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# The Investment Case for Aptos (APT)

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# About Bitwise

Bitwise is one of the world's leading crypto specialist asset managers. Thousands of financial advisors, family offices, and institutional investors across the globe have partnered with us to understand and access the opportunities in crypto.

Since 2017, Bitwise has established a track record of excellence managing a broad suite of index and active solutions across ETPs, separately managed accounts, private funds, and hedge fund strategies, spanning both the US and Europe.

In Europe, Bitwise (previously ETC Group) has developed an extensive and innovative suite of crypto ETPs, including Europe's largest and most liquid Bitcoin ETP. This family of crypto ETPs is domiciled in Germany and issued under a prospectus approved by BaFin. 100% of the assets backing Bitwise's products are securely stored offline (in cold storage) through regulated custodians. Bitwise products are designed to seamlessly integrate into any professional portfolio, providing comprehensive exposure to crypto as an asset class.

Access is straightforward via major European stock exchanges, with primary listings on Xetra, the most liquid exchange for ETF trading in Europe. Retail investors benefit from easy access through numerous DIY/online brokers, coupled with our robust and secure physical ETP structure, which includes a redemption feature.

# I Executive Summary

Aptos is a next-generation blockchain protocol, born from the lessons and technical expertise gained during Meta's Diem project, that is positioning itself as a potential disruptor in the Layer-1 blockchain space. Its foundation leverages regulatory insights, advanced technological innovation, and substantial institutional backing, such as \$350 million in publicly disclosed funding from major VC investors.

Since its launch in October 2022, Aptos has achieved significant milestones: It has processed 1.9 billion transactions, supports over 27.7 million active addresses, and has established partnerships with leading companies including Microsoft, Amazon, and Mastercard. Aptos distinguishes itself with a focus on scalability, security, and institutional adoption, utilizing innovations such as the AptosBFTv4 consensus mechanism, the Move programming language, and the Block-STM execution engine. These technologies enable sub-second transaction finality, heightened security against common smart-contract vulnerabilities, and parallel transaction processing to achieve a maximum long-term, theoretical scalability goal of 1 million transactions per second.

Aptos's ecosystem has rapidly expanded, with 191 active projects as of late 2024 across sectors like decentralised finance (DeFi), social applications, gaming, NFTs, and AI. Key contributors include Chingari, a social media platform driving user adoption; Tapos Cat, a gamified blockchain activity generator; and Thala Labs, which bolsters its DeFi ecosystem. High-profile integrations with institutional players such as BlackRock, Franklin Templeton, and Tether underscore growing confidence in Aptos's resilience and scalability. Its innovative staking model, featuring a 78.4% staking ratio and a 7.0% annual yield, fosters network security and economic sustainability.

Aptos is strategically focused on scaling through technical enhancements, including the adoption of the Shoal++ consensus protocol and ongoing ecosystem support via grants and developer tools. Its roadmap prioritises global adoption, particularly within the APAC market, leveraging partnerships, community programs, and targeted initiatives. The network's growth trajectory is supported by expanding user activity, DeFi advancements, and NFT market successes, including achieving \$1 billion in total value locked. With Metcalfe's Law guiding its valuation and a commitment to becoming the most scalable and secure blockchain, Aptos is well-positioned to challenge market leaders like Ethereum and Solana while capturing the opportunities presented by institutional-grade blockchain solutions.

# II Understanding Aptos (APT)

## *Poised to make a “Move”*

### *Our Thesis*

Understanding Aptos's origins provides crucial context for its potential as a next-generation blockchain protocol. Unlike many Layer-1 platforms that emerged during the crypto boom, Aptos was born from the intellectual capital and lessons learned from Meta's ambitious but ultimately unrealized Diem project. This heritage, we believe, provides Aptos with unique advantages in terms of technical expertise, institutional understanding, and regulatory awareness.

**Aptos's foundation in Meta's Diem project provides unique advantages in technical expertise and institutional understanding.**

The protocol emerged from Meta's Diem and Novi blockchain initiatives, which, despite having access to Facebook's massive distribution network and top-tier development talent, were ultimately halted by regulatory and political challenges.

Rather than viewing this as a setback, we see this regulatory experience as a crucial advantage. The Aptos team, comprised of key architects from these projects, has built their protocol with a deep understanding of both technical requirements and regulatory considerations.

The team's institutional product management, world-class technical expertise, and hard-won regulatory lessons have positioned it to succeed in a crowded field.

Aptos Labs, established in December 2021, quickly attracted substantial institutional support, raising approximately \$350 million from prominent investors. This significant financial backing has enabled the team to focus on building robust, scalable infrastructure without the pressure of immediate monetization.

The protocol's vision—to become the most scalable and secure blockchain platform for global adoption—reflects both the team's technical ambition and its understanding of institutional requirements.



Q1 2018 – Q2 2019

### Development and Partnerships

- Marcus and Beller assemble a team of crypto experts, engineers, and economists to work on Libra
- The team develops a plan for a digital currency backed by low-risk assets, including bank deposits and US Treasuries
- Marcus and Beller pitch the idea to potential partners, bringing on board 28 companies and non-profits, including Uber, Vodafone, Spotify, Visa, and Mastercard, as founding members of the Libra Association.
- Facebook plans to build its own digital wallet, Calibra, with Marcus running the subsidiary

Q2 2020 – Q2 2021

### Rebranding and Regulatory Hurdles

- Stuart Levey, a former Treasury official, is appointed as the Libra Association's new CEO to underscore the project's independence from Facebook.
- Libra is renamed Diem, and Calibra becomes Novi.
- The project's scope is narrowed to create a digital currency backed one-for-one by the US dollar to placate regulators.
- Diem's leadership feels confident about testing the issuance of a small amount of Diem currency and trialing the Novi digital wallet.
- The US Treasury issues its first "No," requesting a temporary delay of the pilot.

Q1 2022

### Acquisition and Birth of Aptos

- Silvergate Bank acquires Diem's remaining assets to pursue its own stablecoin plans
- Key Diem personnel, including Mo Shaikh and Avery Ching, form Aptos Labs to continue pursuing their vision of bringing decentralization to the masses

Q4 2017

### Inception of Libra

- David Marcus, head of Facebook's Messenger app, proposes a global digital currency integrated into Facebook.
- Mark Zuckerberg approves the project, codenamed Libra
- Morgan Beller a partner at Andreessen Horowitz joins Facebook's corporate development team and becomes a blockchain advocate

Q3 2019

### Public Launch and Regulatory Backlash

- Marcus hosts the press launch of Libra at the Old San Francisco Mint, revealing the project to the public.
- Libra faces significant political backlash, with President Donald Trump and Treasury Secretary Steven Mnuchin expressing concerns about the project.
- Marcus testifies before the Senate Banking Committee, facing hostility from both Democratic and Republican senators.
- Amid tensions and concerns about regulatory scrutiny, several founding members, including PayPal, Visa, Mastercard, Stripe, and eBay, pull out of the Libra Association.

Q3 2021 – Q4 2021:

### Pivot Attempts and Concession

- Diem explores working with cryptocurrency company Gemini to issue the currency, but the plan is scuppered when New York Governor Andrew Cuomo resigns
- Marcus launches a pilot of the Novi digital wallet using the Paxos Dollar cryptocurrency instead of Diem, leading to further political backlash
- The US Treasury releases a report on stablecoin issuers, limiting affiliations with commercial entities
- Diem's investors become fatigued, and Mark Zuckerberg concedes defeat
- Diem CEO Stuart Levey announces the project's sale consideration in a mid-December Zoom meeting
- David Marcus resigns from Facebook

Q4 2022

### Aptos Mainnet Launch

- Aptos "Autumn" Mainnet is launched on October 12, 2022
- Aptos adds Names Services, enabling users to create human-readable names for their wallet addresses
- Aptos initiates a partnership with Google Cloud to provide tools and resources for developers building on the Aptos blockchain

Source: Bitwise Europe, adapted from Murphy, H., & Stacey, K. (2024), Financial Times.



Since its October 2022 launch, Aptos has demonstrated remarkable growth metrics that validate its approach:

- 1.9 billion processed transactions
- Over 27.7 million active addresses
- 8.4 million monthly active users
- More than 190 active projects
- Partnerships with major institutions including Microsoft, Amazon, Mastercard, and Coinbase

### **Early adoption metrics suggest strong market validation of Aptos’s technological approach.**

In analysing the current Layer-1 landscape, we observe a compelling pattern in how new Layer-1 protocols emerge and compete. Our analysis suggests that Aptos is following a similar trajectory to Solana’s successful challenge of Ethereum’s dominance, but with its own unique technological innovations that position it favourably for the next phase of institutional blockchain adoption.

### **Aptos represents the next evolution in Layer-1 protocols, following Solana’s successful blueprint of challenging Ethereum through technological differentiation.**

The Layer-1 ecosystem has become oversaturated with protocols that have failed to maintain clear technological advantages. Many attempted to differentiate themselves through minor technical variations but ultimately failed to establish sustainable competitive moats.

For instance, Solana succeeded precisely because it maintained unwavering focus on its core vision: a high-performance monolithic blockchain. This focus led to groundbreaking innovations like its localised fee market, which not only differentiated the protocol but established new standards for Layer-1 infrastructure efficiency.

### **Success in the Layer-1 space requires clear technological differentiation and unwavering focus on core innovations.**

Drawing from Clayton Christensen’s theory of disruptive innovation, we can view Aptos as a potential disruptor in the Layer-1 blockchain space. Christensen’s theory posits that disruptive innovations often start by targeting a niche market or underserved segment, offering a product or service that is initially inferior to existing solutions in some aspects but superior in others.<sup>1</sup> Over time, as the disruptive innovation improves, it begins to challenge and ultimately displace established players.

In the context of Layer-1 blockchains, Ethereum represents the established player, with its large developer community, extensive ecosystem, and long track record.<sup>2</sup>

(1) For additional background on Christensen’s theory, please consult the list of references at the end of this document.

(2) For a more thorough discussion of Ethereum, please consult our Ethereum primer, available at <https://etc-group.com/blog/special-reports/the-investment-case-for-ethereum/>



However, Ethereum’s sequential execution model and limited throughput have created an opportunity for newer protocols like Solana and Aptos to emerge as disruptive forces.

