

A Snapshot Comparison of Layer 2 Rollups on Ethereum

TVL, Risk, Activity, & Cost-Efficiency

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Executive Summary

This report provides an updated snapshot analysis of Ethereum's layer-2 (L2) rollups, looking at several key metrics such as Total Value Locked (TVL), transaction throughput (TPS), risk factors, and cost efficiency.

Key Findings

Total Value Locked:

- TVL increased from \$17 billion in December 2023 to over \$46 billion by May 2024.
- Arbitrum One leads with \$19 billion in TVL, followed by Optimism and Base with roughly \$7 billion each.
- Emerging optimistic rollups such as Blast and Base have captured significant market shares, while top ZK-rollups like Linea and Starknet have seen lesser but decent growth.
- Top-tier L2s such as Arbitrum One display a balanced mix of canonical, external, and native assets, while mid- and lower-tier L2s tend to rely more on the two former categories of bridged assets.

Transaction Throughput:

- Total TPS across all L2s rose significantly between December 2023 and May 2024.
- Base and Arbitrum One show the highest TPS by some margin.
- Optimistic rollups generally outperform ZK rollups in TPS, with Linea and zkSync Era being the best-performing ZK rollups.
- Maybe somewhat surprisingly, Ethereum ranks 4th when included in the rankings.
- Regression analysis indicates a positive relationship between TPS and TVL, meaning higher transaction throughput is associated with higher TVL.

Risk Assessment:

- Optimistic rollups rely on fraud proofs and most are still developing state validation mechanisms, the major exception being Arbitrum.
- ZK rollups use cryptographic proofs, providing higher security but at increased computational costs.
- Regression analysis showed no significant relationship between enhanced security features and TVL, suggesting that scalability and performance are more critical factors for user adoption.

Cost Efficiency:

- Ethereum's Proto-Danksharding upgrade has drastically reduced transaction costs across the board.
- Despite these reductions, ZK rollups still face higher costs due to their heavier computations.

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Introduction

Since <u>the Merge</u>, Ethereum's persistent scalability challenges have driven the development of various Layer 2 solutions, aiming to improve transaction throughput and reduce costs. Today, leading L2s come in the form of so-called "rollups", which seek to enhance Ethereum's throughput by processing transactions off-chain, batching them, and then posting the data back to the Ethereum base layer via smart contracts. As such, L2s reduce the burden on the main chain, enabling higher transaction volumes and lower fees while retaining the security of Ethereum (well, most of it anyway). There are two main types of rollups: optimistic and zero-knowledge (ZK) rollups.

Optimistic rollups operate on the principle that all off-chain transactions are valid by default unless challenged, which speeds up transaction processing significantly as it eliminates the need for each transaction to be individually verified on-chain. A centralised component, known as the sequencer, executes transactions off-chain and publishes the data on the Ethereum main chain. Validators then monitor these transactions for any discrepancies. If a validator identifies a potentially invalid transaction, they can submit a fraud proof during a designated challenge period. If the fraud proof is validated, the incorrect transaction is reverted, and the sequencer is penalised. As a result, optimistic rollups can achieve high throughput and low latency, although the necessity of a challenge period can delay transaction finality.

ZK rollups, in contrast, use cryptographic proofs to ensure the validity of transactions off-chain before they are committed to the Ethereum main chain; instead assuming that all transactions are invalid until proven otherwise through ZK proofs. Each transaction in a ZK rollup is verified off-chain and a cryptographic proof is generated to confirm its validity, which is then submitted to the Ethereum mainnet. Hence, ZK rollups can offer better security and privacy as transaction details remain confidential, as well as finalise transactions more quickly since they do not require a challenge period. However, the complex cryptographic processes involved can increase computational costs and make implementation more challenging compared to optimistic rollups.

