Fidelity DIGITAL ASSETS℠

COIN REPORT:

Ethereum (ETH)

An overview of Ethereum and its potential use cases

By **Fidelity Digital Assets®**

Asset Type:	Blockchain Infrastructure
Consensus Mechanism:	Proof-of-Stake
Launch Date:	July 30, 2015
Max Supply:	Uncapped

Key Takeaways

Facts

- Ethereum was the first mover in enabling the innovation of smart contracts on a decentralized platform.
- Ether is the native token of the Ethereum network and is used to pay transaction fees.
- Ethereum has an ongoing roadmap and implements upgrades on an annual basis.

Strengths

- Ethereum has accrued strong network effects from its first mover advantage as a smart contract platform.
- Ethereum has prioritized security and decentralization, providing users with greater reliability, censorship resistance, and transparency than its existing smart contract competition.
- Ethereum can generate free cash flows to ether holders from transaction fees, reducing the overall supply and functioning like an automated share buyback system.
- Ethereum is fundamentally different from Bitcoin in its functionality and could be considered as a potential portfolio diversifier.

Weaknesses

- Ethereum's modular approach to scaling traded a degree of value capture for additional users.
- Ethereum's approach to decentralization sits between Bitcoin and Solana, causing the network to face steep competition as a monetary good and in terms of raw performance.
- Ethereum upgrades occur about once per year, and each change to the network comes with potential risks that investors should consider carefully.

What Is Ethereum and Its Value Proposition?

Ethereum was created in 2013 by Vitalik Buterin and launched in 2015.[1] In the Ethereum whitepaper, Buterin states, "the Ethereum protocol provides for a platform with unique potential; rather than being a closed-ended, single-purpose protocol intended for a specific array of applications in data storage, gambling or finance, Ethereum is open-ended by design, and we believe that it is extremely well-suited to serving as a foundational layer for a very large number of both financial and non-financial protocols in the years to come."[2]

The Ethereum protocol is a digital blank canvas for developers, where applications can be coded into existence and secured by a network of computers distributed all over the world. These applications, composed of smart contracts, are central to Ethereum's value proposition. The broad capability of smart contracts and their differences between the applications of the internet are further explored within the "Technology" section of this report.

The decentralized nature of the Ethereum protocol is a key differentiator from its competitors. Its open-ended design enables the protocol to be used broadly and creatively. This combination of utility and decentralization has made Ethereum's native currency, ether, the second largest digital asset by market cap, worth nearly $400 billion.

The ether token is essential to transact on the Ethereum network. Each transaction contains a transaction fee, or "gas fee," paid in ether to complete the transaction. Whether it is a developer creating and launching a new application or a user interacting with an application, ether is needed to pay for these transactions.

Investment Thesis

The requirement of ether to use the network is at the core of its investment thesis. In theory, if the demand to use applications on the Ethereum network increases over time, so should the demand for the token, ether.

Just as bitcoin represents a non-sovereign means of storing value and making payments, Ethereum represents a globally neutral, open-source network of applications. Therefore, this report takes the stance that it is possible that a network like Ethereum could follow typical adoption curves seen across other revolutionary technologies.

Decentralized finance and stablecoins represent a sizable portion of activity on the Ethereum network today. Although Ethereum is inherently financial in nature, applications built on Ethereum span the full range of computational possibilities, casting a large net for addressable markets.

The supply side of ether comes from proof-of-stake issuance and is more stable relative to other currencies. Its mechanism specifically prevents hyperinflation and has a maximum possible net

inflation rate of 1.5% per year. In practice, ether supply will fluctuate modestly within a range of -1% to 1%, based on the current design.

Combining demand inherent to the adoption of the network with a stable supply gives investors a clear understanding that the investment thesis relies heavily on what the adoption curve will look like over the coming decades. This allows investors to decide for themselves what the range of adoption outcomes looks like and identify if this demand trend is worthy of investment.

However, with Ethereum's ongoing roadmap, it is important for investors to consistently monitor and adjust their investment thesis accordingly.

History and Future

Initial Token Allocation

The Ethereum ecosystem that exists today is vastly different from the network that launched in 2015. Ethereum launched as a proof-of-work blockchain with a "genesis sale" to raise funds for the Ethereum Foundation. Below is a comparison of Bitcoin and Ethereum supplies as of August 13, 2024:

Protocol	Pre-Genesis Block Supply	Circulating Supply	Total Supply
Bitcoin	0	19,739,471	21,000,000
Ethereum	72,000,000	120,272,421	Uncapped*

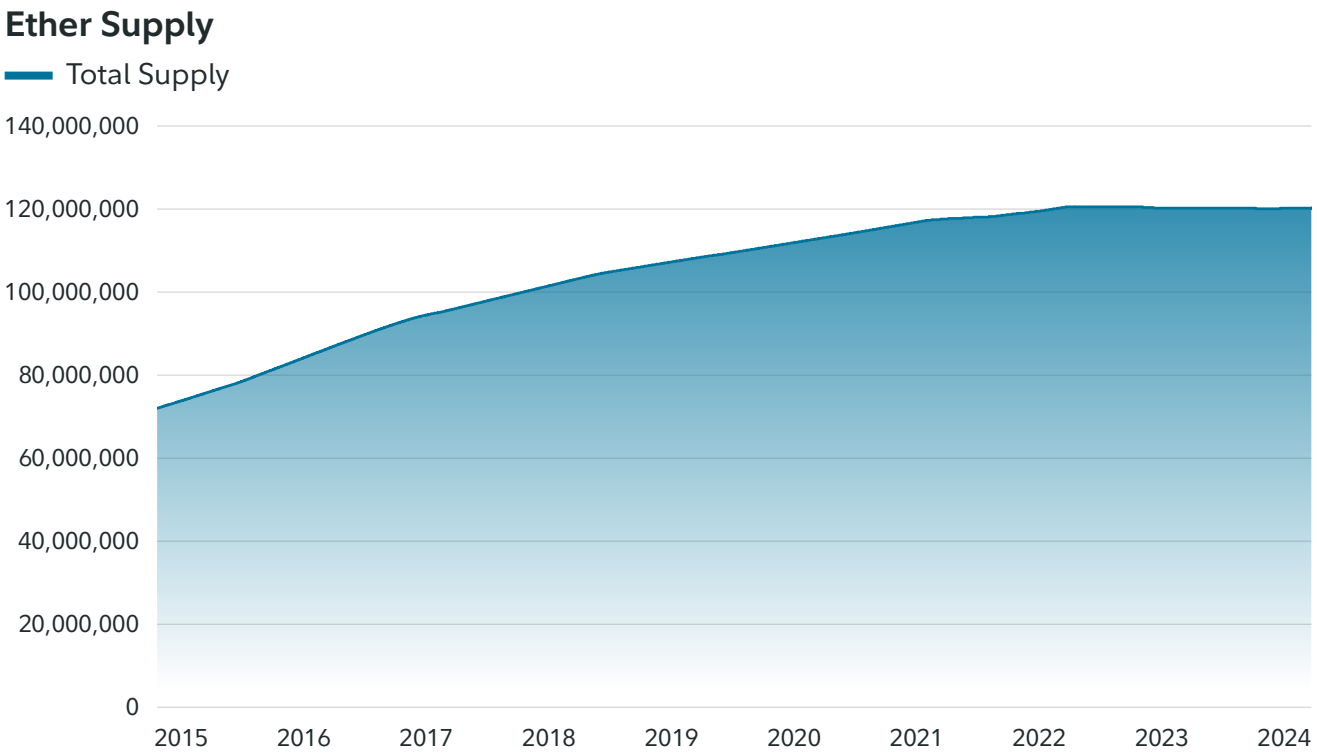
Source: Coin Market Cap, 08/13/24.
**In theory, ether supply is infinite but has programmed parameters to ensure that the total inflation rate cannot exceed 1.5% annually.*