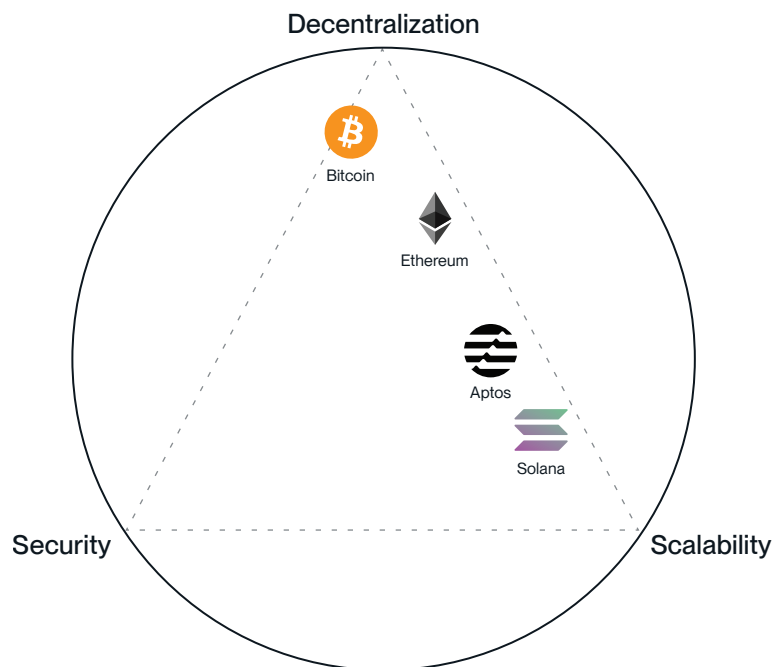
Aptos aims to carve out a distinct niche in the blockchain ecosystem by combining the scalability of Solana, the security of Ethereum, and a more centralised governance model. One of the key factors that sets Aptos apart is its focus on scalability.

Reinforcing its positioning, Aptos has introduced technical advances that we believe will help its competitiveness in the Layer-1 space:

- The AptosBFTv4 consensus mechanism
- The Move smart-contract language
- The Block-STM parallel execution engine

### Aptos and the Blockchain Trilemma

Aptos Combines Solana’s Scalability with Ethereum’s Security, Offering a Niche in Reduced Decentralization



Source: Bitwise Europe

These design features provide technical advantages in two key areas:

#### **Higher Throughput:**

Aptos's novel AptosBFTv4 consensus mechanism allows the blockchain to achieve sub-second finality, compared to 12 seconds for Ethereum and Solana. In addition, when paired with its Block-STM parallel execution engine, Aptos can theoretically process up to 160,000 transactions per second, compared to 119 for Ethereum Layer 1 and 65,000 for Solana.

#### **Better Programmability**

Aptos's use of the Move programming language for smart-contract development offers several advantages over Ethereum's Solidity in terms of safety and flexibility. Move's resource-oriented design helps prevent common vulnerabilities found in smart contracts, such as reentrancy attacks and unintended token transfers. By building on a more secure foundation, Aptos aims to provide a safer environment for dApp developers and users, mitigating the risks associated with smart-contract exploits and hacks.

In a sense, Aptos combines Solana's speed with Ethereum's stability to offer an institutional programmable blockchain.

#### **Aptos's core innovations in consensus mechanisms and programming language position it as a potential disruptor in the Layer-1 space.**

The blockchain industry is entering what we identify as its "stress-test" phase. While Ethereum has positioned itself as a settlement layer supporting Layer-2 solutions, Aptos offers a different value proposition. Modular chains such as Ethereum focus on verifiability and decentralization, while integrated chains like Aptos optimise for low latency and high throughput.

Through its native integrated architecture, Aptos can handle institutional demands directly on its base layer, as demonstrated by its ability to process 326 million transactions in a single day during peak activity. This is particularly significant as the industry moves toward increased institutional adoption and demand for high-performance blockchain solutions.

While Solana has achieved high transaction volumes, it has faced challenges under stress conditions. The network has experienced outages during periods of high demand, raising concerns about its reliability in handling sustained heavy loads. It has also slower finality (~12.8 seconds) compared to Aptos (~0.9 seconds).

**The timing of Aptos's emergence aligns with the industry's shift toward institutional-grade, high-performance blockchain solutions. Rapid growth in network activity and market position suggests accelerating adoption of the Aptos ecosystem.**

Network activity metrics strongly support our thesis. Aptos has maintained an average of over 223,925 daily active addresses and 3,940,226 daily transactions in 2024, with active addresses growing by +329% and daily transactions increasing by +8,100% compared to 2023. The protocol has even outpaced Ethereum’s daily transaction count and risen from 32nd to 23rd in market cap ranking since the end of 2023, demonstrating strong momentum in network adoption.

### **Aptos is emerging as an important home for “institutional DeFi,” with rapid growth in TVL.**

Aptos’s DeFi ecosystem, with TVL of around \$1 billion, is growing 87% quarter-over-quarter. This, combined with strategic institutional integrations from BlackRock and Franklin Templeton, provides strong validation of its technical architecture. This positions Aptos to potentially capture significant market share as the blockchain industry enters its institutional phase.

## *Aptos’s Tech Stack*

*The following sections present a detailed overview of Aptos’s underlying technology. Non-technical readers may wish to skip ahead to the “Adoption” section.*

### **AptosBFTv4**

Aptos’s tech stack is designed to address the limitations of existing blockchain networks, particularly in terms of transaction throughput and parallel execution.

At the heart of Aptos’s scalability is its use of the AptosBFTv4 consensus mechanism, a unique iteration of the practical Byzantine Fault Tolerance (pBFT) protocol based on the HotStuff algorithm (the core consensus algorithm used in the original Diem stablecoin project). AptosBFTv4 introduces several improvements over the original HotStuff, offering lower latency and faster consensus speeds.

One key difference is AptosBFTv4’s use of a “reputation-based leader selection process,” which aims to solve one of the key problems with Delegated Proof-of-Stake (DPoS) consensus mechanisms like pBFT. DPoS systems rely on “leaders” to generate proposals to settle transactions on a blockchain. Typically, these algorithms rely on “stake weight” to select leaders—essentially, the value of the assets each possible leader has staked to the protocol. This approach is effective but can create unnecessary latency if leaders fail to perform. AptosBFTv4 iterates on this approach by using both stake and validator performance to select leaders. This reputation-enhanced system measures a validator’s success rate as a leader (how often their proposals are committed) and as a non-leader (how often they vote on proposals). By prioritizing high-performing validators, AptosBFTv4 can mitigate the latency caused by faulty leaders.

Additional technical innovations add substantially to this reduction in latency. This quadratic view change reduces latency by up to 50% compared to HotStuff, further enhancing Aptos’s consensus efficiency.

## Quorum Store

Aptos's scalability is significantly enhanced by the Quorum Store, introduced in version 1.5.0 as an implementation of the Narwhal mempool protocol. This upgrade improves throughput by decoupling transaction dissemination from the consensus process, effectively addressing two primary bottlenecks in the previous design: redundant transaction broadcasting and uneven workload distribution among validators.

In the earlier design, transactions were broadcast to all validators during the mempool phase and then retransmitted by the leader during the consensus phase, leading to unnecessary network overhead. Additionally, the leader node was overburdened with processing raw transactions, while other validators handled only signed block metadata, resulting in an imbalance of responsibilities.

The Quorum Store addresses these issues by separating transaction distribution from consensus. This decoupling reduces redundancy, as transactions are disseminated once and then referenced during consensus. Consequently, all validators now share the responsibility for processing transactions, leading to a more equitable distribution of tasks and improved overall efficiency.

To use an analogy, the Quorum Store's process resembles the way a company's mailroom sorts and bundles incoming letters before distributing them to the appropriate departments. By organizing and validating transactions before they reach the consensus stage, Quorum Store streamlines the process and improves overall efficiency.

Looking at a competitor's strategy can help to clarify the advantages of the Quorum Store. Unichain, a recently launched Layer 2 blockchain, employs a batching mechanism to enhance scalability and efficiency. In this approach, multiple transactions are grouped into a single batch, which is then processed collectively. This method reduces the overhead associated with processing individual transactions and optimises resource utilization.

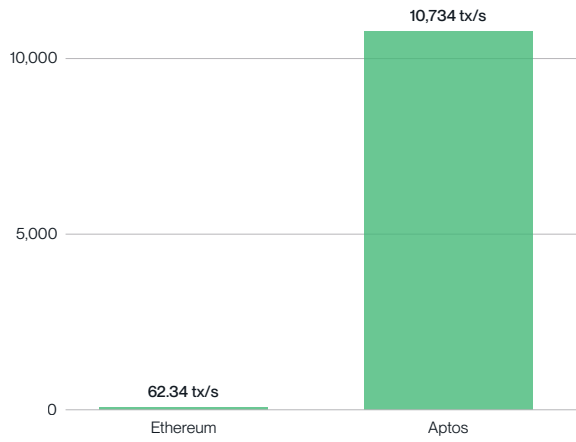
While both approaches aim to improve scalability, Quorum Store focuses on decoupling transaction dissemination from consensus to eliminate redundancy and balance workloads. In contrast, Unichain's batching approach consolidates multiple transactions into a single batch for collective processing. Both Aptos and Unichain implement strategies to enhance scalability and efficiency, but they employ different methodologies tailored to their respective architectures and performance goals.

In testing, Quorum Store increased Aptos's transaction per second (TPS) limits by 12x in a consensus-only test and 3x in an end-to-end test.<sup>3</sup> This substantial improvement in throughput lays the groundwork for Aptos's ambitious goal of reaching a max theoretical TPS of 1 million over the long term. The current max theoretical TPS is around 160,000.

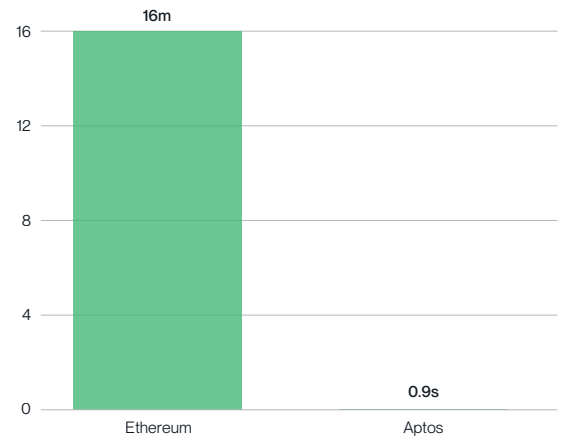
(3) [AIPs/aips/aip-26.md at main · aptos-foundation/AIPs · GitHub](#)

## Comparing Throughput Metrics: Aptos vs. Ethereum

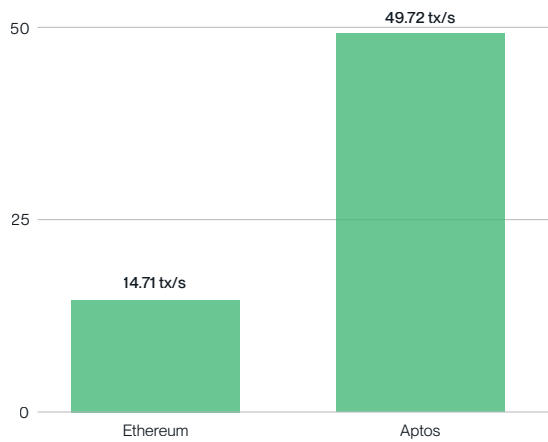
### Max Recorded TPS



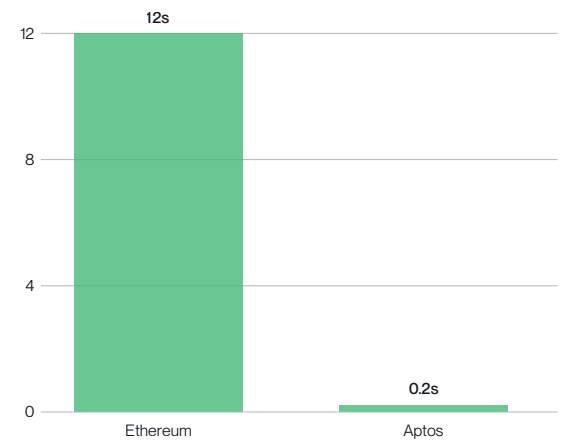
### Block Time



### Real-Time TPS



### Finality



Source: Bitwise Europe, Chainspect.app

## Block-STM

Aptos's Block-STM (Software Transactional Memory) execution engine is another key component of its scalability strategy. In contrast to the sequential transaction execution found in EVM-based systems, Block-STM enables parallel execution by grouping transactions with independent outcomes into separate threads.

