CEX.IO

CEX.IO Compass: Q2 2023

Finding the “You” in Users: How Human Behavior is Shaping the Crypto Ecosystem

Greetings fellow crypto enthusiasts,

What a difference a season can make, while so much remains the same. It seems that every time we meet we're standing at a regulatory crossroads, with conflicting signals swirling in the news like the dust at our feet. Simultaneously, as technological innovation and creativity are thriving in the digital economy, we're continuing to seek out ways to make forward-looking contributions.

We stand ready to guide our community through industry change, and there was plenty of it last quarter. For example, uncertainty in the U.S. banking sector inspired an early Q2 opportunity to pivot our product ecosystem away from U.S. fiat currency. We believe this move has the potential to better insulate our global community from additional risk, and further streamline the user experience.

Our expertise has always helped us remain agile and attuned to change in an environment that remains hopeful and full of opportunity. On the one hand, the passage of Markets in Crypto-Assets (MiCA) legislation in the EU has potentially ushered in a new era of cooperation and stability in the region. By creating a legal framework to protect participants and builders alike, we could be on the cusp of a more balanced and secure digital asset ecosystem for all. Moreover, its success provides a roadmap for other countries and coalitions to follow in the EU's footsteps. After nearly a decade of advocating for wide scale crypto adoption, we'd be remiss not to celebrate.

However, the mood is muddled somewhat by mixed messages out of the U.S., where federal and corporate interests are diverging on their interpretation of the space. A windfall of curious rulings from the Securities and Exchange Commission (SEC) sent participants scrambling to salvage their portfolios, and threw prices into turmoil in Q2. Thankfully, the initial tumult was brief, as communities held together, and weathered another rough patch with a greater sense of resolve. The optimistic spirit only accelerated as private interests began making public bids to bundle BTC in their holdings, rebounding some losses.

While traditional finance may finally be waking up to the potential of digital assets, we've continued to keep careful watch on the ecosystem's myriad developments. When we last spoke the Ethereum network was enjoying a series of successful upgrades, and the growth of its Layer 2 (L2) solutions was at the forefront of the conversation. Our last COMPASS report tracked the health of Arbitrum and Optimism as they continued to show promise in expediting functionality and augmenting network performance. In turn, the CEX.IO Market Research Team clocked the emergence of Ordinal Inscriptions, just as the BTC community was beginning to rehash debates over intended use of the flagship network. Since then, excitement over this novel customization of individual satoshis has grown at an exponential rate.

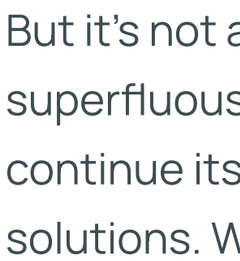
Now, for our latest edition in the series, we focus on the human elements behind transactions, as an additional vector to understand the space. The Team has been hard at work devising new methods to visualize on-chain metrics, and draw connections between patterns of success. To better isolate trends, they placed different active address groups into buckets to track an array transaction types. The technicolor charts and graphs collage a novel depiction of behavioral usage, conjuring vantage points that are often eclipsed in media coverage by value denominations. In this aspect of the report, we hope to tell a different kind of story.

Wrapped up in our desire to capture the clearest images of the crypto landscape is the acknowledgement that we may be entering a new epoch of experimentation. Liquid staking tokens (LSTs) are quickly becoming ubiquitous throughout the Ethereum ecosystem, as subsequent upgrades continue to refine its architecture. However, these clever innovations are raising concerns around their potential to destabilize certain projects if leveraged incorrectly. As LSTs continue to compete with liquid ETH for availability, gas prices on the network risk becoming increasingly inconvenient. This is further complicated by the fact that the amount of ETH staked to validators has overtaken available pools across popular platforms, compounding notions of scarcity.

Across the ecosystem, BTC enthusiasts are seeing new potential in the craze for Ordinals as miner rewards briefly dropped below that of resource requirements. For the first time ever, network fees stimulated by the recent trend are accounting for the majority of rewards, renewing incentive and faith in the legacy asset. The additional interest from asset managers has helped kickstart the BTC price engine, while grassroots utility continues to drive the lion's share of network traffic.

But it's not all wine and roses. BRC-20 tokens have become the ire of some participants who lament the superfluous, red tape transactions and hoop jumping required to execute basic actions. If Bitcoin aims to continue its flirtation with non-fungible tokens (NFTs) and token creation, it will need to find alternative solutions. While we are indeed precious about the crypto space, we will always endeavor to provide clear-eyed, honest analysis.

With that said, I hope this reflective deep dive on the humanity behind the code and hardware that comprises crypto leaves you feeling informed and empowered. It's easy to forget in this increasingly digital world the very visceral experiences we can, and still share. The wisdom and experience CEX.IO has acquired over nearly a decade in the crypto space has only sharpened our will to continue improving this sprawling, evolving organism. We hope you'll join us on this journey of self-discovery, and that the markets trend favorably along the way.



Oleksandr Lutskevych
Founder and CEO, CEX.IO

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Intro

After five editions of COMPASS, the CEX.IO Market Research Team has provided insight on a number of critical topics facing the crypto ecosystem. Through the inner-mechanics of Bitcoin, to layer-1 resource consumption, to outlining how and why projects have stumbled, to the profitability of networks and protocols, we've been your trusted guide. And yet, one component of the digital economy that we've left uncovered is arguably the most essential element of any network: you.

"In Finding the "You" in Users: How Human Behavior is Shaping the Crypto Ecosystem", we put crypto enthusiasts under the microscope for a look at how human behavior shapes the digital asset space. In the following pages, we analyze transaction types and their frequency, and how the breadth of user portfolios and cross-chain activity drives the flow of value. Contextualized alongside noteworthy trends and events, we hope to impart a birds-eye view of Q2 2023 from our unique vantage point within the crypto space. Come along as we take a tour of how you and fellow travelers on their crypto journeys help shape and contribute to the ongoing development of the digital world.