Interestingly, the difference between the pre-genesis supply of Ethereum and its current supply can be mostly attributed to its proof-of-work distribution. Compared to other proof-of-stake networks, this allowed ether to gain a wide distribution in its early years like that of bitcoin. This wide distribution provided the network with a strong foundation for its transition to proof-of-stake, given that a substantial amount of supply was distributed to Ethereum proof-of-work miners.

The Merge to Proof-of-Stake

Ethereum's Merge marked a pivotal transition from proof-of-work to proof-of-stake. Initiated with the Beacon Chain launch in 2020, The Merge was completed in 2022, integrating the Beacon Chain with Ethereum Mainnet. This shift significantly reduced Ethereum's energy consumption by approximately 99.95% and decreased ether issuance by about 89%, stabilizing the supply.[3]

The substantial decrease in issuance that began with The Merge solidified the stable nature of ether supply. The constraints around ether issuance under proof-of-stake ensure that network security can continue to grow without becoming too expensive to maintain.



Source: Fidelity Digital Assets Research via Coin Metrics, 08/12/24.

The Modular Approach to Scaling

In 2021, Ethereum faced significant scaling challenges due to high demand, leading to extremely high transaction costs. The modular approach to scaling addresses these issues by separating distinct functions into distinct layers. This method allows for more efficient transaction processing and data management. Ethereum's primary focus remains on being a secure, decentralized data availability layer, leveraging the modular approach to facilitate the execution of transactions.

Roadmap

Given the impacts each upgrade can have on the network, it is important to understand the Ethereum roadmap and what changes may be coming. Ethereum is an ever-evolving network—investors should note this and plan accordingly.

Below is a concise breakdown of the general roadmap as co-founder Buterin shared in 2023:

- The Merge: Upgrades relating to proof-of-stake validation.
- The Surge: Upgrades related to scalability by rollups and data sharding.
- The Scourge: Upgrades related to censorship resistance, decentralization, and protocol risks from MEV.
- The Verge: Upgrades related to verifying blocks more easily.
- The Purge: Upgrades related to reducing the computational costs of running nodes and simplifying the protocol.
- The Splurge: Other upgrades that do not fit well into the previous categories.[4]

Governance

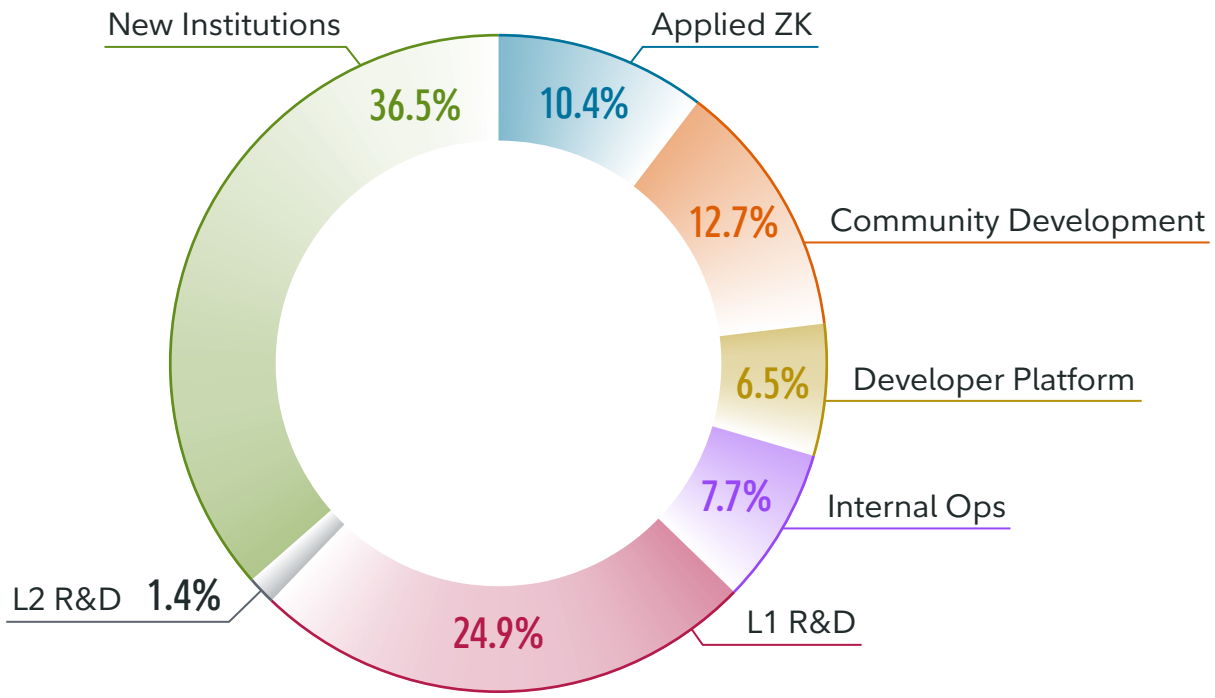
The Ethereum Foundation

The Ethereum Foundation is a non-profit organization which works to support the overall Ethereum ecosystem. The group's functions include helping fund protocol development, growing the ecosystem, and advocating for Ethereum. Its executive board is comprised of three members, which includes Buterin.