Block-STM's parallel execution is powered by three core features:

### **Optimistic Concurrency Control**

Transactions are executed optimistically in parallel, with conflicts resolved after execution. This approach assumes that most transactions will not conflict, allowing for higher throughput.

### **Dynamic Dependency Estimation**

Block-STM minimises aborted transactions by tracking dependencies and marking failed transaction outputs as estimates. This allows dependent transactions to wait for resolution instead of executing prematurely and facing likely failure.

### **Collaborative Scheduling**

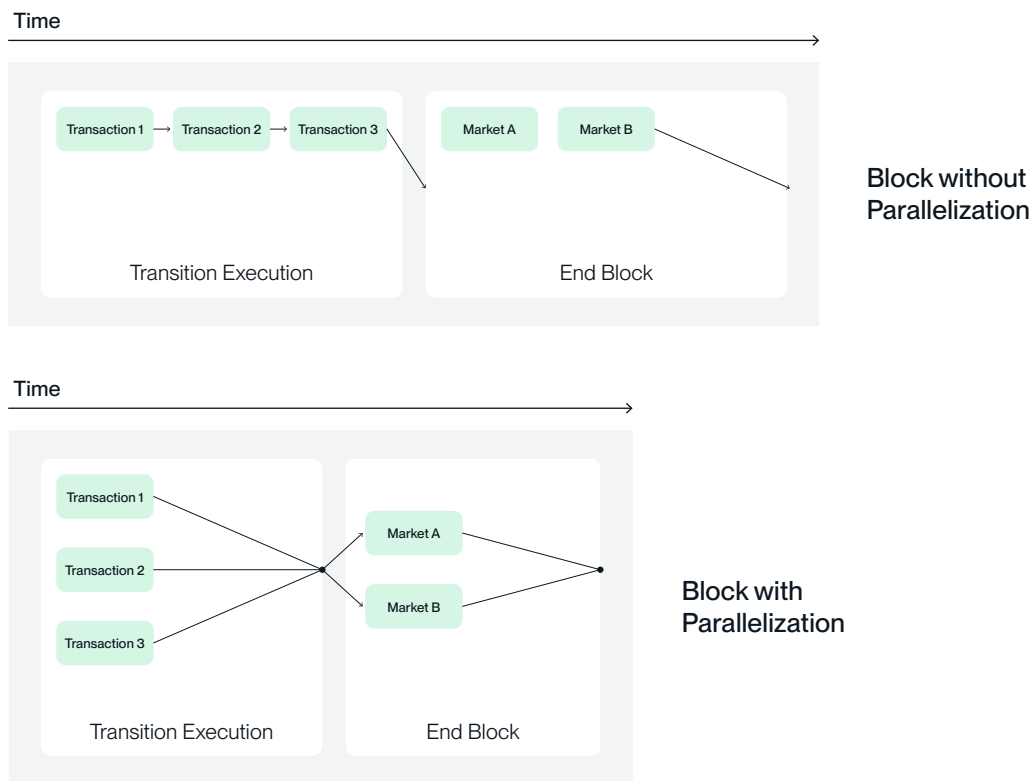
The execution engine intelligently organises transactions based on their complexity, using a counting method to optimise performance across multiple cores.

To illustrate the benefits of parallel execution, consider a restaurant kitchen. In a traditional setup, each dish is prepared sequentially by a single chef, leading to longer wait times during peak hours. Block-STM's approach is like having multiple chefs working concurrently on different dishes, with a head chef coordinating their efforts to avoid conflicts and optimise output. This parallel processing allows the kitchen to serve more customers without compromising quality.

Block-STM's advantages were evident during the recent market frenzy around NFTs. While EVM-based networks struggled with high gas fees and congestion due to sequential processing, Aptos's parallel execution allowed it to maintain stable performance under heightened transaction loads. By avoiding the bottlenecks associated with sequential execution, Aptos is better equipped to handle sudden spikes in network activity, ensuring a smoother user experience and a more reliable network.

Aptos's current tech stack has already demonstrated impressive scalability on Previewnet (testbed mirroring the mainnet environment), with the ability to process 2 billion transactions in 24 hours and achieve a maximum of 30,000 TPS. It should be noted that this was achieved in a testing environment. Aptos's maximum observed TPS, which was achieved on August 15, 2024, is approximately 3,777 transactions per second.

## Sequential Execution vs. Parallel Execution



Source: Bitwise Europe

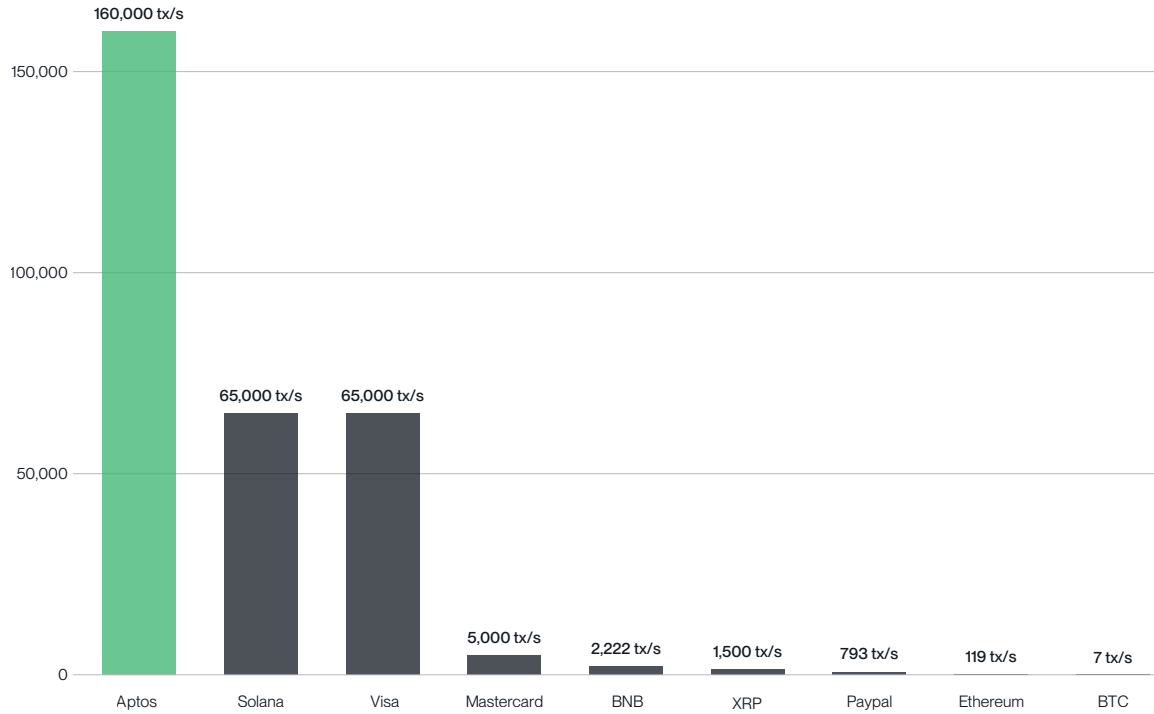
However, the Aptos team has set an ambitious goal of reaching 1 million max theoretical TPS in the long term, which would position Aptos as one of the most scalable blockchains in the world.

To put this into context, Visa, the world's largest electronic payments network, processes an average of 150 million transactions per day ( $\approx 1,736$  TPS).

Aptos's Previewnet testing has shown that it can surpass this daily throughput in a controlled environment. While real-world performance may vary, these results underscore Aptos's potential to handle the transaction volumes required for mass adoption.

## Maximum Theoretical Transactions Per Second (tx/s) Comparison

Aptos vs. Major Blockchain Networks and Traditional Payment Processors



Source: Bitwise Europe, Artemis

Aptos's Block-STM execution engine and its parallel processing capabilities position the network to handle the explosive growth of decentralised applications and the increasing complexity of smart-contract interactions. As the blockchain industry matures and more enterprises explore decentralised solutions, Aptos's scalability will be a key differentiator in attracting developers and users.

In the following section, we will explore how Aptos's choice of the Move programming language further enhances its security and positions the network for long-term success in the rapidly evolving blockchain landscape.



# *Move Programming Language*

As we have seen, Aptos's tech stack is built for scalability and performance. However, the security and reliability of a blockchain network are equally important, especially as the industry moves towards mainstream adoption. This is where Aptos's choice of sticking to the Move programming language comes into play, offering a new paradigm for smart-contract development that prioritises safety, flexibility, and expressiveness.

At its core, Move is an asset-oriented programming language, which means it treats assets (such as tokens) as first-class citizens. This is a fundamental shift from the contract-oriented approach of Ethereum's Solidity, where assets are typically represented as entries in a mapping within a smart contract.

In the Move programming language, each asset is treated as a unique resource with its own rules and behaviours. These resources are stored directly in a user's account, and when a transaction occurs the assets are moved between accounts, much like handing over a physical object. This approach enforces strict ownership, preventing accidental duplication, loss, or theft of assets.

In contrast, Ethereum's Solidity language employs a different model for asset management. Assets, such as tokens, are typically represented as balances within smart contracts. Instead of moving a unique asset from one account to another, Solidity updates the balance associated with each account in a ledger maintained by the contract.

To understand Move's approach in the simplest terms, imagine you have a physical gold coin. If you give this coin to someone else, you no longer possess it; the coin has moved from your ownership to theirs. Move's resource model mirrors this physical transfer, ensuring digital assets behave like tangible objects.

In contrast, to understand Solidity's approach, think of a ledger book where each person's name is listed alongside the number of gold coins they own. When you "give" a coin to someone else, you don't hand over a physical coin; instead, you decrease your number in the ledger and increase theirs. The actual coins aren't moving; only the numbers in the ledger are changing.

This distinction means that, in Solidity, the contract's code must carefully manage balance updates to prevent errors like double-spending or unauthorised transfers. Developers often implement checks and balances within the contract to ensure security and correctness. In contrast, Move's design inherently enforces these properties through its resource-oriented model, reducing the risk of such issues.

## What are the three main advantages of the Move Programming Language?

### Increased Safety

Move's type system enforces strict rules around asset ownership and transfer. This prevents common bugs like reentrancy attacks, which have been the cause of numerous high-profile hacks in Solidity contracts.

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### Improved Expressiveness

By treating assets as first-class citizens, Move allows developers to express complex financial interactions more naturally. This leads to cleaner, more readable code that is easier to audit and maintain.

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### Enhanced Performance

Move's ownership model eliminates the need for expensive runtime checks, as the type system ensures that assets are always in a valid state. This can lead to faster execution times and lower gas costs.