Let's get started!

Key definitions and clarifications

Before diving into the analysis, some key definitions and clarification around the data contained in the report should be established.

First and foremost, there is an important distinction between active on-chain addresses, and active on-chain users. Address and user counts are often conflated, but doing so can obscure reality. Users are the individual humans behind on-chain addresses, while one individual can own multiple addresses. As a result, 1 address ≠ 1 user in every case. Failure to make this distinction can result in the overestimation of users and other adoption metrics. This edition of *COMPASS* assesses active addresses, not users.

So, what is an active address? Active addresses are those that have executed at least one action on-chain (e.g. send a transaction or use a smart contract). Addresses that are on the receiving end of an action, but don't execute any themselves, are omitted from the count. For example, an address that receives 100 USDT, but then doesn't do anything with it, would not be included in the active address count.

Other address metrics covered in the report include:

- **DeFi addresses:** These are addresses that have executed at least one action involving a smart contract across a network's DeFi ecosystem. Addresses that swap assets on a DEX, deposit assets onto a lending protocol, and/or purchase an NFT are examples of a DeFi address.

- **DEX addresses:** These are addresses that have at least one touch point with a DEX. Touch points include swapping assets, providing liquidity, or interacting with a DEX-bound smart contract in any capacity.

- **NFT addresses:** Addresses that have at least one touch point with a NFT related smart contract. This can include listing an NFT on OpenSea, minting an NFT, or any action related to non-fungible tokens outside of transferring them from one address to another.

- **Bridge addresses:** These are addresses that have transferred assets between networks, or contributed to protocols that enable cross chain activity. Addresses that pool assets on a bridge, or have at least one touch point with inter-layer and inter-chain related smart contracts in any capacity, are examples of bridge addresses.

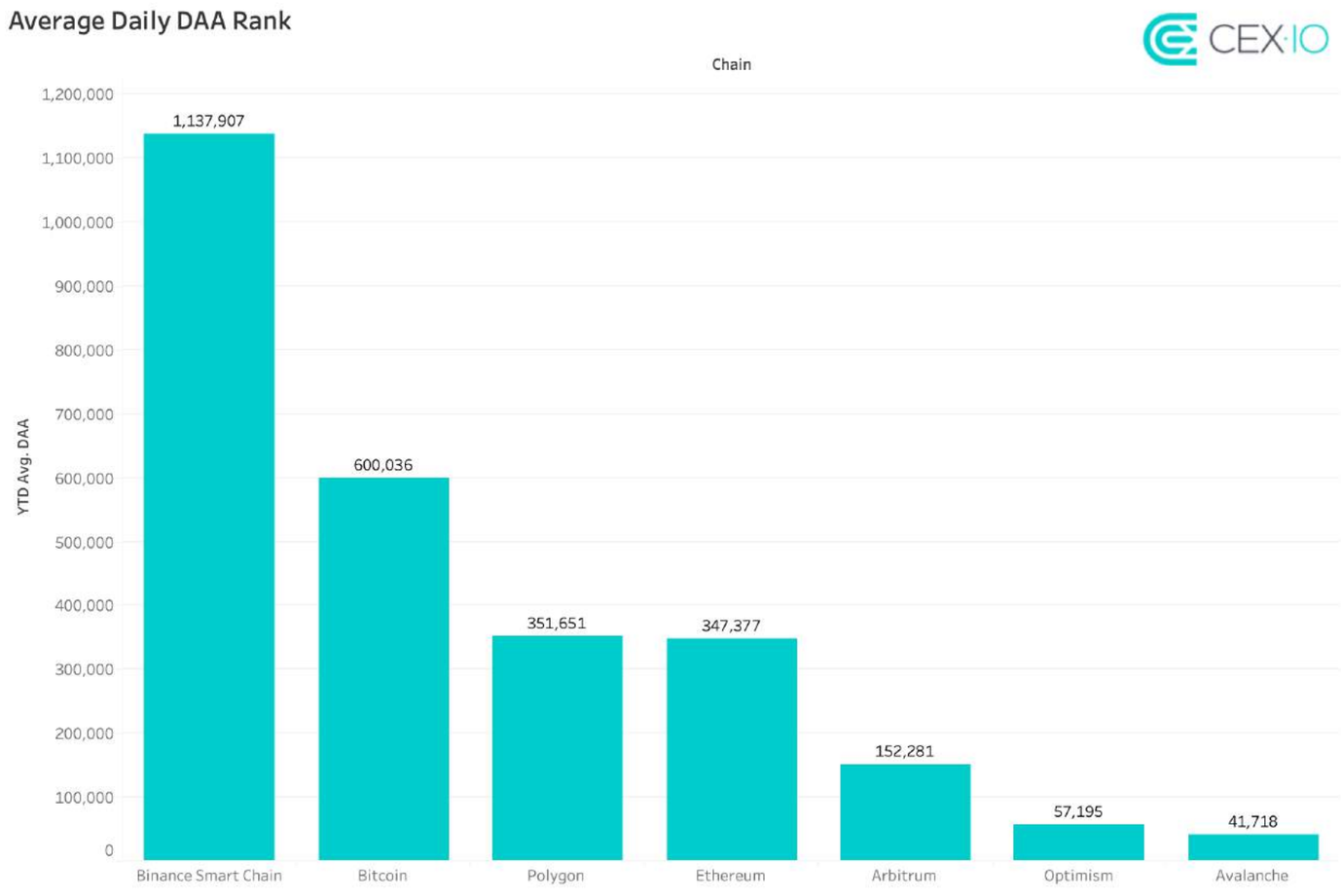
Lastly, this report's analysis evaluates six of the top 10 alternative L1 and L2 blockchains, by total value locked (TVL) plus Bitcoin. The six networks include:

1. **Ethereum mainnet**
2. **Optimism**
3. **Arbitrum**
4. **Polygon**
5. **Avalanche**
6. **Binance Smart Chain (BSC)**

The networks were selected on the basis of reliable and accessible on-chain data, and their contribution to the advancement and overall use of DeFi.