Since being established in 2015, the Ethereum Foundation has held a philosophy with two core tenets: long-term thinking and subtraction. The Ethereum Foundation believes its work will be measured in the long term, referencing a timeline that spans decades and centuries rather than quarters and fiscal years. Moreover, it uses subtraction as a guide. This means reducing its power whenever possible and resisting what it views as the natural tendency of organizations to grow and accumulate power. The overarching goal of the Ethereum Foundation is for the network to thrive with the support of a broad community rather the foundation and its board.

The most tangible role that the Ethereum Foundation plays in the ecosystem is funding. The Ethereum Foundation was allocated 3.5 million ether at the initial token launch and has an annual budget of about $100 million to fund various parts of the research and development landscape.[5] The breakdown of 2023 funding is demonstrated below:

Cost by Category 2023



Source: Starke, J. [@0xstark]. (2024, August 27). Here's a preview of spend information from the upcoming report (exact figures TBD). [Post].

The funding amount and breakdown changes constantly depending on what the community feels should be prioritized. While the Ethereum Foundation does not directly decide what the community should work on, it has some influence in directing funds toward its areas of interest.

Overall, the Ethereum Foundation plays an integral role in the Ethereum ecosystem, mostly through research and funding. However, the group does strive to reduce that role over time.

Ethereum Improvement Proposals and Upgrades

Ethereum's governance involves a structured process for proposing and implementing changes through Ethereum Improvement Proposals (EIPs). These proposals are discussed in All Core Devs (ACD) calls, where developers coordinate upgrades. The process begins with drafting an EIP, which is reviewed and discussed by the community. If the proposal gains overwhelming community support, it undergoes rigorous testing and security audits.

It is important to note that governance decisions regarding how to improve Ethereum are made off-chain. The decision-making process occurs in public forums, allowing for changes to come from within the community as opposed to being driven from a top-down structure.

Once an EIP is thoroughly vetted, it is included in a network upgrade, ensuring the changes are secure and stable. These upgrades happen much less frequently than when the network was first being built out. It is a general expectation set by developers that they will bundle several proposals into a single upgrade on an annual basis moving forward.

Token Issuance

Ethereum's "monetary policy," or token issuance, aims for a minimum viable issuance, ensuring just enough ether is issued to maintain network security. While there have been adjustments to the issuance curve in the past, the primary goal of minimizing issuance without compromising security has been consistent. This approach balances the need for security with the desire to limit inflation, often leading to debates on the optimal security threshold.

Technology

Smart Contracts

Smart contracts are central to what makes Ethereum unique. The simplest way to frame smart contracts is as programmed logic which functions similarly to the applications on a cell phone. The core differences between smart contracts on Ethereum and the applications on a phone are where they live and how they operate.

Smart contracts that live on Ethereum benefit from the auditability and uptime of its blockchain. This means that any user can see the logic by which each application operates and verify its

legitimacy. Additionally, Ethereum has not experienced a complete outage in its history, providing the applications that it hosts extremely reliable uptime and accessibility.

This is unlike many applications used today, as the core logic is not typically shared to the public. It relies on greater trust in the application provider to ensure proper data handling and correct operational procedures. Lastly, internet-based applications rely on a smaller set of servers to properly function which increases the likelihood of outages.

Therefore, smart contracts can provide the full functionality of other popular applications, yet benefit from the greater transparency, censorship resistance, and reliability that Ethereum provides.

Issuance and Burn

Ethereum launched with a proof-of-work consensus mechanism, however, the roadmap always called for the eventual transition to proof-of-stake. The change to proof-of-stake had major implications on the economics of the network and the investment profile of ether. The decreased issuance realized by The Merge combined with the burn mechanism implemented in 2021 turned the Ethereum network into a productive asset that can return net cash flows to investors in the form of token burn.

It is important for investors to understand that net cash flows of Ethereum are dynamic and will change based on demand of the network and ongoing developments of the protocol.

Ether Supply Since The Merge

Source: Fidelity Digital Assets Research via Coin Metrics, 08/12/24.

How Does Staking Work?

Ethereum's transition to proof-of-stake, also known as The Merge, has brought about a new way to prove that validators are adding value to the network. To participate, validators must deposit at least 32 ether into a smart contract and enter the activation queue. Once activated, a lottery-like system takes place, where one validator is randomly selected into the slot to procure the next block.

Every 12 seconds, a new slot is available, and each epoch lasts for 32 slots. Every slot also includes a randomly selected committee of validators to determine the validity of the block being proposed. This committee is necessary to manage the network load and ensure participation by every active validator in each epoch.

The issuance of new ether takes place on the consensus layer. The amount of ether rewarded to each validator fluctuates and depends on the total number of validators participating. In 2024, there has been an average of 2,496 ether issued per day to 1,059,471 total validators as of August 15, 2024.[6] One individual can have multiple validators. Approximately 0.33% of the total validator count may exit the consensus layer smart contract on a given day.

Ethereum's Burning Mechanism

Another major update to Ethereum that occurred in recent years is its burning mechanism, which was implemented as part of the London upgrade. Unlike Bitcoin, Ethereum has an unlimited supply, and the burning mechanism was implemented to incentivize network activity over staking, which now drives value directly to ether holders in the form of burn or "token buybacks."

For a transaction to execute on the Ethereum blockchain, a base fee needs to be paid. This base fee amount fluctuates block-to-block based on transaction activity levels. Under Ethereum's proof-of-work system, this base fee was rewarded to miners. However, through the London upgrade and later The Merge, this base fee transitioned from a reward to miners to a decrease in total supply via burning.

