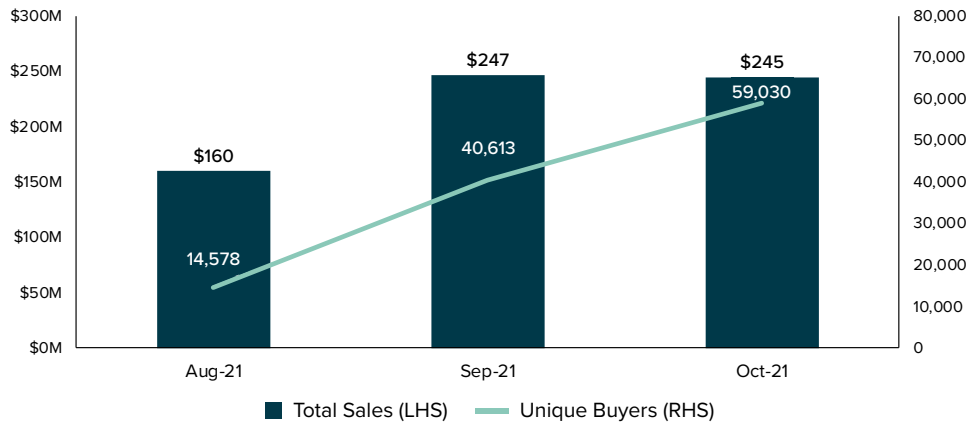
4. Solana  
5. DeFi Lama (Date: 11/9/2021)





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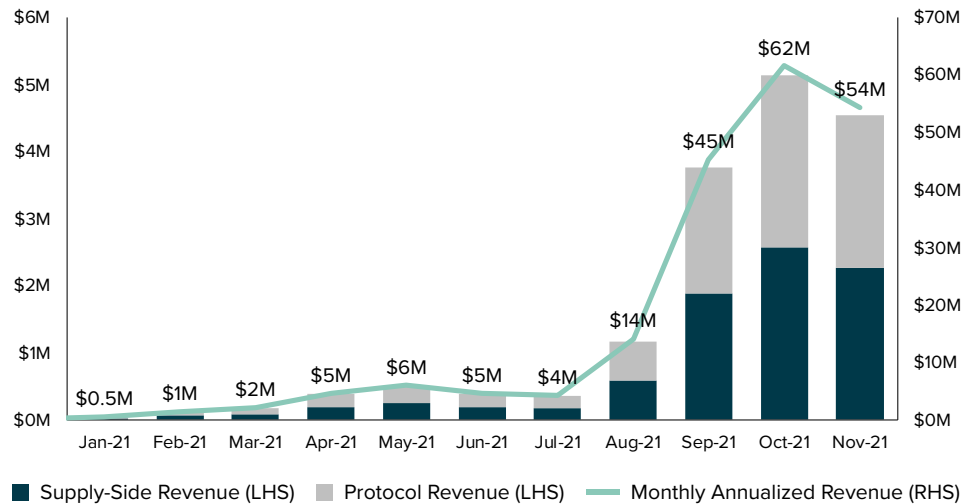
FIGURE 7: SOLANA NFT SECONDARY SALES & UNIQUE BUYERS<sup>6</sup>



Solana’s network revenue has increased over the past year as users, applications, and usage have continued to grow. [Total fees](#) paid by Solana users for transactions such as sending payments, running smart contract programs, issuing new assets, and voting on network consensus were ~\$4.5 billion during November 2021 -- up over 100x since the start of the year.

The Solana protocol reduces the SOL supply by eliminating 50% of total transaction fees, while the remaining 50% is paid out to the network’s computing infrastructure providers (validators) who are incentivized to stake SOL tokens. Since fee revenue reduces supply while fees paid to stakers create an incentive for holding the token, these economics underpin SOL’s fundamental value model and make the digital token a productive capital asset.