Daily active address count highlights

The following ranks the subject chains by average daily active addresses (DAA) through June 30 year to date (YTD). Binance Smart Chain saw the highest count of active addresses on a daily basis so far this year. Boasting an average of 1.138 million daily active addresses, BSC's count almost doubled that of Bitcoin's 600,000 average DAAs.



Sources: Flipside Crypto / Dune Analytics

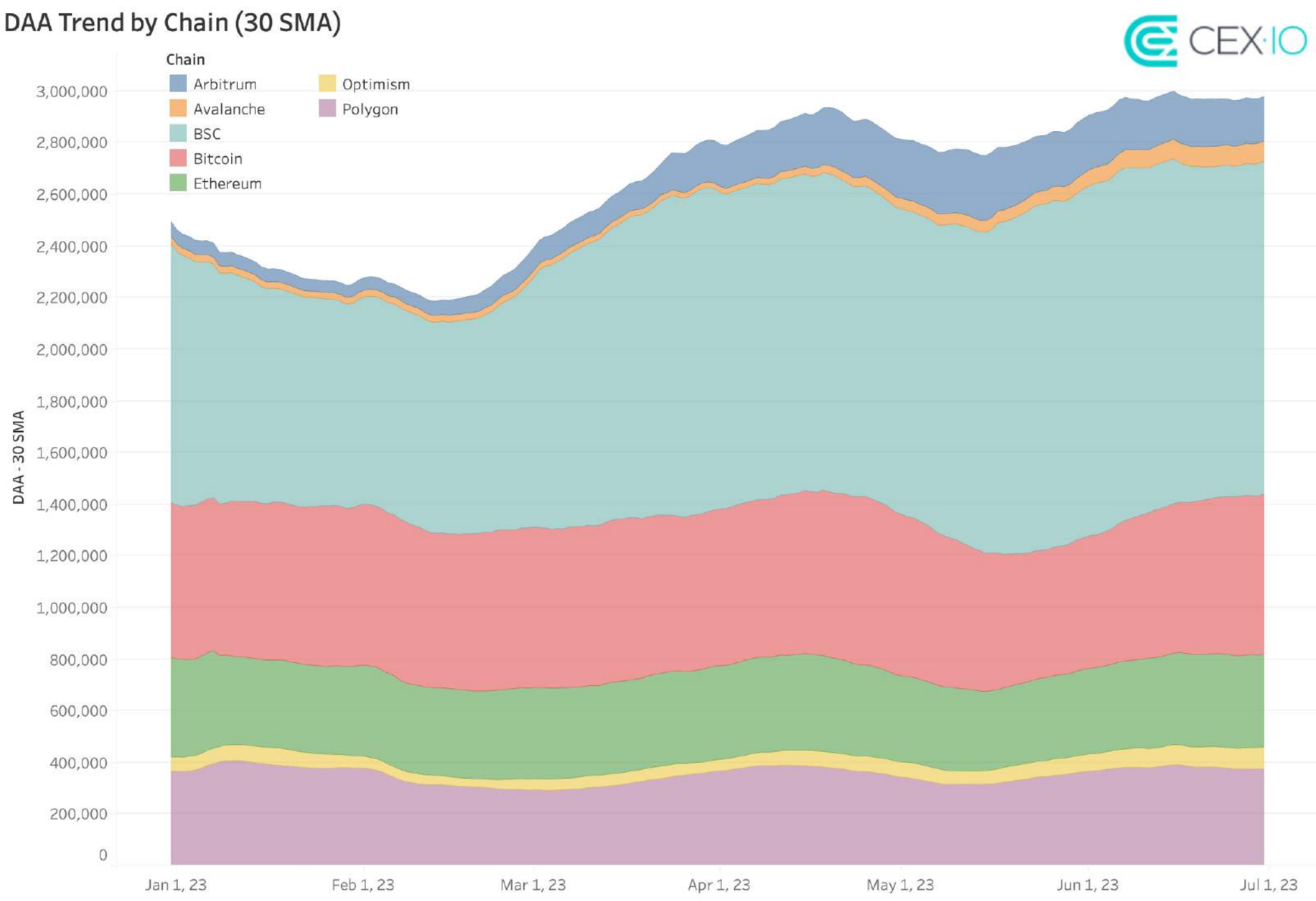
In terms of growth, however, Arbitrum experienced the largest influx of DAAs. Using 30-day simple moving average (SMA) values, Arbitrum's DAA count increased more than three times from ~55,700 on January 1, to nearly 172,200 at the end of Q2.

Avalanche and Optimism also posted impressive growth through Q2 after expanding their DAA counts by 180% and 41%, respectively. Tailwinds from the BRC-20 and Ordinal craze that started in Q1 pushed Bitcoin's DAA count up 2%. Ethereum was the only subject chain that saw a reduction in overall DAA count, shedding 5.63% of the 30-day SMA count it held on January 1.

Rank	Chain	DAA 30 SMA (Jan 1, 2023)	DAA 30 SMA (June 30, 2023)	Change
1	Arbitrum	55,686	172,202	209.24%
2	Avalanche	27,437	78,009	184.32%
3	Optimism	55,561	84,514	52.11%
4	Binance Smart Chain	983,058	1,288,964	31.12%
5	Bitcoin	594,607	620,833	4.41%
6	Polygon	363,919	373,095	2.52%
7	Ethereum	380,281	358,868	-5.63%

Sources: Flipside Crypto / Dune Analytics

As a whole, the subject chains saw an increase of 21%, or ~516,000 DAAs, through the first half of the year, according to their 30-day SMA values. Combining for 2.461 million addresses at the start of 2023, the seven chains cumulatively held 2.976 million DAAs at the conclusion of June.