Feature	Optimistic Rollups	ZK Rollups
Transaction Validation	Assumes transactions are valid unless challenged	Assumes transactions are invalid until proven through ZK proofs
Transaction Processing	High throughput and low latency as transactions are processed off-chain and published on-chain without immediate verification	Uses cryptographic proofs to verify transactions off-chain before committing to the Ethereum main chain
Finality Delay	Potential delay due to challenge period	Immediate finality upon submission of cryptographic proof
Security	Relies on validators to monitor transactions and submit fraud proofs if discrepancies are found	Higher security through cryptographic proofs ensuring transaction validity
Privacy	Lower, as transaction data is published on-chain	Higher, as transaction details remain confidential through cryptographic proofs
Computational Cost	Lower, less complex processes	Higher, due to the computational intensity of generating ZK proofs
Implementation	Easier to implement compared to ZK rollups	More challenging due to complex cryptographic processes
Examples	Arbitrum One, Optimism, Base	zkSync Era, Starknet, Scroll, Linea

Table 1. Optimistic and ZK rollups, summarising key differences

Altogether, rollups have been instrumental in increasing Ethereum's transaction capacity and efficiency. Not only have they expanded Ethereum's scalability but also improved user experience by providing faster and more cost-effective interactions with decentralised applications (dApps). Despite their benefits, layer-2 solutions come with certain limitations and challenges. Bundling transactions off-chain before finalising them on the Ethereum mainnet raises concerns about the security and integrity of these transactions. Issues such as data availability, potential censorship by layer-2 operators, and smart contract vulnerabilities remain points of concern. Equally, while L2s rely on Ethereum for final settlement security, they operate their own consensus mechanisms for these off-chain transactions and can, as such, not be said to benefit from the full protection of Ethereum's PoS mechanism.

With ongoing advancements aimed at refining L2s, it is essential to understand both their achievements and their limitations. To provide an update on the current state of these L2s and their performance following a few months of bullish momentum, this report analyses the leading L2 rollups on Ethereum, offering insights into their performance, security, scalability, and cost efficiency to guide stakeholders in understanding the current L2 landscape. Readers can expect snapshot evaluations of Total Value Locked (TVL), transaction throughput (TPS), risk factors, and economic viability across various Layer 2 protocols; and also includes comparative analyses of optimistic and ZK rollups to highlight their respective strengths and areas for improvement.

Methodology

The methodologies employed in this report include quantitative analysis using key metrics such as TVL, TPS, cost efficiency, and risk factors across L2s on Ethereum—highlighting performance, security, and cost efficiency.

Total Value Locked (TVL) analysis

A TVL analysis was undertaken to evaluate the distribution of assets across Ethereum L2s in terms of market shares to see how this might have changed over the last 6 months (Dec '23-May '24). The analysis also looks at the composition of TVL, categorising assets into canonical, external, and native types to facilitate a cluster analysis. Here, L2s were grouped based on their TVL composition and classified into top, mid, and lower tiers to provide insights into the diversity and robustness of protocol asset bases.

Risk Assessment Matrix

A risk assessment matrix was also constructed to check the security and reliability of L2 solutions, focusing on several risk factors including state validation mechanisms, data availability, exit windows, and fallback mechanisms for sequencer and proposer failures.

Transaction throughput (TPS)

The report looks at TPS to evaluate the scalability and performance of L2 solutions. First, how the total TPS of all L2s has changed since December to assess overall developments; and second, through comparative analysis by ranking L2 solutions based on their TPS, allowing for an evaluation of their scalability and ability to handle high transaction volumes.

Cost Analysis

A cost analysis was done to assess the economic viability of L2s; including calldata, blobs, compute, and overhead expenses as well as an impact assessment of the <u>EIP-4844</u> (Proto-Danksharding) upgrade on transaction costs. A comparative analysis of average transaction costs was conducted to identify the most cost-efficient protocols.

Cross-Sectional Analysis

Lastly, a cross-sectional analysis was conducted to explore the factors influencing TVL across different L2 solutions. TPS and security features were used as independent variables in a regression analysis to examine the relationship between these variables and TVL and provide insights into user priorities and preferences in the context of L2 adoption.

Data

The variables mentioned above have been analysed using cross-sectional snapshot data from <u>L2BEAT</u>, collected on the 30th of May, 2024. The report also draws on time-series TVL data from <u>DeFiLlama</u>, specifically capital being actively deployed in dApps on the networks in contrast to idle capital, to evaluate shifts in L2 market shares between December 2023 and May 2024.

Value Locked Analysis

Total Value Locked (TVL) is a key metric indicating the amount of assets utilised across an L2, with a higher TVL said to reflect greater user trust and adoption. Over the last 6 months, TVL across Ethereum L2s have collectively risen from around \$17 billion back in December to its current levels at just over \$46 billion at the turn of May-June. Taking a closer look reveals a significant concentration of value in a few L2s (see Figure 1 below).