## Static Verification and Formal Proofs

Another key feature of Move is its focus on static verification and formal proofs. Move comes with a built-in formal verification tool called the Move Prover. The Move Prover allows developers to write specifications for their smart contracts, which are then checked against the implementation to ensure that the code behaves as expected.

This is a significant advancement over the current state of smart-contract verification in Solidity. While there are external tools available for analysing Solidity code, they are often limited in scope and require significant manual effort. By integrating formal verification directly into the language, Move makes it easier for developers to write secure, reliable code.

To understand the impact of formal verification, consider the process of building a bridge. Before construction begins, engineers create detailed blueprints and specifications that describe how the bridge should behave under various conditions. These specifications are then rigorously tested using simulations and scale models to ensure that the final product will be safe and stable.

Similarly, the Move Prover allows developers to create a mathematical specification for their smart contracts. This specification describes the expected behaviour of the contract, including any invariants that must hold true throughout its execution. The Move Prover then analyses the contract's implementation to ensure that it adheres to this specification, catching any potential bugs or vulnerabilities early in the development process.

## Resource-Aware Programming

In addition to its asset-oriented design and formal verification capabilities, Move also introduces the concept of resource-aware programming. In Move, resources are not just tokens or currencies, but can represent any type of asset, including real-world assets like property deeds or intellectual property.

Move's resource system allows developers to define custom resources with unique properties and behaviours. For example, a developer could create a resource that represents a non-fungible token (NFT) with specific attributes and ownership rules. These resources can then be used to build complex applications, such as decentralised exchanges or lending platforms.

The resource-aware approach has several benefits:

### **Increased Flexibility**

Move's custom resources allow developers to model a wide range of assets and interactions. This flexibility enables the creation of new types of decentralised applications that were previously impossible or impractical to build.

### **Improved Efficiency**

By encoding asset behaviour directly into the resource type, Move can optimise storage and execution. This can lead to lower gas costs and faster transaction times compared to Solidity-based contracts.

### **Enhanced Composability**

Move's resource system is designed with composability in mind. Resources can be easily combined and reused across different contracts and applications, enabling the creation of a rich ecosystem of interoperable tools and services.

## Overview of Major Blockchain Programming Languages

Feature	Move	Solidity	Rust
Launch Year	2019	2014	2010
Primarily used by	Aptos, Sui	Ethereum, Tron Chain, Binance Smart Chain	Solana, Polkadot, Near
Strengths	Secure, Scalable, Resource Guarantees	Flexible, Familiar Syntax, Large Developer Community	Versatile, Memory Safety, High Performance
Weaknesses	Relatively New, Evolving Ecosystem, Smaller Developer Base	Limited Scalability, Complex for Beginners, Prone to Vulnerability Like Reentrancy Attacks	Steeper Learning Curve, Not Blockchain-Specific

Source: Bitwise Europe, Antematter.io

# *Adoption*

## Funding Landscape

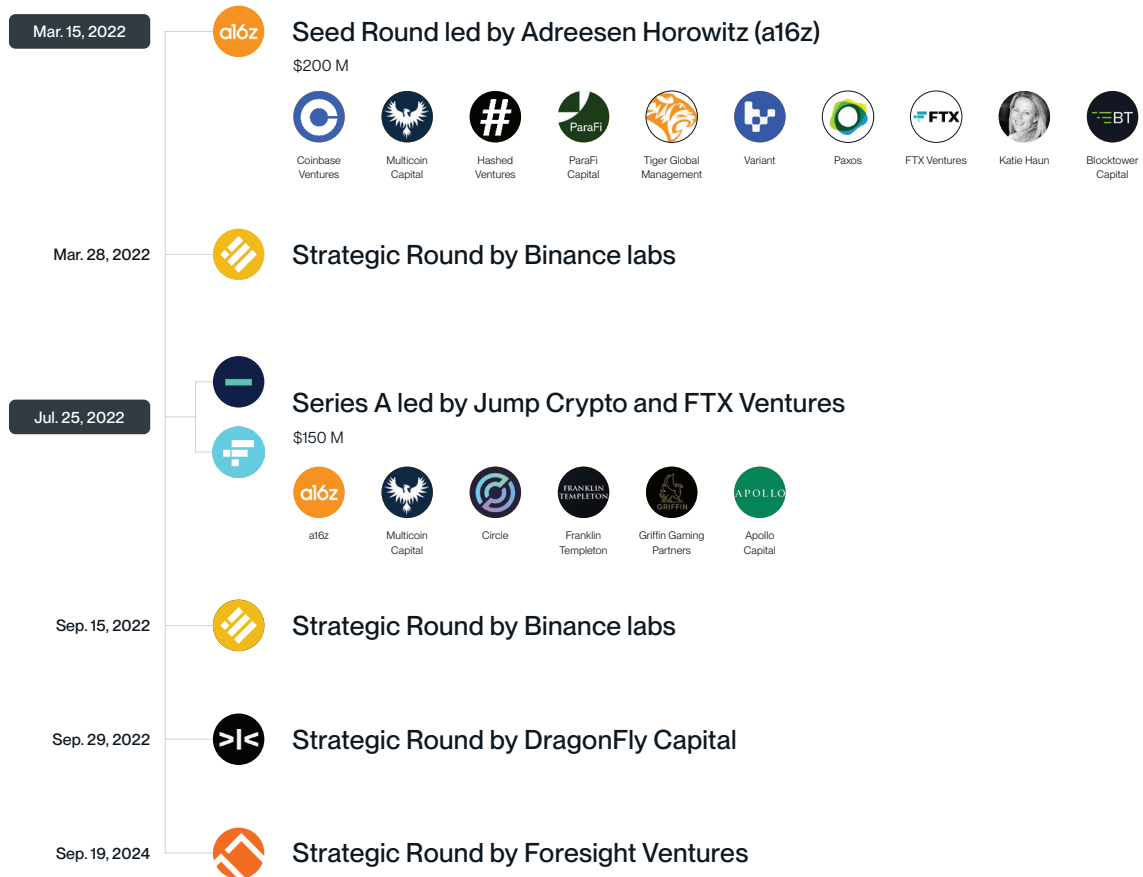
One of the key indicators of a blockchain project's potential is the level of institutional support it receives. Aptos has attracted significant funding from prominent investors, demonstrating strong confidence in the protocol's technical foundation and growth prospects.

In March 2022, Aptos Labs announced a \$200 million funding round led by Andreessen Horowitz (a16z), with participation from other notable investors such as Multicoïn Capital, ParaFi Capital, and Coinbase Ventures. This initial round was followed by an additional \$150 million raise in July 2022, led by Jump Crypto and FTX Ventures, bringing the total publicly disclosed funding to approximately \$350 million.

The substantial financial backing from reputable venture capital firms and crypto-native funds provides Aptos with the resources needed to accelerate development, attract top talent, and drive ecosystem growth.

In addition to its strong funding base, Aptos has actively pursued partnerships and integrations with key players across the blockchain industry. These collaborations serve to expand the protocol's functionality, improve developer and user experiences, and foster a more interconnected ecosystem.

## Aptos Funding Milestones



Source: Bitwise Europe, Artemis

# III Investing in Aptos

An investment in Aptos represents a bet that a high-performing, institutional-grade blockchain can either 1) win market share from competing programmable blockchains like Ethereum and Solana, or 2) grow new market demand for programmable blockchains.

We think Aptos might do both.

The biggest “signal” to us that Aptos might achieve these goals—aside from its foundational design and institutional support—is its robust early network activity.

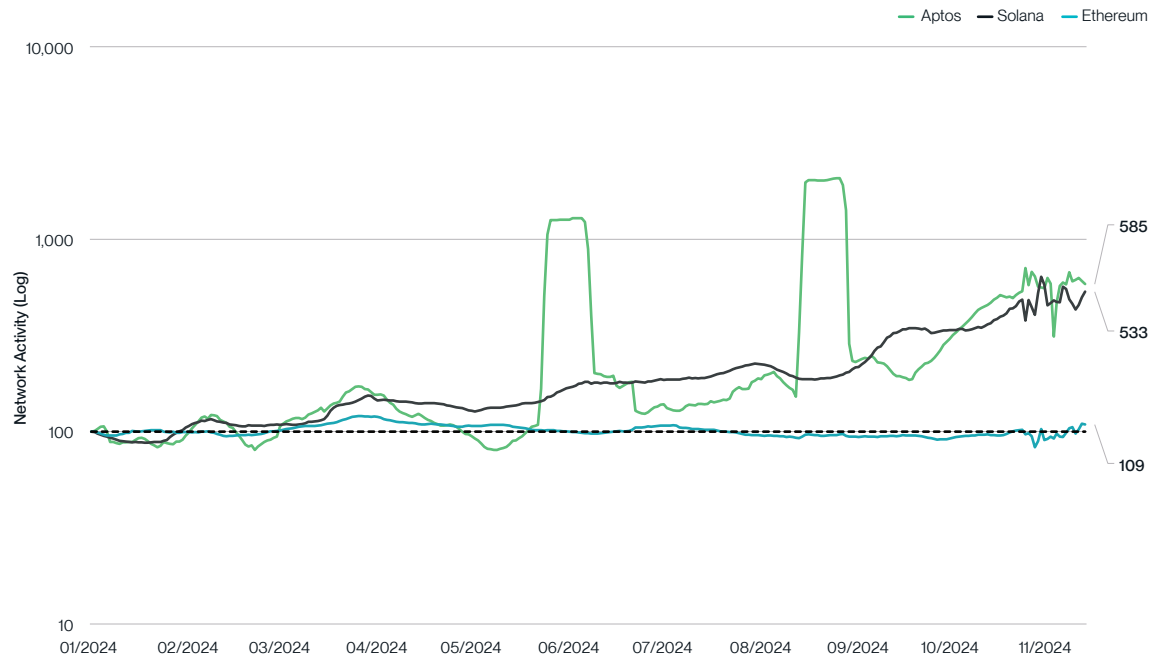
Following the initial excitement of the network launch in October 2022, activity on the network—tracked through transactions and active addresses—declined during the general “crypto winter” but began increasing again in July 2023 onwards. Network activity has recently started to accelerate significantly into the renewed bull market.

More specifically, Aptos has maintained an average of over 223,925 active addresses and 3,940,226 daily transactions in 2024 so far. What is more, average active addresses in 2024 have grown by +382% and daily transactions have even grown by +1,261% relative to 2023.<sup>4</sup> As the chart below shows, its growth has even outpaced that of other high-performing blockchains like Solana this year.

(4) Source: Artemis. Data as of November 12, 2024.