Sources: Flipside Crypto / Dune Analytics

Observing the raw DAA count, we can get an understanding of the active address ranges in which each chain has operated. Arbitrum owned the widest DAA range at a 17.73x multiple. The lowest count was recorded on January 1, and went as high as 611,694 on the day of the highly anticipated March 23 $ARB airdrop. Polygon's and Ethereum's DAA counts were the most consistent of the subject chains, with 2.57x and 2.55x multiples separating their low and high DAA counts respectively.

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Chain	Low DAA	Low Date	High DAA	High Date	Low to High Multiple
Arbitrum	34,494	January 1, 2023	611,694	March 23, 2023	17.73x
Optimism	20,259	February 5, 2023	149,082	June 14, 2023	7.36x
Avalanche	21,158	March 26, 2023	117,304	June 14, 2023	5.54x
Binance Smart Chain	697,449	January 1, 2023	1,940,396	May 17, 2023	2.78x
Polygon	248,102	June 23, 2023	638,531	January 6, 2023	2.57x
Bitcoin	287,278	May 7, 2023	843,400	January 10, 2023	2.94x
Ethereum	230,298	June 23, 2023	586,168	January 8, 2023	2.55x

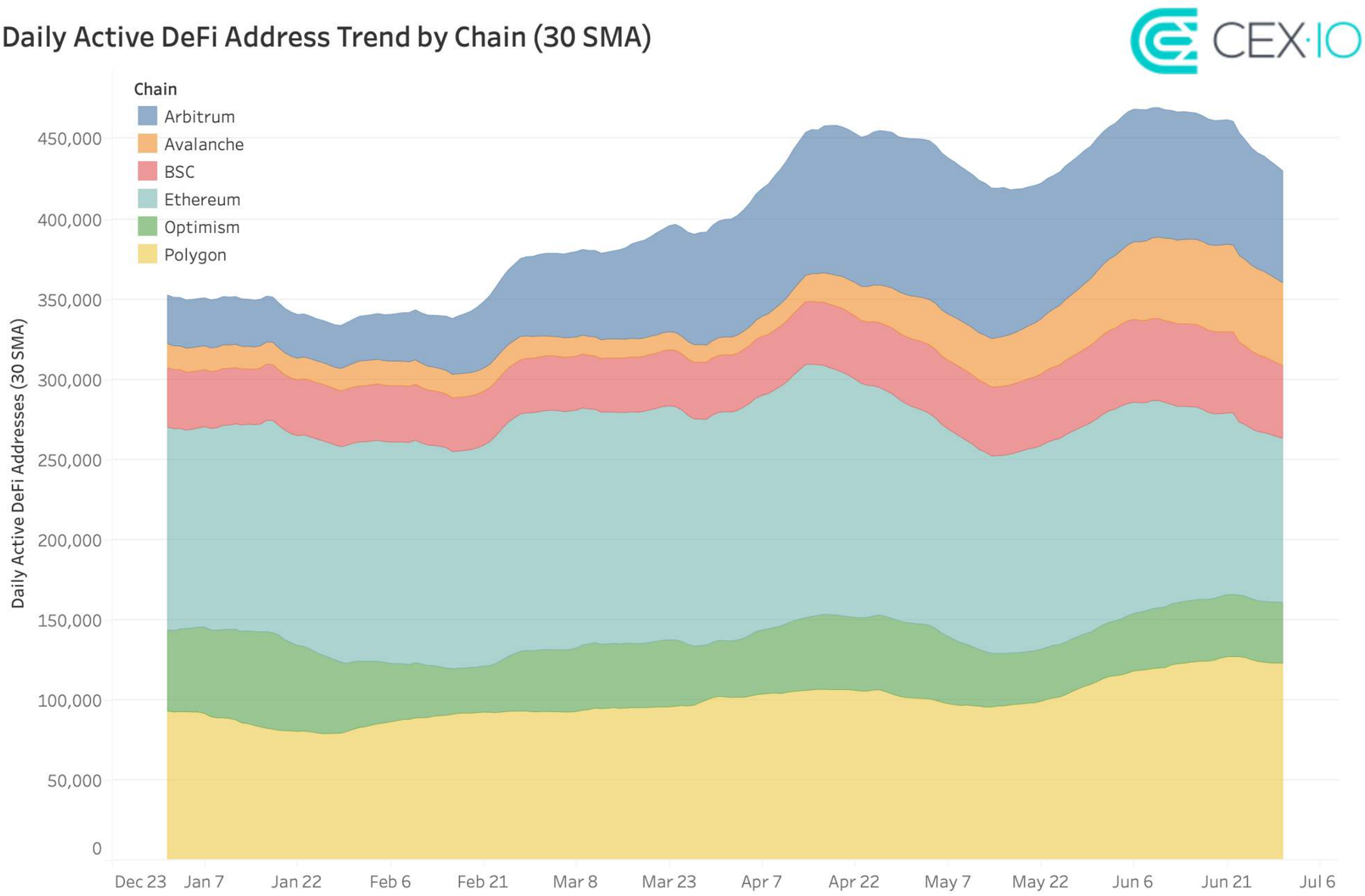
Sources: Flipside Crypto / Dune Analytics

DeFi addresses

Narrowing the scope of the address analysis, we can separate the types of active addresses on each chain into DeFi and non-DeFi umbrella cohorts. By bucketing these addresses, we can peel back layers of the data to get a stronger sense of how active addresses are contributing to their respective networks. The following surveys the addresses currently using the DeFi ecosystems that underpin their subject chains. Note, Bitcoin is not included in the DeFi active address analysis.

Active DeFi addresses highlights

The 30-day SMA of active DeFi addresses across the subject alternative L1 and L2 blockchains ,ended Q2 with a cumulative count of 430,000 addresses. Starting the year at a total of 352,400 addresses, this represents growth of 77,400 addresses, or 22% across all chains.