Arbitrum One leads the way by some margin at just over \$19 billion, while Optimism (OP Mainnet) and Base also exhibit substantial TVL at around \$7 billion—respectively holding an L2 market share of 41%, 16%, and roughly 15%. Note that all top five L2s by TVL are optimistic rollups. Arbitrum One's dominance suggests strong user confidence in its security and utility, with Coinbase seeing robust adoption and trust in its relatively short-lived L2 Base, as has recent entrant Blast. ZK-rollups on the other hand are playing catch up; with protocols like Linea, Starknet, zkSync Era, and Scroll occupying spots 6, 7, 9, and 11 on the TVL chart, respectively. Together, they occupy around 8% of the L2 market.



Figure 2. TVL Comparison of Optimistic and ZK Rollups

Looking at assets being actively utilised within dApps (contrasting idle assets merely sitting in wallets), over the six months from December 2023 up until and including May 2024 there have been notable shifts in the distribution of TVL across the top L2s on Ethereum (Figure 3 below). As a share of total TVL being actively used on Ethereum, Arbitrum One held a dominant position with 4.38% at the start of the period, followed by Optimism and Base at 1.6% and 0.6% of total actively deployed Ethereum TVL, respectively. Six months later, Arbitrum One's share has decreased to 2.92%, as has Optimism's, dropping from 1.6% to 0.8%. Conversely, several L2s experienced growth. Blast, not listed in December 2023, emerged strongly at the end of our analysed period, capturing a 2.12% share of total active Ethereum TVL. Base also showed a positive trend, increasing its share from 0.63% to 1.63%, more than doubling its presence. Interesting to note that Base has a higher share of total TVL than Blast but a lesser share when it comes to active capital deployed in dApps. Other L2s like Manta and Metis saw their shares grow from 0.05% to 0.41% and from 0.06% to 0.54%, respectively, indicating serious traction early on. Linea and Starknet show similar developments, with Linea moving from 0.08% to 0.58% and Starknet from 0.07% to 0.28%, signifying a growing trust and utilisation of these platforms. Mantle saw steady but modest adoption, growing marginally from 0.2% to 0.41% as a total of actively dApp-deployed TVL on Ethereum. Others like zkSync Era saw a slight decline from 0.31% to 0.15%, suggesting a reduction in its competitive edge or a shift in user preference.

Figure 3. Changes in market shares, total actively deployed TVL on Ethereum, early Dec 23-late May 24

Dec 3, 2023	May 31, 2024
🕼 Arbitrum 4.38%	🎊 Arbitrum 2.92%
OP Optimism 1.6%	🔁 Blast 2,12%
- Base 0.63%	😑 Base 1.63%
↔ zkSync Era 0.31%	OP Optimism 0.8%
🎇 Mantle 0.2%	L [•] Linea 0.58%
L [•] Linea 0.08%	<mark> M</mark> Mode 0.54%
🥝 Starknet 0.07%	🐝 Mantle 0.41%
🕜 Metis 0.06%	🥝 Starknet 0.28%
중 Manta 0.05%	↔ zkSync Era 0.15%
🗘 Polygon zkEVM 0.04%	🗒 Scroll 0.13%
O Others 0.03%	O Others 0.03%

TVL Composition

The composition of TVL across different L2s shows varying reliance on canonical, external, and native assets, defined as follows:

Canonical assets use the L1 Ethereum blockchain as their main chain and connect to L2s through a canonical bridge, which involves locking tokens in escrow on the L1 and minting a corresponding derivative on the L2.

External assets are tokens from other blockchains that have been bridged to L2s via a non-canonical bridge, involving a similar lock-and-mint process.

Native assets are those minted directly on the L2.

Arbitrum One has a balanced distribution with significant contributions from all three categories, highlighting its robust and diversified ecosystem. In contrast, solutions like Optimism and Base show a higher reliance on canonical assets, indicating their primary focus on securing value from established Ethereum assets. Cluster analysis was performed to group L2s based on their TVL components, categorised into:

Top Tier TVL: Arbitrum One, Optimism, and Base dominate in TVL due to their comprehensive support for canonical, external, and native assets. The balanced contributions of these asset categories suggest greater application diversity and extensive ecosystem integrations, in turn stimulating native development and a broader user base.