Since the burn mechanism was implemented in August 2021, a total of 4.4 million ether has been burned. This equates to a direct value accrual to ether holders of $12.3 billion as of August 30, 2024, which would have otherwise gone to miners or validators.[7]

Layer 2 Rollups

There is a second layer to Ethereum where additional transactions occur. This second layer is made up of many additional blockchains that are optimized for performance. On these blockchains, transactions are conducted in larger numbers with low fees. These transactions are consolidated into a batch of transactions that is shared on the Layer 1. Transactions are not subject to fees on an individual basis through this process as they would be on the base layer. Instead, they are batched together, and each transaction pays a small piece of a combined fee, improving efficiency and lowering costs for users.

Storing Layer 2 transaction data on Ethereum not only allows for efficiency through batching but also provides Layer 2 users with additional security. Posting transaction batches to Ethereum allows any interested party to verify that the transactions shared from other blockchains are valid. Therefore, Layer 2 blockchains can optimize for performance and simply offload some of the security to Ethereum.

As of December 2024, the Deneb-Cancun upgrade is the most recent network update, having taken place in March 2024. In this upgrade, blobs were introduced to further increase transaction efficiency, making it possible to attach large pieces of data (blobs) to regular transactions. The result is lower fees on Layer 2 rollup transactions and less ether being burned. This upgrade highlights the dichotomy between ether investors and users: *Higher fees are beneficial for investors due to the burning mechanism, while lower fees are advantageous for users as it is less costly to transact.*

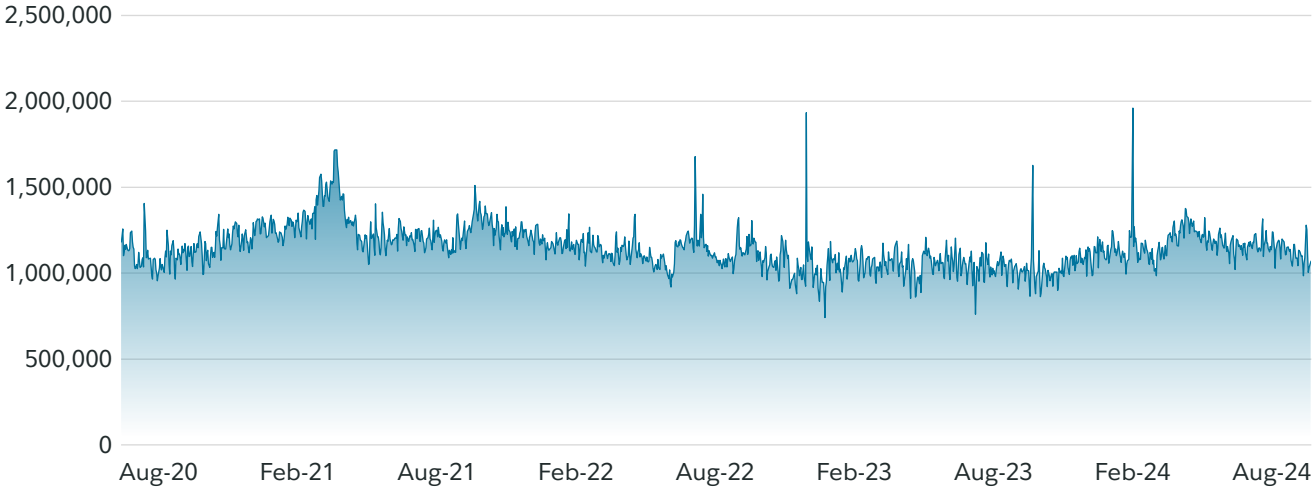
Since the Deneb-Cancun upgrade, ether supply has increased, suggesting that the increased efficiency has not yet been offset by transaction activity. However, the net result has been lower inflation and lower fees, which can be seen as a happy medium. It is still early, and further upgrades may continue to change the network dynamics of Ethereum. Regardless, it is likely worth monitoring the ongoing inflationary and deflationary trends of ether supply.[8]

Fundamental Analysis

Transactions

Over the last four years, Ethereum has had an average of 1.14 million transactions per day on its base layer.

Ethereum Layer 1 Transaction Count



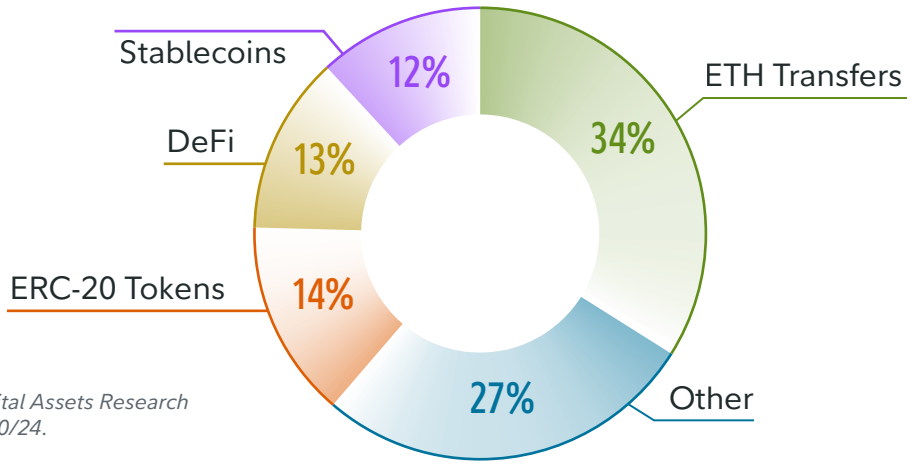
Source: Fidelity Digital Assets Research via Coin Metrics, 08/20/24.

The most common use cases for transacting on the Ethereum network include:

1. Ether transfers
2. ERC-20 tokens (a standard for fungible assets)
3. Decentralized finance activities
4. Stablecoins

In 2024, these use cases represent 73% of all network transactions, or roughly 832,000 transactions in an average day. Below is a full breakdown of transaction types.

Ethereum Transaction Type Breakdown



Source: Fidelity Digital Assets Research via Glassnode, 08/20/24.