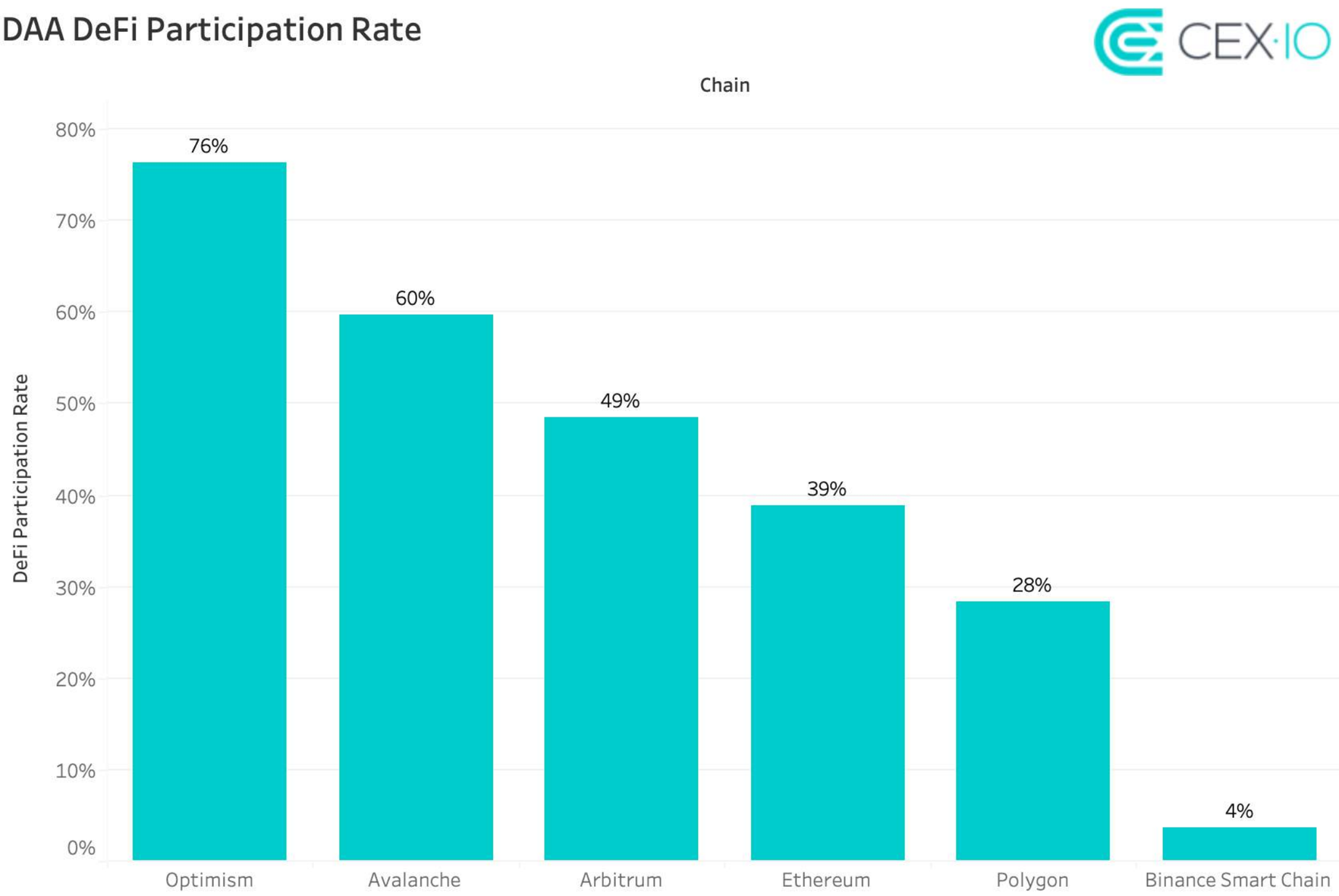
Sources: Flipside Crypto

The Avalanche DeFi address count saw the most aggressive growth after increasing by more than 255% through June 30 YTD. Arbitrum, Polygon, and BSC also capped off Q2 with net increases in the number of addresses participating in their DeFi ecosystems. Of the six subject chains, Ethereum and Optimism were the only ones that saw a reduction in the 30-day SMAs of their DeFi address counts, losing 19% and 25% of their DeFi addresses, respectively.

Rank	Chain	DeFi Addresses 30 SMA (Jan 1, 2023)	DeFi Addresses 30 SMA (June 30, 2023)	Change
1	Avalanche	14,966	51,533	244.33%
2	Arbitrum	30,454	69,964	129.74%
3	Polygon	92,751	122,647	32.23%
4	Binance Smart Chain	37,034	45,229	22.13%
5	Ethereum	126,514	102,578	-18.92%
6	Optimism	50,614	37,867	-25.19%

Sources: Flipside Crypto

Setting the DeFi addresses over each chain's DAA count helps identify a network's DeFi participation rate. This is a key metric to follow when assessing the primary use of a network, and is essential for grasping the behaviors of addresses on-chain.



Sources: Flipside Crypto

Despite a reduction in Optimism's DeFi addresses at the end of Q2, the chain had the highest DeFi participation rate of all in observance, at 76%. This means more than three quarters of Optimism DAAs took advantage of the uses allotted by its network of applications through June 30 YTD.

Binance Smart Chain had the lowest DeFi participation rate despite having the highest DAA count of all chains in observance. Of the chain's 1.138 million average DAAs (raw count average) through the first half of the year, only ~39,200 participated in DeFi daily on average.

Active DeFi address smart contract use

Building off the DeFi participation rates established above, we can examine the breadth of DeFi address activity through their unique smart contract use. A high touch point count per address suggests a network's DeFi addresses have greater breadth, as they are performing actions across a wider range of smart contracts on a daily basis.

The following heat map looks at the average percent share of active DeFi addresses across a number of unique smart contract touch point ranges. Chains with a greater percentage of contract touch points – think 10 or higher – have pronounced DeFi breadth, as corresponding addresses are casting wider nets across their DeFi use.