Mid Tier TVL: L2s such as Blast and Mantle have moderate TVL, driven primarily by canonical assets, with contributions from external and native assets. These protocols are clearly in a growth phase and show potential for further adoption, particularly if they continue to enhance their ecosystem integrations and user experience.

Lower Tier TVL: Protocols like Immutable X and Polygon zkEVM have lower TVL, focusing mainly on canonical assets with minimal external or native value. These solutions might need strategic enhancements to boost adoption and integration.

Transaction Throughput

Transaction throughput (TPS) is an important metric for evaluating the scalability and performance of rollups, with a higher TPS indicating the protocol's ability to handle more transactions, which is essential for user adoption and engagement. Figure 6 below shows total TPS developments across all Ethereum L2s over the last 6 months starting in December 2023. As we can see, TPS has risen significantly as momentum in the markets has shifted positively and new high-speed protocols and tech have emerged.





When ranking L2s based on TPS, as displayed in Figure 7, Base and Arbitrum One stand out amongst the major L2s with TPS above 22 at the time of the snapshot. Optimistic rollups perform slightly better overall, though rollups like Blast, Optimism, Mantle, and Manta lag the leaders Base and Arbitrum One by a wide margin. The best-performing ZK-rollups are Linea and zkSync Era, both of which are above optimistic rollups Blast and Optimism, followed by Scroll even further down the list. Interestingly enough, Ethereum comes in fourth, highlighting that not all L2s improve scalability in this sense.





Risk Profiles

Assessing risk factors is crucial for understanding the security and reliability of L2s. Hence, a risk assessment matrix was constructed to evaluate and compare the risks of different L2s by looking at key factors related to state validation mechanisms, data availability, exit windows, sequencer and proposer failures:

State Validation

State validation mechanisms help ensure transaction integrity and security in L2 solutions. These mechanisms can broadly be categorised into fraud proofs and zero-knowledge (ZK) proofs:

Fraud proofs centres around a challenge period—usually lasting between six to seven days—during which any fraudulent transaction can be disputed to ensure that validators act honestly. However, this method also introduces a delay in transaction finality, as users must wait for the challenge period to expire. While fraud proofs are designed to suit optimistic rollups, Arbitrum One is the only major such rollup to employ them. Instead, we can note that many optimistic rollups, including OP Mainnet/Optimism, Base, Blast, Mantle, Mode Network, and Metis, have their state validation mechanisms still in development (see Figure 4 for an overview). Barring Optimism, these protocols are still in their relatively early development phase, leaving an evolving ecosystem with ongoing improvements and potential vulnerabilities that need to be addressed before these rollups can be considered fully secure.

In contrast, ZK rollups like zkSync Era, Starknet, Linea, Scroll, and Immutable enjoy the security of ZK proofs, which provide immediate transaction finality and enhanced security by proving the correctness of transactions without revealing additional information. While the trade-off for greater security is computational intensity and more resources to operate effectively, ZK proofs eliminate the need for a challenging period and offer a more streamlined and secure validation process.

Data Availability

Data availability is another key factor in the security of L2 solutions, ensuring that all necessary information for validating transactions is accessible and verifiable. Most solutions, such as Arbitrum One, OP Mainnet, Base, Linea, Starknet, zkSync Era, Mode Network, Scroll, Polygon zkEVM, Astar zkEVM, and Loopring, employ on-chain data availability (Figure 5). Generally speaking, on-chain data availability is considered more secure as the data remains on the blockchain, making it tamper-proof and easily verifiable.

However, some solutions, including Mantle, Metis, Immutable X, and X Layer, rely on external data sources, which may introduce additional risks related to data availability and integrity that need to be mitigated, as external sources can be more susceptible to failures or attacks, potentially compromising the security of the L2.

Exit Windows

Defined post-upgrade exit windows allow users to withdraw their assets should they disagree with the change(s). Arbitrum One stands out with a specified exit window of two days, as most other L2s do not have exit windows, and could as such leave users vulnerable during times of network stress or failure. The lack of defined exit windows in most solutions is a risk factor worth noting, as having one can arguably generate greater user trust by providing a reliable means of asset withdrawal.