The Ethereum ecosystem supports ether as well as many other non-native tokens. This is a distinct difference when compared to Bitcoin, as the latter only supports its native token. The two most common types of non-native tokens are ERC-20 tokens of which stablecoins are a sub-category. As evidenced above, there is a clear need to support non-native tokens as ERC-20 tokens and stablecoins make up 26% of daily transactions.

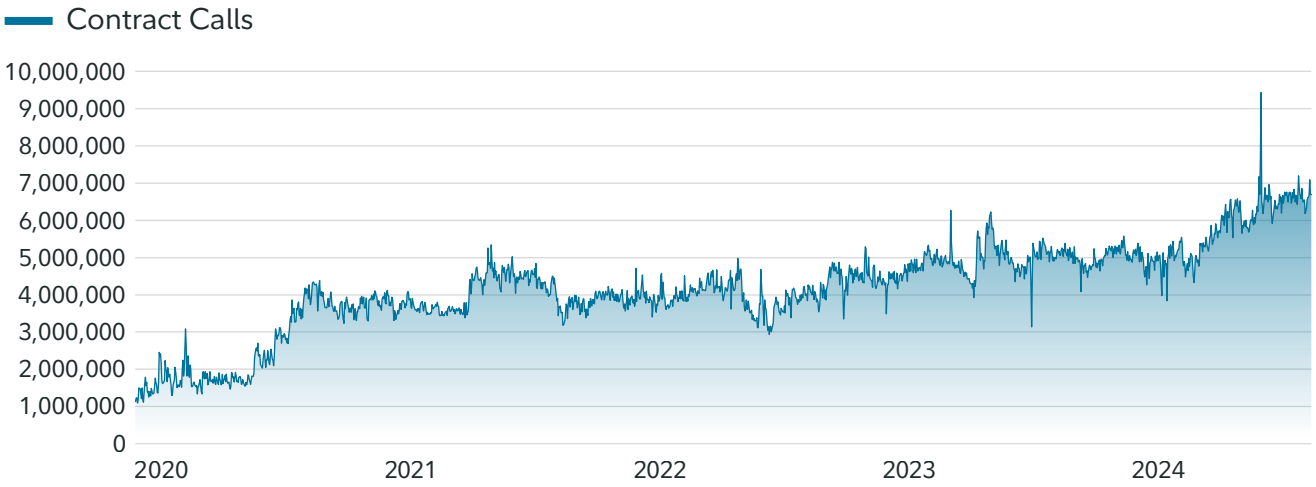
Smart Contract Functionality

Smart contract calls are a proxy for overall functionality of the network. Therefore, more calls equal more complex transactions occurring and/or more utility for users.

The number of smart contract calls initiated per day has been rising steadily since Ethereum's launch. In 2024, the network surpassed a daily average of seven million smart contract calls.

Since smart contracts are programmed logic, this metric can be used as a proxy for the overall functionality of the network and utility to users. The sustained increase in smart contract calls on Ethereum may show that users are able to facilitate more complex transactions than previously and are therefore benefitting from the greater utility of the applications built on the network. Note that this data includes both executed and failed smart contract calls, but still points to clear growth in the utility of the network.

Smart Contract Calls Per Day



Source: Fidelity Digital Assets Research via Coin Metrics, 08/07/24.

Layer 2 Analysis

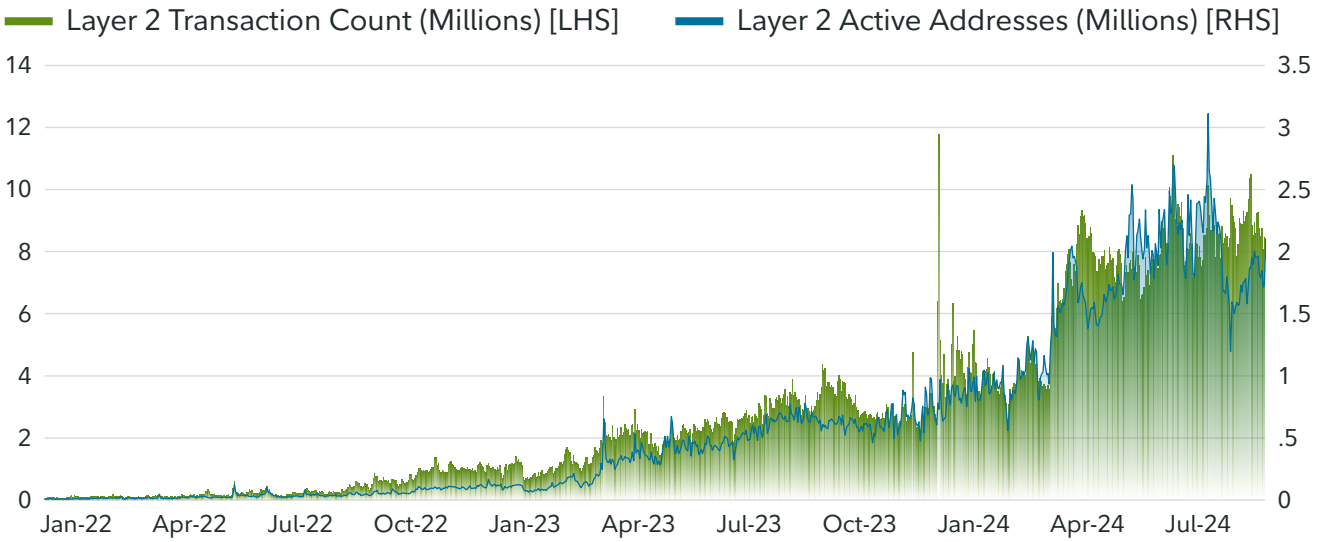
Ethereum relies on Layer 2s to process most of the transactions at a low cost, while the Layer 2s rely on Ethereum for its security and censorship resistance.

The two most popular types of Layer 2 blockchains are Zero-Knowledge and Optimistic. These distinct types of blockchains accomplish the same task of processing transactions but derive their security from Ethereum in separate ways. The exact difference in security guarantees is more

relevant to users of these blockchains to understand. However, investors should be aware that they both scale Ethereum and differ in their security mechanisms.

To measure activity on these rollups, this report will look specifically at the number of transactions and active addresses per day.