## Aptos Leads YTD Network Activity Growth Among Layer 1s

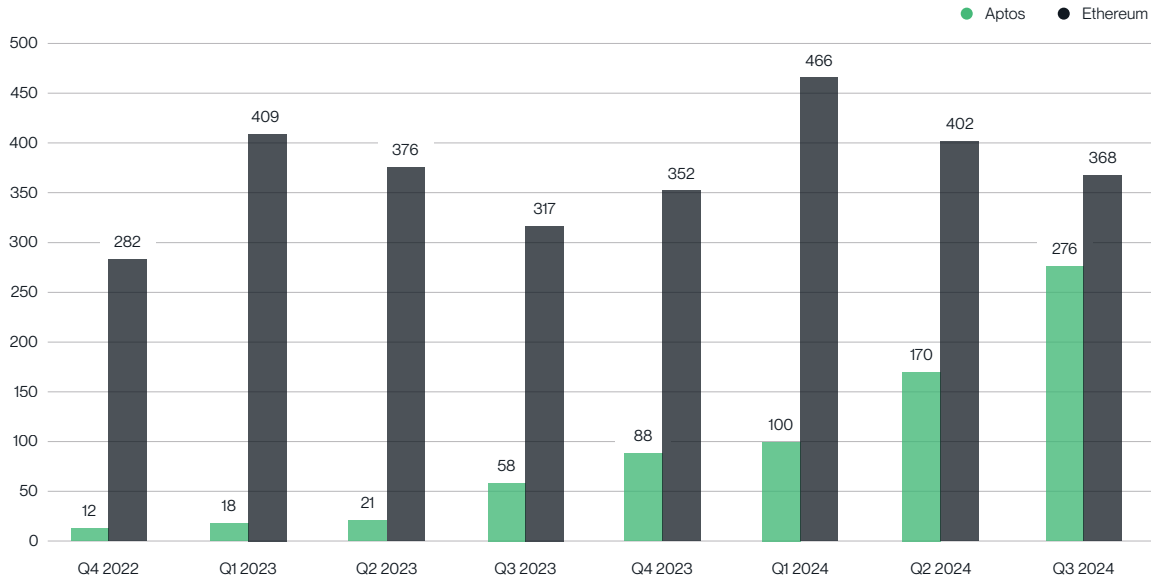
Combined Growth Rates of Daily Active Addresses and Transactions vs. Solana and Ethereum  
(Indexed to 100)



Source: Bitwise Europe, Artemis

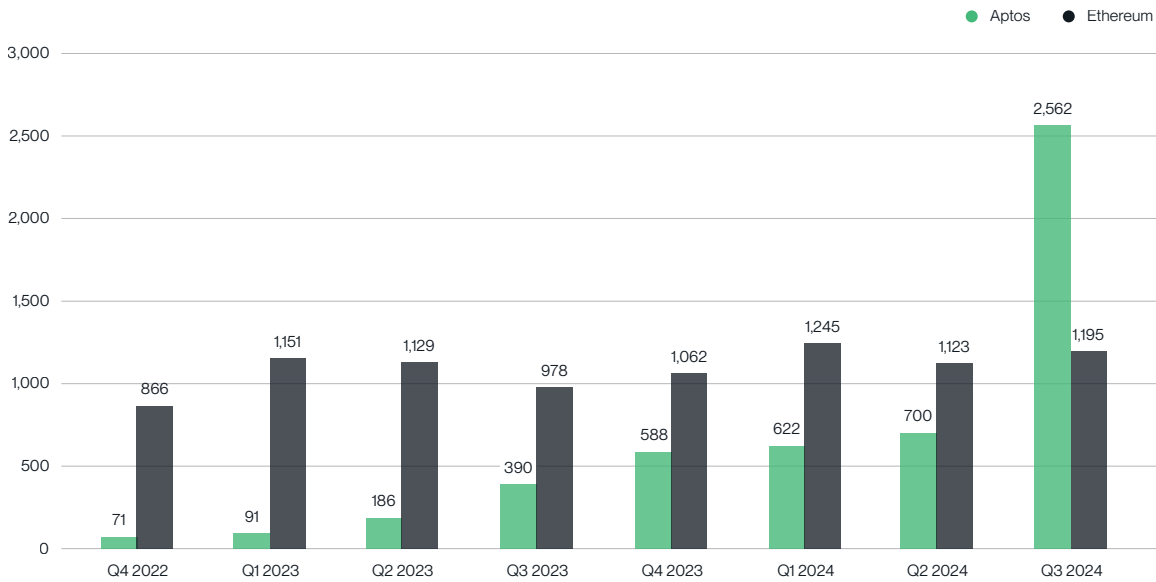
More broadly, as the charts below illustrate, Aptos has generally outpaced Ethereum's Layer 1 network activity over the past two years and has just recently surpassed Ethereum's Layer 1 daily transaction count by a wide margin.

### Daily Active Users: Aptos vs. Ethereum (thousands)



Source: Bitwise Europe, Artemis.  
\*Note: Only L1

### Daily Transaction Count: Aptos vs. Ethereum (thousands)



Source: Bitwise Europe, Artemis.  
\*Note: Only L1



**Based on this growth trajectory, we think that Aptos is a serious alternative Ethereum competitor.**

It is no surprise that Aptos has risen in terms of relative market cap ranking over the same time period. At the time of writing this report (November 18, 2024), Aptos ranks 23rd among all crypto assets by market cap (including stablecoins). It ranked 32nd at the start of the year.<sup>5</sup>

This growth in network activity can be attributed to factors such as the integration of the social media platform Chingari and the oracle service Pyth, which both happened in July 2023.

Chingari, a mobile video-sharing app similar to TikTok with over 100 million downloads on Google Play, launched in 2018 as a Web2 platform and later added blockchain-based features, including virtual gifts. Chingari is among the fastest-growing social media platforms across India, Indonesia, Turkey, and several other countries, delivering localised content through its continually expanding content library.

Pyth integrated with Aptos in July last year, providing access to its low-latency price feeds, and has contributed a significant part to Aptos's overall growth in transaction volumes.

Aptos's network activity has also been significantly influenced by high growth in digital art and NFTs. In the first half of 2024, Aptos became one of the most active blockchains for NFTs. CoinMarketCap's H1 2024 report shows the network recorded around 3.77 million transactions, involving over 600,000 unique wallets and drawing more than 373,000 users.<sup>6</sup>

**In the first half of 2024, with respect to NFTs, Aptos ranked second in unique addresses and third in transactions.**

One of the major drivers of this growth is related to the fact that, in January 2024, the crypto exchange OKX announced its support for Aptos inscriptions on its NFT marketplace. This collaboration improved the accessibility and reach of Aptos NFTs, significantly boosting the user base and transaction activity on the platform.<sup>7</sup>

Moreover, the NFT marketplace BlueMove introduced the APT20 standard in mid-December 2023, resulting in a combined 6.8 million transactions on December 23 and 24, primarily due to APT20 mints.

Another significant milestone was Aptos's commemorative NFT collection, launched to celebrate the second anniversary of its mainnet. Minting was open from October 18 to October 26, 2024. Within only eight days, this event led to the creation of over 3.3 million NFTs. This initiative showcased the ecosystem's growth and encouraged active community involvement. Similar communal NFT events have also led to a significant increase in NFT mints on Aptos in the past.<sup>8</sup>

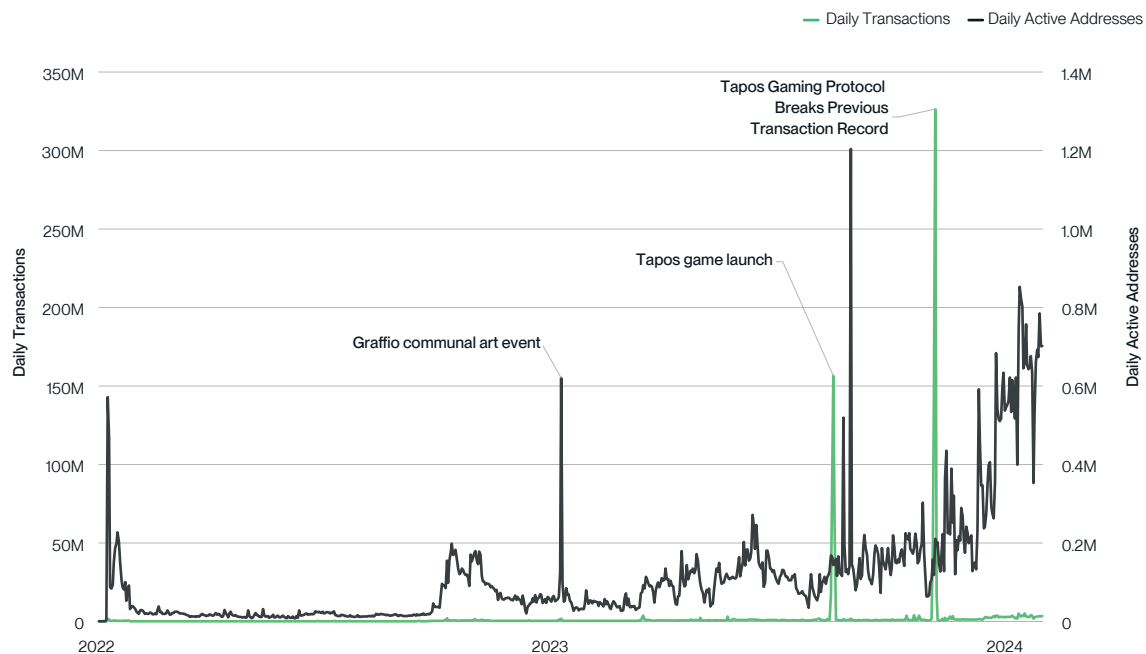
(5) Source: CoinMarketCap.com.

(6) <https://forum.aptosfoundation.org/t/report-on-aptos-nft-activity-in-h1-2024/11173>

(7) <https://forum.aptosfoundation.org/t/okx-s-nft-marketplace-integrates-the-aptos-digital-asset-standard/2770>

(8) For instance, on October 19, 2023, daily active addresses surged to over 600,000, driven by the Graffio communal art creation event. Celebrating the network's 1-year anniversary, Aptos contributors invited community members to draw on a shared digital canvas over a 24-hour period, with each drawing recorded as an on-chain transaction. Participants received an NFT of the final artwork. The event generated 605,000 unique addresses and 1.3 million transactions on Aptos. Although the event led to an outage of a couple of hours, the post-mortem that followed resulted in a fix of the causes and has significantly enhanced the network's resilience amid high network traffic.

## Average Daily Transactions and Daily Active Addresses Grew 890% and 178% Respectively QoQ Aptos Network Metrics



Source: Bitwise Europe, Artemis

**The Aptos network has experienced periods of very high network traffic that showcase the high scalability and resilience of the network.**

These spikes in network traffic were related to the most popular game on Aptos, called Tapos Cat.

The game first launched on May 23, 2024. Players could “tickle” a digital cat, with each tickle corresponding to a transaction on the Aptos network. This event led to a record-breaking weekend, with approximately 325 million transactions over four days, sustaining over 2,200 transactions per second (TPS) for more than 24 hours and peaking at 5,000 TPS.<sup>9</sup>

A second game was introduced in August 2024, featuring new elements like Super Cat mode, Mystery Boxes, reward chests, and social tasks to enhance player engagement. Each step the cat took counted as a transaction. This event resulted in 533 million transactions over three days, onboarding over 20,000 blockchain accounts, with the network sustaining a peak TPS of 12,000 and an average gas price of 0.00008 APT.<sup>10</sup>

(9) <https://decrypt.co/232759/tickle-to-earn-cat-game-massive-spike-aptos>

(10) <https://x.com/taposcat/status/1824350757791076838>

It's worth noting that while cat tickle games are obviously silly in a sense, they serve a very serious purpose. One challenge for blockchains is to stress test their performance in the real world against massive demand and prove that they are capable of bearing the load of millions of transactions. What looks like a goofy "tickle" game is actually a way to do just that.