FIGURE 8: SOLANA MONTHLY REVENUE & MONTHLY ANNUALIZED REVENUE<sup>7</sup>



6. [Cryptoslam](#)  
 7. [Tokenterminal](#) (Date: 11/3/2021)



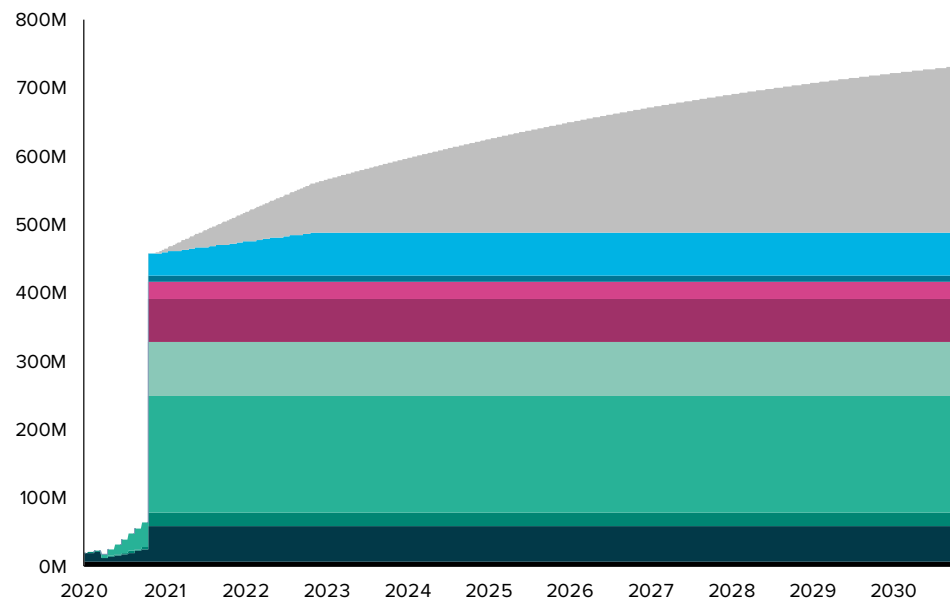


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As a result of Solana’s revenue-based supply reduction mechanism, the future total supply of SOL is not known. While the total SOL supply will vary depending on network revenue, the rate of new token issuance is programmed into the Solana protocol.

The Solana Mainnet Beta went live in March 2021. At that time, the supply of SOL was 500 million. During February 2021, the SOL supply inflation rate was changed from 0.1% to a new initial inflation rate of 8%. The 8% initial inflation rate is scheduled to decrease at an annualized dis-inflation rate of 15% until reaching the long-term inflation rate of 1.5%. As of November 2021, there are ~509 billion SOL in circulation and the total inflation rate is estimated at ~7.3%.

FIGURE 9: SOL SUPPLY ISSUANCE SCHEDULE<sup>8</sup>



- Public Auction
- Solana Foundation
- Grant Pool
- Community Reserve
- Seed Sale
- Founding Sale
- Validator Sale
- Launch Sale
- Founders
- Staking Rewards

8. [Messari](#)





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# Brief History

Solana's founder Anatoly Yakovenko first conceived of the project and the key elements of its technology approach in late 2017. An internal testnet of the Solana network and the official whitepaper were released in early 2018. Solana Labs, the development company behind Solana, raised a series of financing rounds over the course of 2018 to early 2020. The Mainnet Beta version of the Solana software protocol launched in March 2020.