Sequencer and Proposer Failures

Fallback mechanisms for sequencer and proposer failures help ensure operational reliability and user trust. Many L2s use self-sequencing which involves a designated sequencer (or set of sequencers) responsible for ordering transactions. If well-implemented, self-sequencing can be robust, ensuring that transactions are processed efficiently and accurately.

However, in the event of a sequencer failure, some protocols have mechanisms to force transactions to be processed on the Ethereum L1 after a delay, typically ranging from 12 hours to one day, or use an escape hatch, both of which act as a fallback mechanism to maintain the continuity of transaction processing in case the sequencer fails or is compromised. Conversely, protocols lacking robust fallback mechanisms, such as Linea and zkSync Era, are arguably more vulnerable to operational disruptions if the sequencer fails or is compromised.

The absence of robust fallback mechanisms for sequencer and proposer failures in several solutions highlights an area needing improvement, as effective fallback mechanisms can enhance operational reliability and user confidence, ensuring that the network remains functional even in the face of sequencer failures.

	Name	State Validation	Data Availability	Exit Window	Sequencer Failure	Proposer Failure
n	Arbitrum One	Fraud proofs (INT)	On chain	2d	Self sequence	Self propose
OP	OP Mainnet	In development	On chain	None	Self sequence	Cannot withdraw
•	Base	In development	On chain	None	Self sequence	Cannot withdraw
	Blast	In development	On chain	None	Self sequence	Cannot withdraw
	Mantle	In development	External	None	Self sequence	Cannot withdraw
Ľ	Linea	ZK proofs (SN)	On chain	None	No mechanism	Cannot withdraw
9	Starknet	ZK proofs (ST)	On chain (SD)	None	No mechanism	Cannot withdraw
8	Manta Pacific	In development	External	None	Self sequence	Cannot withdraw
**	zkSync Era	ZK proofs (SN)	On chain (SD)	None	Enqueue via L1	Cannot withdraw
	Mode Network	In development	On chain	None	Self sequence	Cannot withdraw
E	Scroll	ZK proofs (SN)	On chain	None	No mechanism	Cannot withdraw
Ø	Metis	In development	External (MEMO)	None	Enqueue via L1	Cannot withdraw
Χ	dYdX v3	ZK proofs (ST)	On chain	None	Force via L1	Use escape hatch
ø	Immutable X	In development	External (DAC)	None	Force via L1	Use escape hatch
R	RSS3	In development	External	None	Self sequence	Cannot withdraw
P	Polygon zkEVM	ZK proofs (SN)	On chain	None	No mechanism	Self propose
3	Astar zkEVM	ZK proofs (SN)	External (DAC)	None	No mechanism	Self propose
\sim	X Layer	ZK proofs (SN)	External (DAC)	None	Self sequence	Cannot withdraw
	BOB	In development	On chain	None	Self sequence	Cannot withdraw
4-	Loopring	ZK proofs (SN)	On chain	None	Force via L1	Use escape hatch

Table 2. Summary of Risk Features Across Major L2s









Cost Analysis

Costs incurred by L2s are critical for evaluating their economic viability. These costs include calldata, blobs, compute, and overhead, which impact the overall efficiency and sustainability of the protocol. Looking at Figure 8 below, the data shows the significant costs for calldata that dominated the total expenses for most L2s up until relatively recently. Following the <u>EIP-4844</u> upgrade known as Proto-Danksharding, costs have declined substantially across the board. Comparing the average transaction costs across the whole period from December 2023 to May 2024 against the average cost in May alone, as shown in Table 3 below, we can see a clear drastic reduction for all the top protocols.



Comparing the two top optimistic and ZK-rollups as an example, Arbitrum One and Optimism from the former category paid some \$28m and \$17m over the last six months, the vast majority coming from calldata costs. Equally, top ZK-rollups Scroll, zkSync Era, and Linea all paid around \$21-22m as well, though here computation accounted for about 35-40% of total costs.

Post the Proto-Danksharding upgrade, computational expenses now dominate the costs of L2s instead. If you remember and as indicated by the cost-share structure just mentioned, the complex cryptographic processes that underlie ZK-rollups tend to come at the price of increased computational costs contra optimistic rollups, which is made further evident in Table 4, where protocols are ranked according to cost per transaction in ascending order. Here we can note that all L2s in the top ten in terms of lowest transaction cost are optimistic rollups, with their ZK counterparts zkSync Era, Linea, and Starknet coming in first at 11th, 12th, and 13th place, respectively.