## *Aptos Tokenomics Overview*

Aptos has built a strong token economic model for the APT token.

At the core of the model is utility: Users who want to transact on the Aptos network must pay fees in APT. A portion of these fees are paid to stakers that participate in the network, and a portion are burned. The burn function helps to offset new issuance of APT and, if demand is significant, could create a deflationary dynamic in the token.

The more people want to transact on the Aptos blockchain, the more demand there is for APT and the more APT is burned. Both support the token's value.

The tokenomic value of this classic utility function is supported by a strong emphasis on staking. The Aptos blockchain incentivises long-term investors to stake their assets by offering a 7% annual yield to stakers, which is relatively high compared to Ethereum's staking yield of only 3.1% p.a.

Aptos's innovative PoS mechanism is designed to incentivise token holders to actively participate in securing the network by staking their APT tokens. By doing so, stakers not only contribute to the network's overall health and stability but also have the opportunity to earn attractive rewards in the form of newly minted APT tokens.

The beauty of Aptos's staking model lies in its ability to create a positive feedback loop that benefits both stakers and the network as a whole.

**As more token holders choose to stake their APT, the network becomes increasingly secure and resilient, which in turn drives greater adoption and demand for the token.**

Staking helps protect the network against malicious attacks, as a potential attacker would need to acquire a substantial amount of staked APT to successfully compromise the blockchain. The more APT that is staked, the more expensive and difficult it becomes to mount such an attack. This increased security and resilience boosts confidence in the Aptos network, attracting more users and developers who seek a stable and trustworthy platform for their applications and transactions. As adoption grows, so does the demand for APT, as the token is required to pay transaction fees and participate in the network's governance.

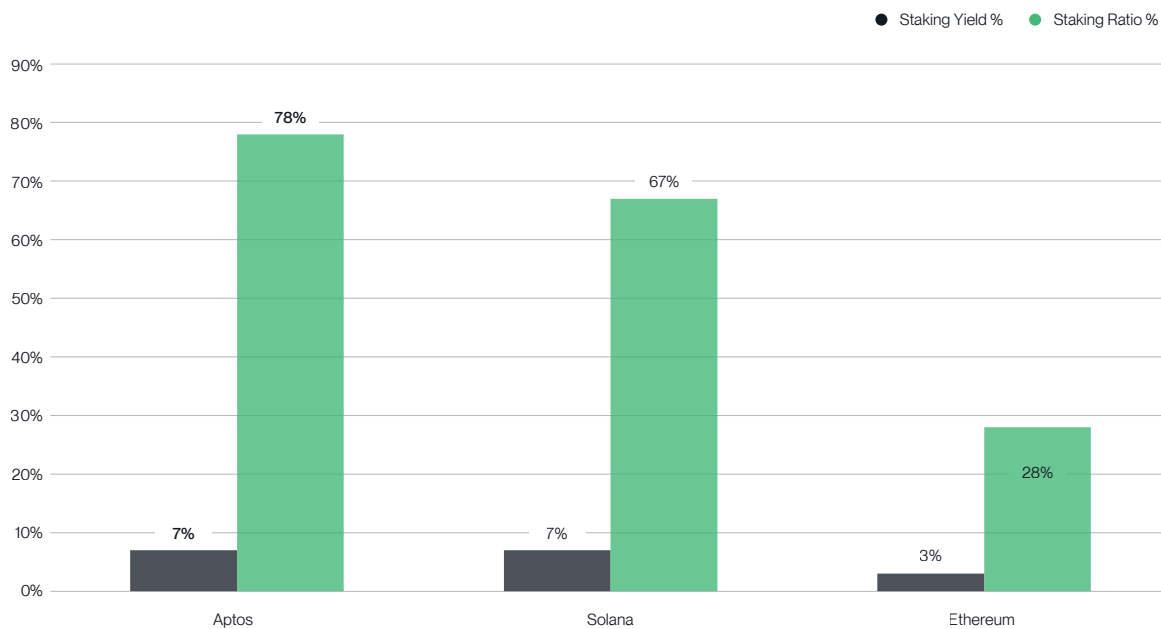
The concept that staking incentivises network participation and security is not unique to Aptos and can be observed in other proof-of-stake blockchains like Solana. In these systems, the inflationary cost of rewarding stakers is effectively passed on to the token holders who choose not to stake. The inflation mechanism decreases the network share of non-stakers relative to stakers, resulting in a transfer of wealth from non-stakers to stakers over time.<sup>77</sup>

This virtuous cycle has the potential to create a sustainable and rewarding ecosystem for all participants.

This notion is also supported by the fact that the majority of APT supply is currently staked. Currently, 882 million APT tokens are staked (valued at \$10.2 billion as of November 15, 2024), representing 78.4% of the total APT supply. This represents the highest staking ratio among the top 50 PoS protocols.

### Aptos Achieves Highest Staking Ratio in Top 50 PoS Protocols

Staking Ratio and Yield Comparison Across Leading Networks



Source: Bitwise Europe, CoinGecko

Locked tokens are eligible for staking and generate liquid rewards, with the staking percentage relative to the circulating supply coming in at 362%.

(11) <https://www.helius.dev/blog/solana-issuance-inflation-schedule>

In a further boost, on October 5, 2023, Coinbase Cloud enabled APT delegation to its validator and introduced APT staking on Coinbase Prime. This ecosystem support has increased the share of staked APT significantly.

Perhaps as a result of its success in staking, the network currently has a Nakamoto Coefficient of 22, which is higher than the median for other networks. A Nakamoto Coefficient of 22 indicates that at least 22 independent entities would need to collaborate to exert control over more than 50% of the network's resources, such as staking power. This suggests a relatively high level of decentralization, as a larger number of entities would need to conspire to compromise the network, making it more resistant to attacks and censorship.

### Tokenomics Overview: Aptos vs. Ethereum

	Aptos	Ethereum
Concept	Smart-Contract Platform	Smart-Contract Platform
Founder	Mo Shaikh, Avery Ching	Vitalik Buterin
Inception Date	October 2022	July 2015
Release Method	airdrops > token unlocks > staking	presale > early mining > staking
Consensus Mechanism	Proof-of-Stake	Proof-of-Stake
Market Cap	\$6 billion	\$384 billion
Max Supply	Unlimited	Unlimited
Issuance Rate	135,720,000 p.a. (25.52%)	236,986 p.a. (0.2%)
Burn Rate	145,260 p.a. (0.03%)	532,536 p.a. (0.44%)
Est. Net Issuance (Incl. Burn)	135,574,740 p.a. (25.5%)	-295,550 p.a. (-0.25%)
Staking Ratio	78%	44%
Staking Yield	7.00% p.a.	3.09% p.a.

Source: Glassnode, Bitwise Europe. Data as of close November 18, 2024.

Of course, driving value to the token is only half of the tokenomic question. The other half has to do with token distribution, issuance, and overhang.

The Aptos Foundation holds a significant portion of the total APT token supply, comprising its own allocation and tokens designated for ecosystem development. Specifically, the Foundation's allocation is 16.5% of the initial total supply, amounting to 165 million APT tokens.

Additionally, of the initial Community allocation, approximately 80% (410,217,359.767 APT) is held by the Aptos Foundation, with the remainder held by Aptos Labs. This brings the Foundation's total holdings to approximately 575 million APT tokens, or 57.5% of the initial total supply.<sup>12</sup>

Aptos's published unlock schedule currently projects supply growth of around 25.5% p.a. This relatively high supply growth is fostering rapid adoption of the APT token across this rapidly expanding ecosystem.

It is also worth noting in this context that an inflationary supply schedule economically incentivises stakers to stake and secure the network.

**Aptos has established a robust tokenomics model for APT, emphasizing utility through transaction fees, staking rewards, and a deflationary burn mechanism that drives demand and value.**

**With a high staking ratio of 78.4%, annual yields of 7%, and strong decentralization (Nakamoto Coefficient of 22), the network fosters security, adoption, and a sustainable ecosystem, despite an inflationary supply schedule supporting rapid growth.**

(12) <https://aptosfoundation.org/currents/aptos-tokenomics-overview>

## Drivers of Transaction Activity on Aptos

At the time of writing in November 2024, the Aptos blockchain has seen substantial growth, propelled by several key projects that significantly contribute to daily transactions and active user engagement.

The top five projects boosting Aptos's activity include:

### Chingari (Social)

Chingari, a popular Indian social media app, migrated to Aptos in mid-2023. This transition led to an 800% surge in daily active users on Aptos, with Chingari responsible for 80% of all active users and 50% of network gas fees by July 2023. Chingari has been a significant growth driver ever since.

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### Tapos Cat (Gaming)

Released in May 2024, Tapos Cat is a tap-to-earn game where users interact with a virtual cat to earn tokens. Its popularity led Aptos to reach a record of 115.4 million transactions in a single day, setting a new benchmark among Layer-1 blockchains.

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### Thala Labs (DeFi)

A major contributor to Aptos's DeFi ecosystem, Thala Labs introduced the Move Dollar (MOD), an over-collateralised stablecoin. Its decentralised exchange (DEX) and liquidity services have drawn significant user engagement, leading to higher daily transaction volumes.

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### Amnis Finance (DeFi)

As Aptos's top liquid staking protocol, Amnis Finance allows users to stake APT tokens while retaining liquidity. Its accessible platform and innovative staking options have made it a top contributor to Aptos's total value locked (TVL), increasing daily transactions.

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### Pyth Network (DeFi)

Added to Aptos in July 2023, Pyth Network provides high-quality, low-latency financial data feeds. This integration has enhanced DeFi applications on Aptos, leading to higher transaction volumes and user activity.

**These projects have played a key role in driving user activity and transaction growth on Aptos, fostering its rapid expansion and adoption.**

# *The Aptos Ecosystem*

As of November 18, 2024, the Aptos blockchain ecosystem featured 191 different projects across various sectors, which represents a significant increase from 108 projects at the beginning of 2024 and illustrates the ecosystem's rapid expansion.<sup>13</sup>

For the sake of brevity, we will only focus on the top five projects in each category:

## **Decentralised Finance (DeFi):**

- **Amnis Finance:** A liquid staking platform with over \$250 million in total value locked (TVL) and more than 300,000 stakers, offering yield tokenization and auto-compounding rewards.
- **Cellana Finance:** A leading decentralised exchange (DEX) utilizing the Ve(3,3) model for liquidity incentives and governance, promoting a community-driven approach to liquidity management.
- **Thala Protocol:** Provides a suite of trading and yield products, including the over-collateralised stablecoin Move Dollar (MOD), various liquidity pools, and liquid staking options.
- **Econia:** A hyper-parallelised on-chain order book for the Aptos network, enhancing trading efficiency and scalability.
- **Hippo Labs:** An aggregation layer for Aptos, streamlining access to liquidity across multiple platforms.