FIGURE 10: **SOLANA FINANCING HISTORY**<sup>9</sup>

Round	Seed Sale	Founding Sale	Validator Sale	Strategic Sale	Coinlist Auction
Date	4/5/2018	6/3/2018	7/9/2019	1/2/2020	3/23/2020
Amount Raised	\$3,170,000	\$12,630,000	\$5,700,000	\$2,290,000	\$1,760,000
Token Price	\$0.04	\$0.20	\$0.23	\$0.25	\$0.22
Number of Tokens	79,250,000	63,150,000	25,333,333	9,160,000	8,000,000

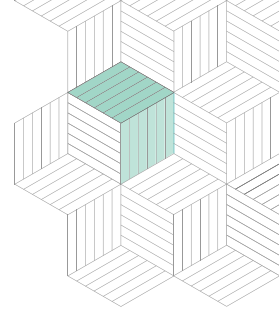


<sup>9</sup> [Not Boring Capital, Messari](#)



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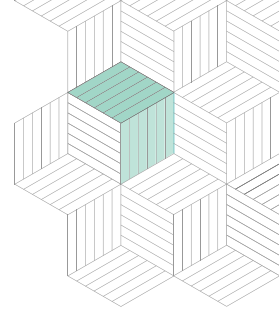
# Advantages



Solana has several competitive advantages:

- **Team:** Solana has a strong core technical team comprising alumni from Qualcomm, Google, Dropbox, and Apple.
- **Technology:** Solana has a novel technology approach offering high scalability and low transaction fees, which differentiates it from other networks.
- **Community:** Solana has a strong and active community of users, developers, industry partners, and investors.
- **Ecosystem:** Solana has established a large and fast-growing ecosystem of dApps, with new use cases emerging.





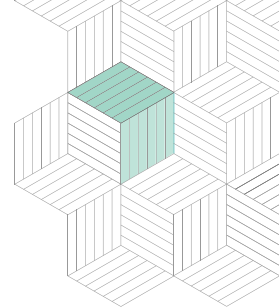
# Potential Risks

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Solana faces several possible risks specific to the network, from crypto industry competitors and external factors, which include:

- **Competing Networks:** Solana faces competition from other blockchains with smart contract functionality such as Ethereum, Binance Smart Chain, Internet Computer Protocol, Avalanche, and others.
- **Economics and Valuation:** Solana network fee revenue is still relatively low compared to other blockchains, such as Ethereum. Unless fees grow from new applications, increased usage, or higher fees, the valuation may not be supported based on cash-flows value.
- **Level of Centralization:** The Solana network could become overly centralized if one or a group of entities one day gain control over a large share of the SOL token supply. Solana may require more specialized equipment to participate in the network and fail to attract a significant number of users, which may harm the network's decentralization.
- **Regulatory Uncertainty:** Solana could face scrutiny from various regulators, which to date have often only identified Bitcoin and Ethereum as assets excluded from being classified as securities.
- **Network Security:** Solana leverages several new technology approaches. The Solana [consensus mechanism](#) uses a new blockchain technology that is not widely used, and may not function as intended. There may be flaws in the cryptography underlying the network, including flaws that affect the functionality of the Solana Network or make the network vulnerable to attack. Solana's economic incentives may not function as intended, which may cause the network to be insecure or perform sub-optimally.





# Summary

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Crypto networks like Solana are platforms for the next era of the web and wave of the cloud. Web 3.0 dApps are providing novel benefits and seeing strong consumer demand. However, many of the leading blockchain cloud computing platforms today are slow and expensive to use or require complex additional scaling solutions. This dynamic has limited mass adoption for many parts of the crypto economy. Solana takes a unique technology approach that optimizes trade-offs to prioritize for high scalability, making Solana transactions faster and cheaper than many other networks. Solana has gained a large, fast-growing active user base, developer community, and dApp ecosystem, which has been fueling the network's rapid growth. The Web 2.0 cloud computing market is a \$350 billion annual revenue and \$4.6 trillion market value opportunity and Solana has positioned itself as a leading Web 3.0 challenger that is already beginning to take market share.

Check out our in-depth reports on different digital currencies [here](#).





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Grayscale is headquartered in Stamford, Connecticut. For more information on Grayscale, please visit [www.grayscale.com](http://www.grayscale.com) or follow us on Twitter [@Grayscale](https://twitter.com/Grayscale).







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