So what is the table telling us? In short, it isolates the average percent of active DeFi addresses that engage with a varying number of smart contracts on a daily basis. For example, 20.39% of active Ethereum DeFi addresses used two to five smart contracts per day, on average through June 30 YTD.

The color coding is used on a comparative basis across the subject chains, by contract touch point count. Dark blue values for each touch point range indicate a chain's DeFi addresses are more active in that range compared to the others. For example, Binance Smart Chain has the darkest blue highlight for the one contract interaction range. This means, BSC has the highest daily share of active DeFi addresses interacting with only one smart contract, compared to the other chains.

Chain	1 Contract	2 to 5 Contracts	5 to 7 Contracts	7 to 10 Contracts	10+ Contracts
Ethereum	78.58%	20.39%	0.61%	0.26%	0.16%
Arbitrum	64.03%	33.76%	1.39%	0.55%	0.28%
Optimism	58.40%	36.00%	2.56%	1.55%	1.49%
Polygon	80.63%	18.68%	0.42%	0.17%	0.11%
Binance Smart Chain	95.16%	4.71%	0.07%	0.03%	0.03%
Avalanche	56.57%	41.31%	1.42%	0.52%	0.19%

Source: Flipside Crypto

DeFi address behavior

We can narrow the analysis even further by breaking up DeFi addresses into more granular cohorts and observing their behaviors. The narrower buckets are based on various sectors of DeFi, such as DEXs, NFTs, and bridges. Within each vertical, address behavior can be observed to draw conclusions about their habits on-chain, and the roles served by these different types of networks.

DEX addresses

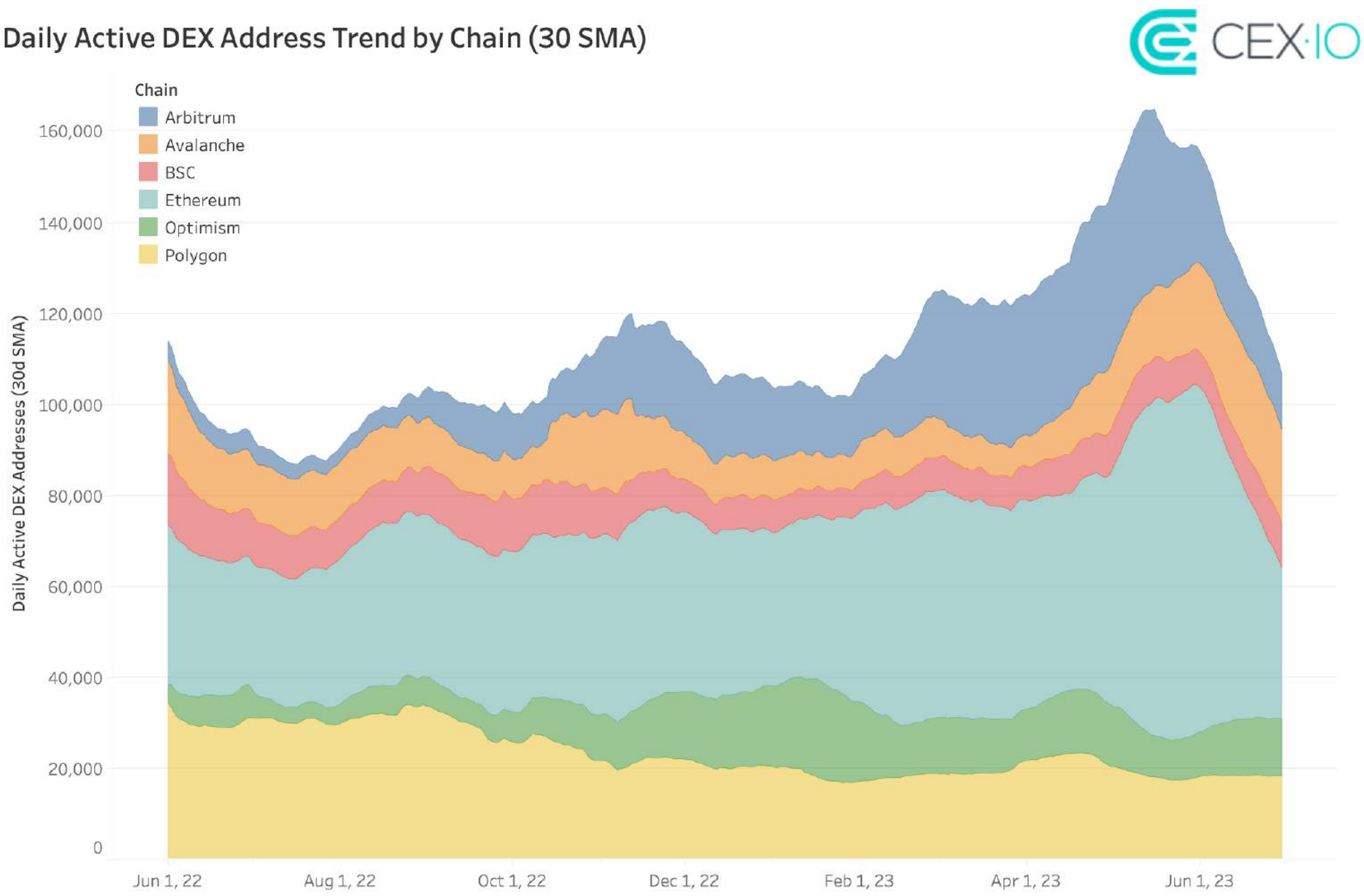
The following looks at each subject chain's cohort of DEX addresses. It monitors:

1. The out right and relative number of DEX users;
2. The number of transactions average DEX users execute on a daily basis;
3. The number of DEX related smart contracts users trigger on a daily basis.