## **Social Applications:**

- **Chingari:** A Web3 social network enabling users to create and engage with short-form video content and livestreams, with over 200 million downloads.
- **Stan:** An esports and influencer platform focused on transforming fan engagement in India's gaming scene, with over 10 million downloads.
- **AcornQuest:** The first native quest and reward platform on Aptos, incentivizing user participation through gamified experiences.
- **BuidlerDAO:** A Web3 talent and project network fostering collaboration and innovation within the Aptos ecosystem.
- **Kade:** A decentralised social network promoting user autonomy and data ownership.

(13) <https://aptosfoundation.org/ecosystem/projects>



### Gaming:

- **Eragon:** A decentralised app store optimised for mobile Web3 gaming, featuring keyless account access and tools for developers transitioning from Web2 to Web3.
- **Aptos Arena:** A top-down shooter game introducing “Kill to Earn” mechanics, aiming to engage a broad gaming audience.
- **Merkle Trade:** The first-ever gamified omnichain perpetual DEX, combining trading with gaming elements.
- **Supervillain Labs:** A studio driving Web3 gaming innovation, developing games ranging from casual to MMORPGs.
- **Undying City:** A mobile survival game built on Aptos, offering immersive gameplay experiences.

### Non-Fungible Tokens (NFTs):

- **Wapal:** A no-code NFT marketplace and launchpad simplifying NFT creation and trading, catering to both individual artists and large projects.
- **Aptos Art Museum:** The first metaverse art gallery in the Aptos ecosystem, providing a virtual space for artists to showcase their work.
- **BlueMove:** A leading multi-chain NFT marketplace on Aptos, facilitating seamless NFT transactions.
- **Souffl3:** An NFT ecosystem leader built on Aptos, offering comprehensive NFT services.
- **SeaShrine:** An NFT marketplace with a unique GameFi DAO reward system, ensuring a secure trading environment.

### Artificial Intelligence (AI):

- **Aptos Assistant:** An AI-powered companion designed to streamline and simplify user interactions within the Aptos network, offering smart and accessible support.
- **Overlai:** A mobile AI photo protection app for creators, leveraging AI to safeguard digital content.
- **AIOZ Network:** A decentralised platform for Web3 AI, storage, and streaming, integrating AI to enhance user experiences.
- **Nimble Network:** The first modular AI orchestration network, facilitating efficient AI operations within the Aptos ecosystem.
- **Panora:** A smart DEX aggregator utilizing AI to optimise trading strategies and user experience.

### Real-World Asset (RWA) Tokenization:

- **Propbase:** A real estate platform that tokenises properties on Aptos, enabling fractional ownership and making property investment more accessible and transparent.
- **Ondo Finance:** Offers tokenised financial products, including the US Dollar Yield (USDY), providing high-quality, dollar-denominated yields by leveraging US Treasuries and bank deposits.
- **Nutrios:** A platform tokenizing meal services, allowing users to access and invest in diverse culinary experiences.
- **GuardianLink:** Provides white label NFT marketplace solutions, enabling the tokenization of various real-world assets into NFTs.
- **io.net:** The largest network renting GPUs for AI workloads, facilitating the tokenization of computing resources.

### Aptos Ecosystem Growth Metrics

Metric	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024
Stablecoin Market Cap (USD)	\$41.7M	\$49.3M	\$96.5M	\$114.1M	\$211.2M
	(14.3%)	18.2%	95.6%	18.3%	85.1%
Total DEX Trading Volume	\$76.2M	\$156.6M	\$960.1M	\$2,700.0M	\$3,600.0M
	(20.8%)	105.5%	513.1%	181.2%	33.3%
DeFi TVL (USD)	\$44.7M	\$117.3M	\$489.5M	\$344.1M	\$558.3M
	3.4%	162.4%	317.3%	(29.7%)	62.2%
DeFi TVL (APT)	8.1M	12.4M	28.7M	48.7M	72.0M
	36.4%	53.1%	131.5%	69.7%	47.8%
Total Raised in Ecosystem	\$0.5M	\$2.0M	\$6.0M	\$20.1M	\$7.5M
	(88.9%)	300.0%	200.0%	235.0%	(62.7%)
Projects Funded in Ecosystem	5	1	2	4	3
	66.7%	(80.0%)	100.0%	100.0%	(25.0%)
Average Weekly Active Ecosystem Developers	52	45	46	55	46
	11.9%	(13.5%)	2.2%	19.6%	(16.4%)

Source: Bitwise Europe, Artemis, Messari, DeFi Llama

## Other Noteworthy Partnerships

**Franklin Templeton**, a leading global asset management firm, has introduced its on-chain money market fund, FOBXX, on the Aptos blockchain. The fund is represented by the BENJI token on Aptos and has exceeded \$20 million in subscriptions, highlighting growing institutional interest in blockchain technology. Partnering with the Aptos Foundation, the initiative focuses on enhancing the interoperability of real-world assets (RWAs) and treasury-backed assets within non-EVM blockchain ecosystems, including those utilizing Move.

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**BlackRock** has expanded its USD Institutional Digital Liquidity Fund (BUIDL) to the Aptos blockchain, enhancing its presence in the digital asset space. Initially launched on Ethereum in March 2024, BUIDL has now extended its reach to multiple blockchains, including Aptos, Arbitrum, Avalanche, Optimism, and Polygon.

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**Tether Operations Limited** announced in August 2024 the forthcoming launch of its US dollar-pegged stablecoin, USDT, on the Aptos blockchain. This strategic integration aims to enhance digital currency accessibility and utility by leveraging Aptos's advanced blockchain technology, known for its exceptional speed and scalability.

**These significant partnerships highlight the increasing trust in the network's resilience and scalability and its ability to serve as a platform for institutional assets.**

# *Roadmap and Growth Outlook*

Aptos has outlined a comprehensive roadmap focusing on technical enhancements and strategic growth to solidify its position in the blockchain ecosystem.

## **Technical Improvements**

One of the key technical improvements in Aptos' roadmap is the transition to the Shoal++ consensus protocol, which combines Directed Acyclic Graph (DAG) and Byzantine Fault Tolerance (BFT) qualities. This upgrade is designed to reduce latency and increase throughput, with internal testnets demonstrating performance of up to 100,000 transactions per second (TPS) at sub-second latency.

Additionally, the integration of Block-STM enables parallel transaction execution, optimizing resource utilization and enhancing scalability by allowing concurrent processing of transactions, which significantly improves throughput.

Aptos continues to leverage the Move programming language for secure and efficient smart-contract development. Move's resource-oriented design enhances security and flexibility, facilitating the creation of robust decentralised applications (dApps). Recent updates to the mempool have introduced parallel transaction validation, which increases throughput and reduces latency, contributing to a more responsive and efficient network.

In terms of growth strategy, Aptos is actively fostering the development of DeFi platforms and NFT marketplaces within its ecosystem, supporting projects that enhance liquidity, trading, and digital asset management.

The platform has also established partnerships with industry leaders such as Chainlink for data feeds and cross-chain interoperability, and with Microsoft to integrate AI capabilities, enhancing the functionality and reach of the Aptos network.

The Aptos Foundation offers grants and resources to developers building on the platform, encouraging innovation and the development of diverse applications to attract a broad spectrum of contributors to the ecosystem.

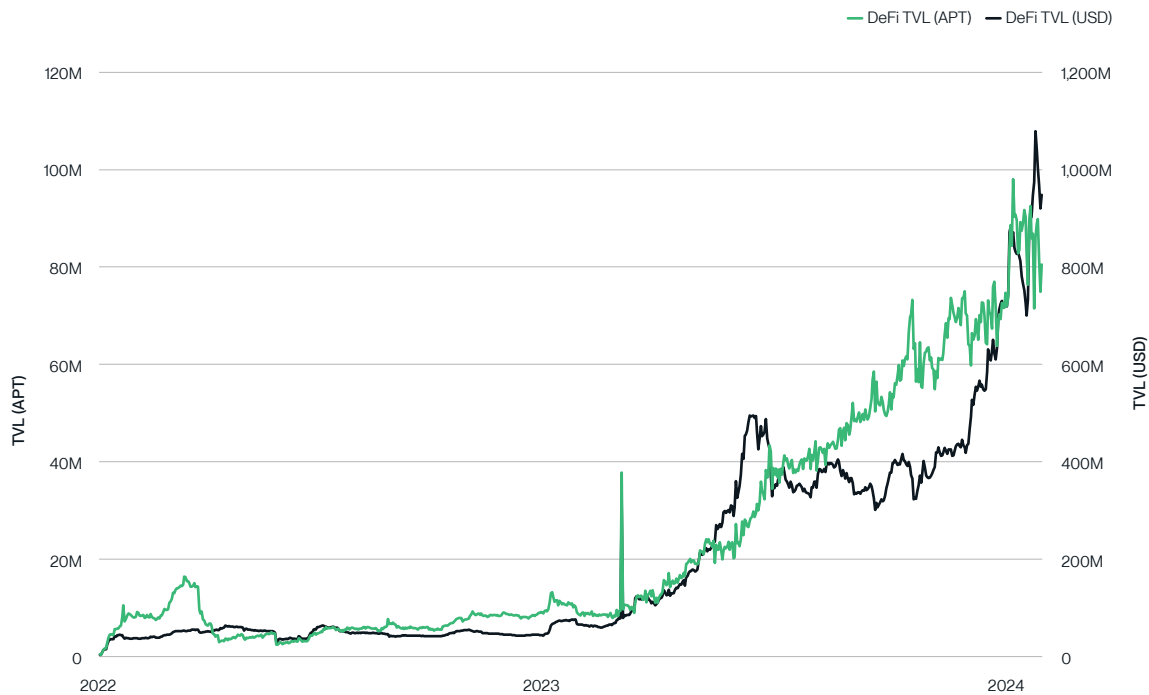
To improve user experience, Aptos is investing in the development of user-friendly wallets and developer tools, including the introduction of keyless accounts and enhanced multisignature functionalities to improve security and accessibility. Through these technical advancements and strategic initiatives, Aptos aims to deliver a scalable, secure, and user-centric blockchain platform, fostering widespread adoption and innovation.

## Aptos Network Growth and Price Predictions

The Aptos ecosystem continues to grow significantly. For instance, as the chart below illustrates, Total Value Locked (TVL) on Aptos recently surpassed \$1 billion. We expect this growth rate to continue at least until the end of this decade.

### Average DeFi TVL Grew 87% in USD Terms and 47% in APT Terms QoQ

Aggregate TVL of All DeFi Protocols on Aptos in USD and APT



Source: Bitwise Europe, DeFi Llama

Our valuation methodology leverages Metcalfe's Law to quantify Aptos's network value, building on our core thesis that Aptos represents the next evolution in Layer-1 protocols.

Metcalfe's Law assumes the utility of the network to increase to the square of the number of users. For the sake of simplicity, we assume the Daily Active Addresses (DAA) to be the number of users and the market cap to represent the utility of the network represented in monetary terms.