Layer 2 Transactions and Active Addresses



Source: Fidelity Digital Assets Research via Dune Analytics, 08/26/24.

Between Optimistic and Zero-Knowledge rollups, roughly two million active users are making 10 million transactions per day as of August 26, 2024.[9] The growth in activity and users of these platforms is noteworthy over the past year, signifying that the Ethereum network is capable of continuous growth through the modular scaling approach. When viewing this data through the lens of Metcalfe's law, the value of the Ethereum network has grown significantly over the past years due to this modular thesis.

However, this approach does sacrifice value accrual. Transactions that occur on Layer 2 platforms drive significantly less value to ether in the form of cash flows when compared to transactions on Layer 1. When viewing this data through a value accrual and financial lens, the trade-off is clear. Before the Deneb-Cancun upgrade in 2024, Layer 2 platforms accounted for about 20% of all Ethereum revenue. After the upgrade decreased the fees generated from Layer 2s, they now make up roughly 1% of all fees.[10]

This upgrade specifically sacrificed revenue and value accrual from Layer 2 platforms to lower fees for users and increase the capabilities of the network.

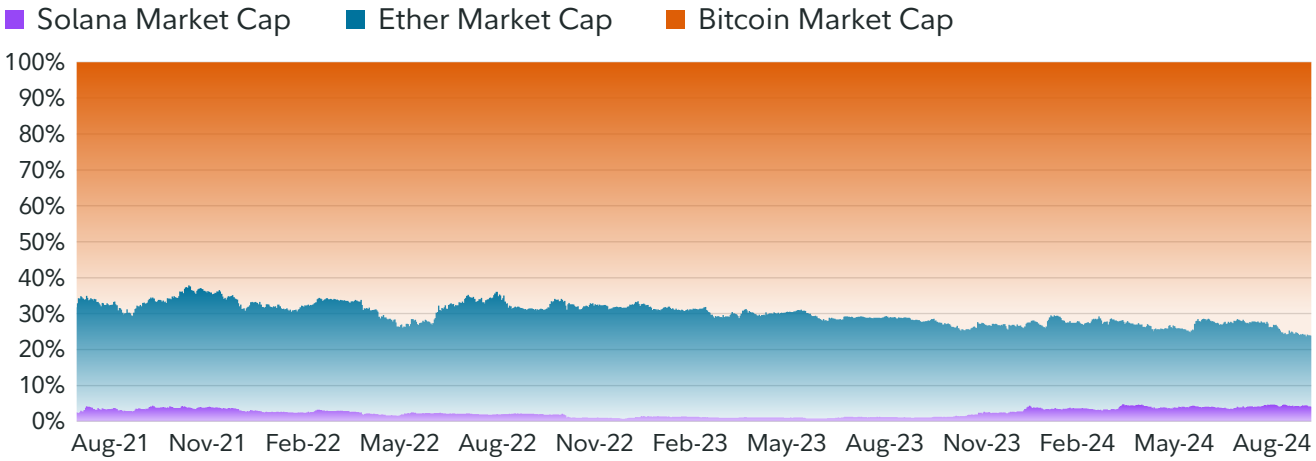
The lever described here is between Metcalfe's law and value accrual. There is still a possibility that Ethereum revenue increases due to substantial long-term growth in Layer 2 activity, but this remains to be seen. Therefore, Ethereum's long-term value accrual prospects rely on a significant increase in demand from Layer 2 users to make up for the sacrificed revenue.

Competitor Analysis

Market Share/Dominance

There is always the possibility that a new incumbent may overtake Ethereum as the smart contract platform of choice—something Solana has demonstrated to an extent as Ethereum's largest competitor to date. On August 7, 2024, Solana hit a new all-time high when priced in ether: an investor could trade one Solana token for .0618 ether.

Market Share Trends



Source: Fidelity Digital Assets Research via Coin Metrics as of 08/31/24.

Solana represents the most notable example of the competitive risk that Ethereum faces. The former's strategy of providing a low-cost Layer 1 blockchain—sacrificing decentralization for convenience and efficiency—is seemingly proving to be advantageous so far. Comparatively, on Ethereum, investors need to transfer tokens to Layer 2 ecosystems to get the same high-performance, low-cost fee environment that Solana enjoys on its Layer 1.

This highlights a potential pain point for Ethereum as developers face the classic **blockchain trilemma**. The higher the performance of a chain, the more transactions it can process and therefore the greater value it can accrue directly. However, with greater performance requirements of the blockchain comes greater centralization and lower security guarantees.

Ethereum has chosen to remain more decentralized, whereas Solana has embraced maximizing performance. By offloading its execution of transaction to Layer 2 platforms, Ethereum sacrifices some value accrual to remain decentralized. On the contrary, the raw performance of Solana allows it to process millions of transactions per day, which all can directly accrue value to Solana holders.