Rank by TVL	Network	\$/tx, Dec 23 - May 24	\$/tx, May 24
1	🦚 Arbitrum One	0.1204	0.0016
2	OP Mainnet	0.2079	0.0006
3	🗧 Base	0.0517	0.0003
4	🔁 Blast	0.1699	0.0508
5	L [•] Linea	0.1693	0.0068
6	🥝 Starknet	0.3383	0.0256
7	🚧 zkSync Era	0.1027	0.006
8	🚺 Mode Network	0.0527	0.0004
9	🖫 Scroll	0.4841	0.0803
10	X dYdX v3	0.0165	0.0056

Table 3. Cost per Transaction in L2s, ranked by protocol TVL

Table 4. Cost per Transaction in L2s, ascending order

Rank by \$/tx, ascending	Network	\$ per tx, May 24
1	вов	0.0003
2	😑 Base	0.0003
3	Mode Network	0.0004
4	OP Mainnet	0.0006
5	🧉 Zora	0.0009
6	🗙 Mint	0.0012
7	🦚 Arbitrum One	0.0016
8	🔷 Parallel	0.0025
9	ᅌ Kroma	0.0026

Comparing L2s: Cross-Sectional Analysis of TVL

To provide some substance to the dynamics and influencing factors behind the TVL, a cross-sectional analysis was conducted to understand the factors influencing the TVL on L2 rollups on Ethereum. Specifically, this analysis looked at two independent variables from the previous sections, namely security features and TPS, to identify how these variables relate to TVL across the different protocols at the given snapshot.

The results showed a statistically significant and positive relationship between TPS and TVL, suggesting that higher transaction throughput is associated with higher TVL. However, no statistical significance could be found for the security variable, indicating that security features alone do not have a significant impact on TVL within this dataset—which appears to be about right given the TVL dominance of optimistic rollups. What does this say about the average user's risk management and/or investment priorities? High-speed, low-cost solutions appear as the preferred choice as seen by the TVL rankings, indicating that maximising returns remains a priority over risk management. Still, the ZK is accelerating developments and alternatives are gradually gaining market shares. Time will tell who wins the battle in the end, but for now, the degenerate speculators and/or chad traders are winning the race.

All in all, these findings suggest that scalability and performance, as indicated by TPS, remain critical factors in attracting more assets to L2s. The model hints at some degree of positive autocorrelation in the residuals, but nothing extreme; though given the limited dataset, conclusions should be interpreted accordingly.

- Higher TPS correlates positively with higher TVL, not entirely unexpected.
- Better security does not correlate with greater TVL numbers, you degens.

Conclusion

This report has sought to provide an update on the state of L2 rollups on Ethereum after months of positive momentum in crypto markets. Over the period from December 2023 to May 2024, total TVL across all L2s increased from \$17 billion to more than \$46 billion, driven by the likes of Arbitrum One, Optimism, as well as more recent entrants Base and Blast, both of which have managed to capture significant market shares. These optimistic rollups dominate the market partly due to their high throughput, wider asset base, and lower computational costs, with Arbitrum One leading at \$19 billion in TVL.

These observations have been further tested in a cross-sectional regression analysis, which pointed to a positive relationship between TPS and TVL but showed no such correlation between security features and greater TVL numbers; highlighting that scalability and performance remain king for attracting users and capital. While optimistic rollups continue to lead in adoption for these reasons, ZK rollups are gaining ground with their enhanced security features, in particular protocols like Linea and Starknet.

The report has also highlighted the varying approaches to state validation, data availability, and risk management across the L2 ecosystem, notably, that in most cases many of these features remain under development; including the lack of exit windows and mechanisms in place to handle proposer failures. While optimistic rollups and ZK rollups offer different benefits and challenges, ongoing developments in state validation and the introduction of robust fallback mechanisms will be critical for not only improving the security and reliability of these solutions, but likewise to sustain Ethereum's growth and ensuring a safe, efficient, and scalable network for decentralised applications.

Lastly, the Proto-Danksharding upgrade has led to significant reductions in transaction costs, and has improved the economic viability of these L2s considerably. Computations related to transactional operations have now replaced calldata as the main cost for most L2s, with optimistic rollups able to maintain significantly lower costs than their ZK counterparts for this very reason.

About Simply Staking

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