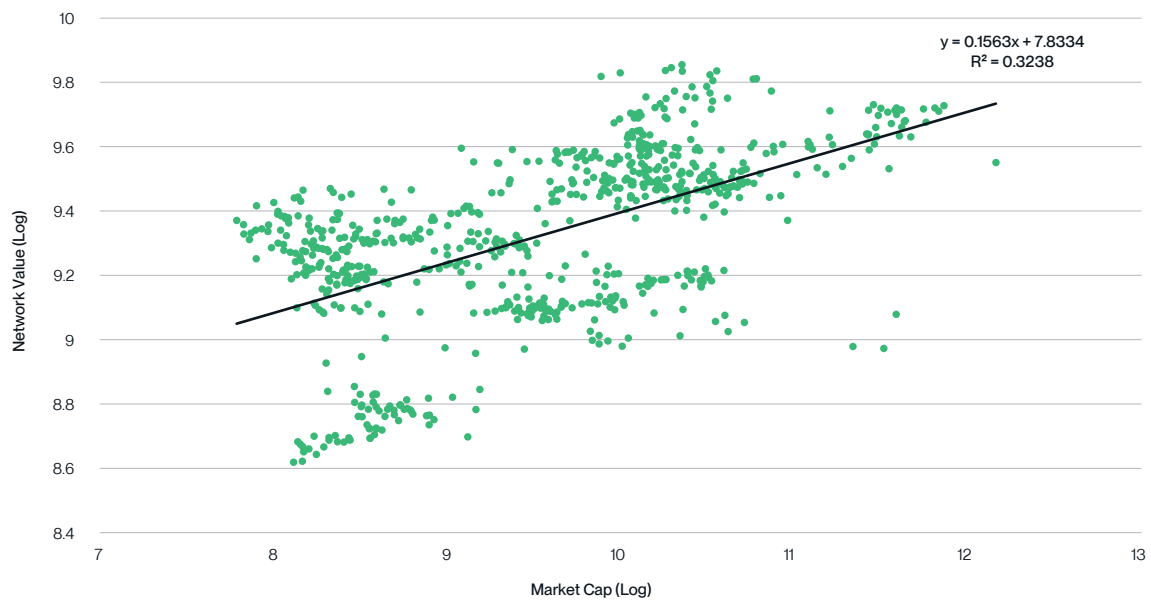
The regression analysis of the logarithm of DAA<sup>2</sup> against the logarithm of the market capitalization yields an R<sup>2</sup> of 0.3238 and a positive correlation ( $y = 0.1563x + 7.8334$ ), supporting our approach of using network effects to project future valuations.

**This relationship between DAA<sup>2</sup> and market cap is particularly relevant for Aptos given its unique technological advantages—the Move programming language and AptosBFTv4 consensus mechanism—which are designed to drive user adoption through superior scalability and security.**

The positive correlation, while moderate at 0.32, suggests that as Aptos achieves its goal of becoming “the most scalable and secure blockchain platform for global adoption,” network value should grow proportionally with the square of its user base.

### Regression Analysis Shows a Positive Correlation Between Market Cap and Network Value

Log of Aptos's DAA<sup>2</sup> vs. Log of Aptos's Market Capitalization



Source: Bitwise Europe, Artemis

Building on this network value relationship, our price projections incorporate three growth scenarios based on historical DAA growth patterns. It is important to note that past performance does not guarantee future results, and the crypto market is known for its high volatility and unpredictability. However, by analysing historical trends and considering Aptos's unique positioning, we can explore three potential growth scenarios:

**The bear case** of 130% growth reflects Aptos's current trajectory, representing organic growth driven by existing partnerships with Microsoft, Amazon, and Mastercard. This conservative estimate assumes that Aptos maintains its current pace without significant additional growth catalysts.

**The base case of 2,792% maps to the average growth of established Layer-1 platforms excluding market leaders, aligning with our thesis that Aptos is following a similar trajectory to previous successful Layer-1 challengers.** This projection assumes that Aptos successfully executes its strategy, leverages its technological advantages, and captures substantial market share. However, achieving this growth rate would require significant adoption and favourable market conditions.

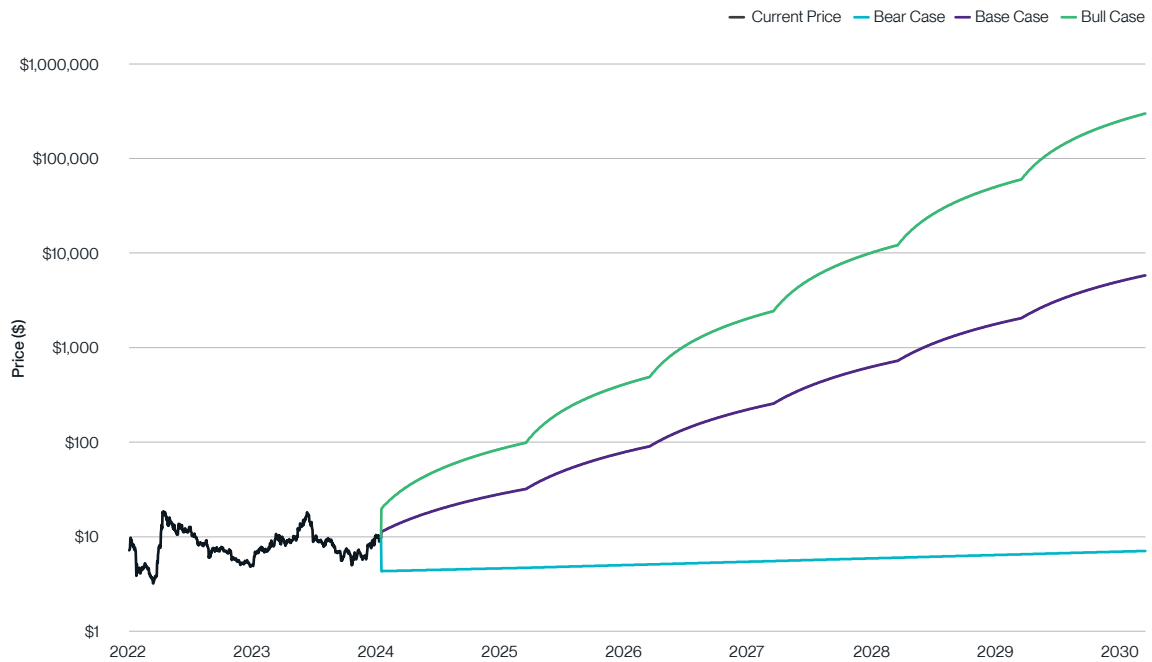
**The bull case** of 17,000%, based on the historical growth patterns of Ethereum and Solana, represents an optimistic scenario in which Aptos fully realises its potential and becomes a dominant player in the Layer-1 space. This aspirational target assumes that Aptos attracts a large developer community, achieves widespread institutional adoption, and benefits from a sustained bull market. However, this level of growth should be considered an exceptional outcome rather than a probable one.

We deliberately use the total supply of 1.3 billion APT tokens for our calculations rather than current circulating supply, providing conservative price targets that account for future dilution. The resulting 2030 projections, which we illustrate on the following page—ranging from \$6.09 in our bear case to \$257,769.68 in our bull case—reflect both the network effect dynamics validated by our Metcalfe's analysis and Aptos's potential to disrupt the Layer-1 landscape through its well-designed technical architecture and growing institutional adoption.

## Aptos Valuation Projections: Bear, Base, and Bull Scenarios

Projected \$APT Forecasts Based on 1.3 Billion Tokens Unlocked per Supply Schedule

Year	Bear Case	Base Case	Bull Case
2024	\$3.72	\$9.71	\$17.05
2025	4.04	27.48	84.78
2026	4.38	77.82	421.57
2027	4.76	220.33	2,096.34
2028	5.17	623.83	10,424.42
2029	5.61	1,766.29	51,837.24
2030	6.09	5,000.97	257,769.68



Source: Bitwise Europe, Artemis



# IV Conclusion

We believe that Aptos (APT) has emerged as a strong contender in the Layer-1 blockchain ecosystem, leveraging its institutional roots in Meta's Diem project and introducing innovative technologies like the AptosBFTv4 consensus mechanism, the Move programming language, and the Block-STM execution engine to differentiate itself from its peers. These advancements enable exceptional scalability, security, and developer-friendly capabilities, positioning Aptos as a long-term potential winner in the industry's shift toward institutional-grade blockchain solutions. Its robust ecosystem, supported by strategic partnerships, funding, and a clear focus on scalability and efficiency, adds to its potential to compete with established platforms like Ethereum and Solana. With strong growth in network activity, adoption, and ecosystem development, coupled with an ambitious roadmap and global expansion strategy, Aptos is poised to disrupt the Layer-1 landscape and establish itself as a leader in the next phase of blockchain evolution.

# V Investment Opportunity

## *Bitwise Aptos Staking ETP (APTB)*

### Investment Objective

The Bitwise Aptos Staking ETP (APTB) offers investors exposure to the performance of APT, while capturing additional staking rewards that are accumulated in the ETP. APTB is an institutional-grade, low cost, and liquid ETP that is fully backed with Aptos (APT) held in cold storage custody. The ETP is benchmarked to the Compass Aptos Total Return 90% Index, after fees and expenses.

### Aptos: A high-performance Layer-1 blockchain

Aptos launched in 2022, two and a half years after Solana and seven years after Ethereum. It has been lauded for breakthrough performance that enables enterprise-scale applications, and has rapidly grown to over 8 million monthly active users. Aptos Labs, which is a core contributor to the blockchain, is led by a senior team that previously worked on Meta's blockchain initiative, and is backed by leading institutional investors including Andreessen Horowitz, Apollo Global Management, PayPal Ventures, and Franklin Templeton Investments.

### Key Product Details

ETP Name	Bitwise Aptos Staking ETP
Primary Ticker	APTB
ISIN	DE000A4AJWU3
Valoren	139573609
Reference Benchmark	Compass Aptos Total Return 90% Index
TER	0.85% p.a.

## Why invest in APTB?

**Seamless investment access to Aptos with institutional-grade custody:** Trade APTB like any stock or ETF through your existing brokerage account—no new accounts or wallets needed. Assets backing the ETP are securely held in cold storage custody.

**Aptos is a high-performance Layer-1 blockchain:** Aptos is often described as a “production-ready” blockchain due to its incredible speed and cost efficiency. Recently, large financial institutions and consumer brands have chosen to build on Aptos.

**Staking:** APTB is fully backed and stakes the underlying Aptos to generate rewards from the blockchain that will be accumulated in the ETP. The Compass Aptos Total Return 90% Index allows for clear assessment of performance against the current APT staking rewards market rate.

## The Risks

- Investors' capital is at risk. Investors may not get back the amount originally invested and should obtain independent advice before making a decision regarding investment.
- Any decision to invest should be based on the information contained in the relevant prospectus.
- ETP securities are structured as debt securities, not as equity.
- ETPs trade on exchanges like securities. They are bought/sold at market prices which may be different to the net asset value of the ETP.

Please note, this is not an exhaustive list and other risks may apply. Please consult the KIID and Prospectus for more details.

## References

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For a detailed overview of risks associated with cryptocurrencies and specifically associated with BEU’s products, please refer to the prospectus and final terms available on the Bitwise Europe website [www.bitwiseinvestments.com/eu](http://www.bitwiseinvestments.com/eu).



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