Address count

Using the 30-day SMA from January 1 to June 30, active DEX addresses across the subject chains grew minimally from 103,643 at the start of the year, to 106,945 at the close of Q2. May 16 marked the high point in daily active DEX addresses with 164,901 addresses, representing 60% growth YTD at the time. From this high, the DEX address count retreated 35%.

The chart below depicts the 30-day SMA for the DEX address count since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

The number of addresses interacting with DEXs across Avalanche saw the strongest growth through June 30 YTD. After starting with 8,710 addresses on January 1, Avalanche's DEX address count more than doubled, surging to 20,608 active addresses at the close of Q2 2023. On the other hand, Optimism saw the greatest contraction of the six chains after experiencing a 28.84% decline in its daily DEX address count, ending Q2 with a 30-day SMA count of 12,662 addresses.

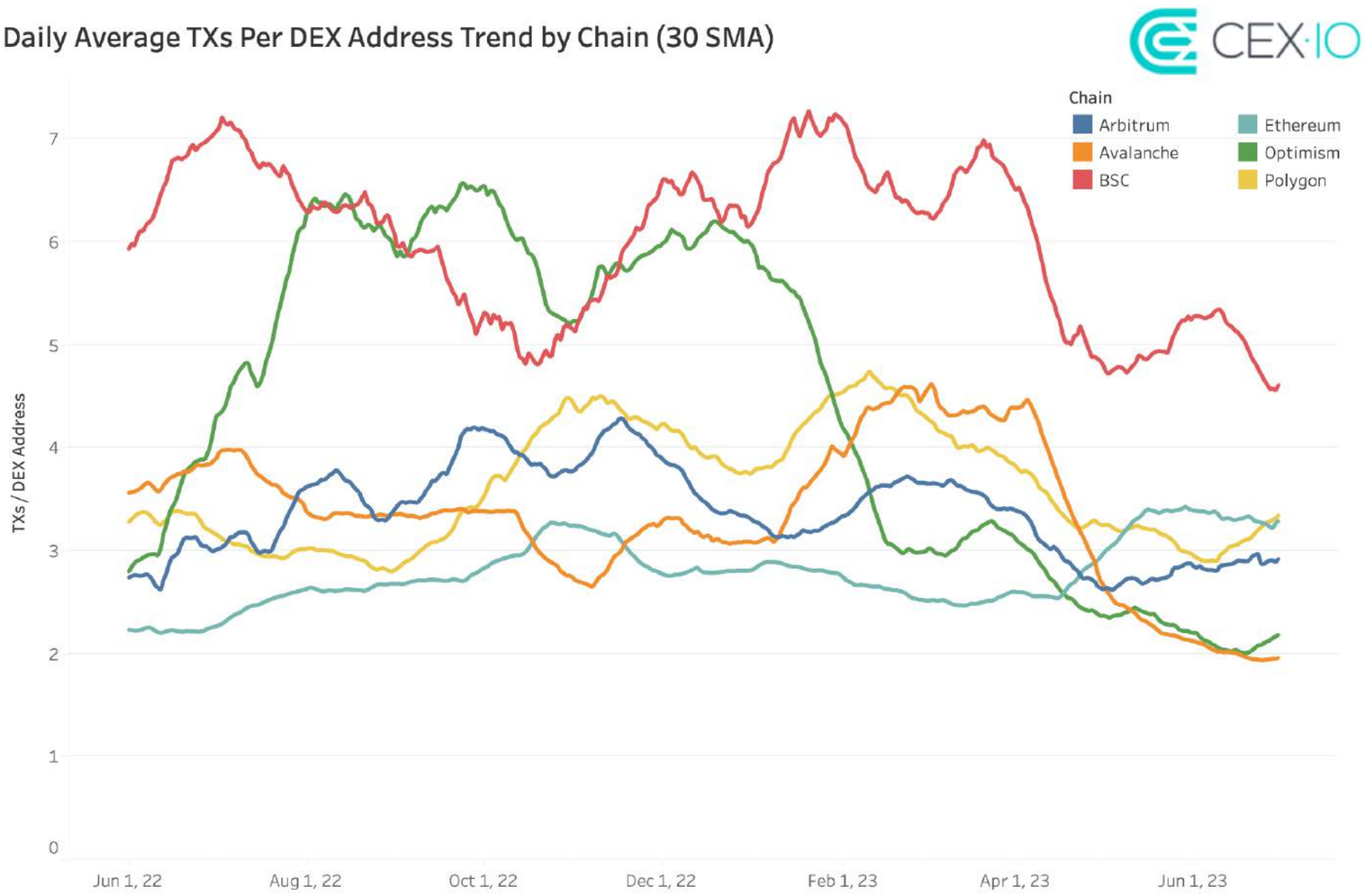
Rank	Chain	30 SMA (Jan 1, 2023)	30 SMA (June 30, 2023)	Change
1	Avalanche	8,710	20,608	136.60%
2	Binance Smart Chain	7,230	9,783	35.31%
3	Ethereum	33,630	33,128	-1.49%
4	Polygon	20,277	18,272	-9.89%
5	Arbitrum	16,002	12,492	-21.93%
6	Optimism	17,795	12,662	-28.84%

Source: Flipside Crypto

Average transactions per DEX address

For further context on DEX activity, we can look at the average number of actions addresses took though Q2. Addresses using DEXs on Binance Smart Chain executed the most actions on average, despite having the lowest address count of the six chains in observance. Through Q1, BSC DEX addresses carried out an average of 5.78 actions per day. DEX addresses on Optimism performed the least number of transactions across the network's suite of DEXs, committing an average 2.87 daily actions.

The chart below depicts the 30-day SMA of DEX transactions per address since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

DEX address smart contract use

Going a step further, we can assess the breadth of DEX address activity of the subject chains. By using the same style heat map as above, we can get a more accurate picture of the daily average number of DEX-related smart contracts these addresses used.