Understanding the Blockchain Trilemma

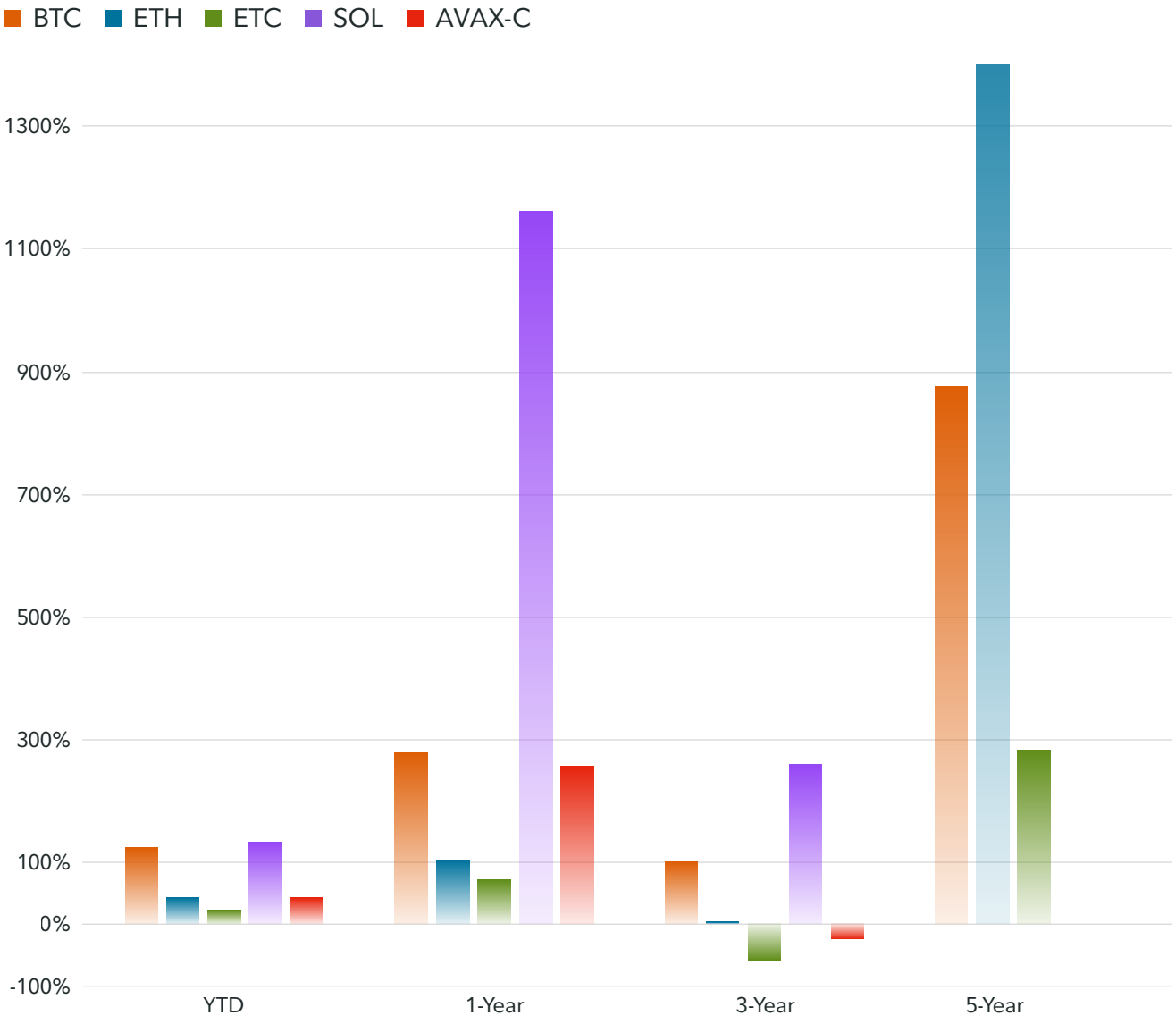
The blockchain trilemma was outlined by Ethereum founder Vitalik Buterin in 2017. It proposes that a decentralized database such as Ethereum can only fully deliver on two of three guarantees: decentralization, security, or scalability.

It remains to be seen whether investors, developers, and users favor Ethereum's choice to prioritize decentralization. However, over the short term, Solana has gained meaningful ground in market share by taking a more centralized approach.

On the other side of the coin, Bitcoin has been successful by leaning into maximal decentralization and simplicity over performance. This suggests that there is not one clear path forward as both Bitcoin and Solana have grown with completely different strategies (and use cases). However, the space may be big enough for various blockchains to co-exist with varying levels of decentralization. The question for investors becomes which parts of the blockchain trilemma does the market find most useful.

Price Performance

Price Returns by Time Period



Source: Fidelity Digital Assets Research via Coin Metrics, 11/22/24.

When looking at price performance over the past five-year period, ether (ETH) has outperformed all competition. However, Solana (SOL), Avalanche (AVAX-C), and bitcoin (BTC) have led over the past three-year, one-year, and year-to-date periods. It is possible that ether may have just been overextended and needed a repricing relative to its competitors, but it could also be showing a shift in overall market preference.

It is worth noting that Ethereum Classic (ETC), an early hard fork of Ethereum, has consistently underperformed ether over its lifespan. This can be seen as an indication that developer activity and community support play a significant role in smart contract platform valuations. Although they shared a similar history, Ethereum was able to meet market demands in a greater capacity through its ongoing development success.

Fundamentals

2024 Averages	Tx Counts	Active Daily Users	Fee Per Transaction	Total Value Locked	Stablecoin Supply
BTC	536,498	492,439	$5.46	N/A	N/A
ETH	1,161,816	441,759	$5.72	$61,800,826,215	$98,481,841,320
SOL	33,738,861	3,900,633	$0.02	$8,741,311,112	$4,600,206,279
AVAX-C	264,652	42,560	$0.17	$1,297,361,848	$1,940,153,511
ETC	33,967	8,367	$0.002	$509,904	$71,551

Source: Fidelity Digital Assets Research via Coin Metrics, Dune Analytics, & Defillama as of 11/22/24.

Looking at 2024 fundamentals, although Solana has the clear edge in performance, most of the value locked in smart contracts or as stablecoins is on Ethereum, demonstrating the power of network effects. Additionally, the ratio of Ethereum users to transaction counts when compared to Solana shows that the average user on Solana transacts significantly more than on Ethereum.

Financials and Valuation

2024 Annualized	Inflation Rates	Total Fees	Fees Less Issuance	Net Fees Per Coin	Price-to-Fees
BTC	1.14%	$980,257,843	$(12,568,246,095)	$(635.23)	1,989
ETH	0.22%	$2,481,512,194	$(279,019,840)	$(2.32)	163
SOL	4.44%	$638,785,161	$(3,364,361,213)	$(5.72)	237
AVAX-C	13.39%	$16,471,670	$(1,589,197,142)	$(3.89)	225
ETC	3.72%	$21,805	$(134,522,154)	$(0.90)	188,481

Source: Fidelity Digital Assets Research via Coin Metrics as of 11/22/24.
The columns above are all annualized figures using 2024 year-to-date data as of 11/22/24.

Ethereum leads in every category listed above, suggesting that it has the greatest balance between issuance and fees which gives investors the greatest prospect for value capture. However, it is important to note that each network has its own unique issuance and fee mechanisms which may change where the value captured by each network is diverted.

In the case of bitcoin, all fees go to miners, which dilutes bitcoin holders at the rate of issuance. When looking at other networks that burn a portion of their fees, Fees Less Issuance can be used to understand the amount of issuance dilution that is offset by fees.

Importantly, proof-of-work security is a consistently competitive market which often requires miners to sell a substantial portion of the issuance that they capture. To the contrary, proof-of-stake network security often does not require the same amount of ongoing costs. Therefore, the inflation rate is less likely to negatively impact price to the same degree.

Scenario Analysis

Bull Case: Smart contract platforms revolutionize various aspects of society by enhancing global coordination and trust. Ethereum remains the leading smart contract platform due to its continuous innovation. Many users and businesses prefer Ethereum for its decentralization, security, transparency, and reliability, which are achieved without compromising user experience. Transactions on Layer 2 platforms are frequent enough to keep individual costs low, while still generating significant cumulative revenue for ether holders.

Base Case: Smart contract platforms improve specific segments of financial and non-financial markets, serving as a checks and balances protocol within a traditional system mostly dominated by governments and large corporations. Many users and businesses benefit from decentralized networks of smart contracts. However, growth is slower than typical technological adoption curves due to Ethereum's inherently financial nature. While it still grows and eventually captures some percentage of its addressable markets, its integration into various aspects of society takes longer than technologies such as the cell phone or internet. Ethereum remains a dominant smart contract platform with reasonable value accrual prospects for investors. However, specialized competition limits Ethereum's market share to use cases requiring the highest security and trust.

Bear Case: Smart contract platforms experience cyclical trends but fail to produce widely desired products. Centralized systems continue to innovate faster and offer more utility to users than distributed systems. Most digital interactions do not prioritize decentralization, censorship resistance, or transparency. The slow and inconsistent growth of the Ethereum network results in a failure to attract significant users, hindering value accrual for ether holders. Additionally, Ethereum's market share may decline due to competitors offering better user experiences for the few use cases that benefit from smart contract platforms.

Risks and Uncertainty

Like all other digital assets, ether faces risks associated with its investment properties. Most cited is its considerable volatility. Ether, along with other digital assets, commonly sees large cyclical drawdowns, which should make investors especially mindful of investment time frames and appropriate allocation sizing.

Digital assets also operate in less regulated environments compared to traditional financial markets, which can mean that these investments lack the investor protections and transparency that investors are used to. These risks can manifest in fraud or market manipulation, and in such events, investors often have limited or non-existent legal recourse. For example, there is typically no insurance on deposits or regulatory oversight of exchanges, which can leave investors vulnerable.

Regulatory bodies like the SEC and CFTC are increasingly focusing on the digital assets markets to address these issues. However, the regulatory landscape is still evolving, which can introduce both risks and opportunities. Investors should stay informed about regulatory developments and consider the potential risks involved in trading and investing in all digital assets.

The remainder of this section focuses specifically on risks inherent to ether, which may or may not apply to other digital assets.

Competitive Risk

Ethereum faces competitive risk from a variety of blockchains. This risk can continue to come from both existing and newly created blockchains, as demonstrated in 2020 with the emergence of Solana. As blockchain technology becomes more mainstream, competition grows and the risk of becoming obsolete increases.

Technical Risk

The Ethereum community typically attempts to upgrade the protocol on an annual basis. These upgrades bundle many EIPs together and implement them all at once. Each time an upgrade occurs, it changes the code that Ethereum uses to function. With these changes come additional risks that investors should be aware of. Since many investors may not be able to verify the accuracy of the changes at all, this risk will be present and take time to decrease, as the Lindy Effect suggests.

Regulatory Risk

Ethereum's core protocol surpassed one of the larger hurdles in its regulatory journey with the 2024 approval of ether spot exchange-traded products (ETPs). While this approval signals that ether the asset meets certain regulatory standards, future regulatory enforcement could still have

a substantial impact on the development of the ecosystem. It is important to note that the entire ecosystem of applications on Ethereum still has room for regulatory clarification as well as the banking institutions who provide valuable on/off ramps to the environment.

Governance Risk

The most direct impact that Ethereum governance has on the network is deciding what parts of Ethereum change. Ethereum's governance process being community-driven presents two commonly cited challenges.

First, changes to Ethereum typically impact stakeholders in the community in numerous ways and it can be difficult—if not occasionally impossible—to gain consensus on certain decisions. This structure has and will likely lead to slower development relative to other networks that may have a more top-down structure and can therefore move more quickly.

The second risk related to Ethereum governance has been described as "soft influence."[11] This risk is difficult to quantify and can be challenging for investors to weigh appropriately. The concept refers to the gradual changes in cultural values that the community holds true such that they benefit certain stakeholders over others. Soft influence typically plays out over prolonged periods of time and is a risk in any human-based governance structure.

It should also be noted there may be a related "key person risk." Ethereum's co-founder Buterin is still actively working on the network, conducting important research, and is seen by many as a leader. This potentially gives Buterin outsized influence over the community in terms of shaping direction and opinion.

Investors must understand that it is humans who control the direction of the network and make frequent decisions that determine this course. It is generally regarded that community-led governance is likely to lead to the greatest possible outcomes for the greatest number of people, but it is typically unreasonable for every stakeholder to benefit and be prioritized equally.

Contributors

Chris Kuiper - Director of Research, Fidelity Digital Assets®

Zack Wainwright - Research Analyst, Fidelity Digital Assets®

Daniel Gray - Research Analyst, Fidelity Digital Assets®

Martha Reyes-Hulme - Research Analyst, Fidelity Digital Assets®

Max Wadington - Research Analyst, Fidelity Digital Assets®

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1 Ethereum, The History of Ethereum, August 2024

2 Ethereum, Ethereum: A Next-Generation Smart Contract and Decentralized Application Platform, 2014

3 Ethereum, The Merge, July 2024

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5 Miyaguchi, A. [ayamiya.eth]. (2024, August 24). This is part of our treasury management activities. EF has a budget of ~$100m per year, which is largely made up of grants and salaries, and some of the recipients are only able to accept in fiat. This year, there was a long period of time when we were advised not to do any treasury activities due to the regulatory complications, and we were not able to share the plan in advance. Also this transaction is not equal to a sale. There will be planned and gradual sales from here on. [Post].

6 Fidelity Digital Assets Research via Glassnode, August 15, 2024

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9 Fidelity Digital Assets Research via Dune Analytics, August 26, 2024

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