On average, Optimism DEX addresses interacted with more smart contracts on a daily basis. This is evident by a greater percent share of addresses being skewed away from one contract (more dark blue values on the right side of the table) compared to the other chains. In contrast, Binance Smart Chain DEX addresses had the least breadth of all six chains, with more than 96.5% of addresses using only one contract per day.

Chain	1 Contract	2 to 5 Contracts	5 to 7 Contracts	7 to 10 Contracts	10+ Contracts
Ethereum	91.84%	8.07%	0.05%	0.03%	0.02%
Arbitrum	82.02%	17.68%	0.24%	0.04%	0.01%
Optimism	75.37%	22.40%	1.58%	0.54%	0.11%
Polygon	87.63%	12.19%	0.12%	0.04%	0.02%
Binance Smart Chain	96.47%	3.48%	0.04%	0.01%	0.01%
Avalanche	75.22%	24.08%	0.46%	0.16%	0.08%

Source: Flipside Crypto

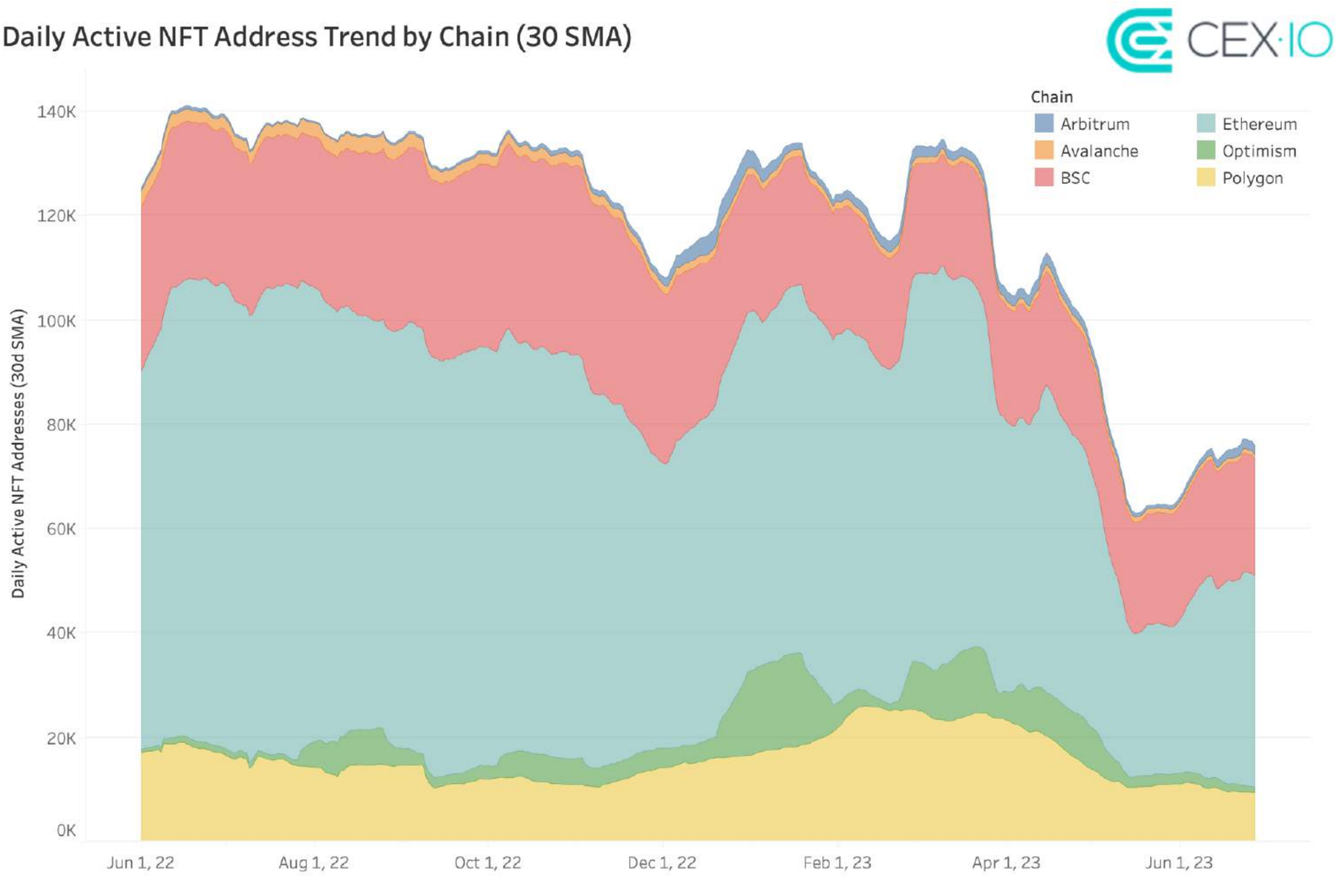
NFT addresses

The following looks at each subject chain's cohort of NFT addresses. It monitors the same metrics from above to assess the behavior and habits of NFT use on-chain.

Address count

The number of addresses using NFTs across the subject chains dropped sharply through the first half of the year. The cumulative count of NFT addresses across all six chains declined 43%, according to the 30-day SMA through the end of Q2. On May 16, NFT addresses reached their lowest point with 62,073, the same day active DEX addresses reached their YTD high. However, the total active NFT address count rallied 24% from its May low, to end June with a 30-day SMA of 76,806 addresses.

The chart below depicts the 30-day SMA of NFT address count since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

The table below highlights the changes in active NFT address counts for each chain. While all chains saw a reduction in their active address counts, some took a bigger hit than others.

Binance Smart Chain, with the second highest count of active addresses, saw the least amount of active addresses pruned from the network. Holding a 30-day SMA of 26,110 addresses at the year's open, the network lost only 13.5% of its active addresses. Optimism, on the contrary, saw a 95% depletion of their addresses actively using NFTs. As of June 30, the network only had 814 addresses actively using NFTs, compared to 16,116 on January 1.

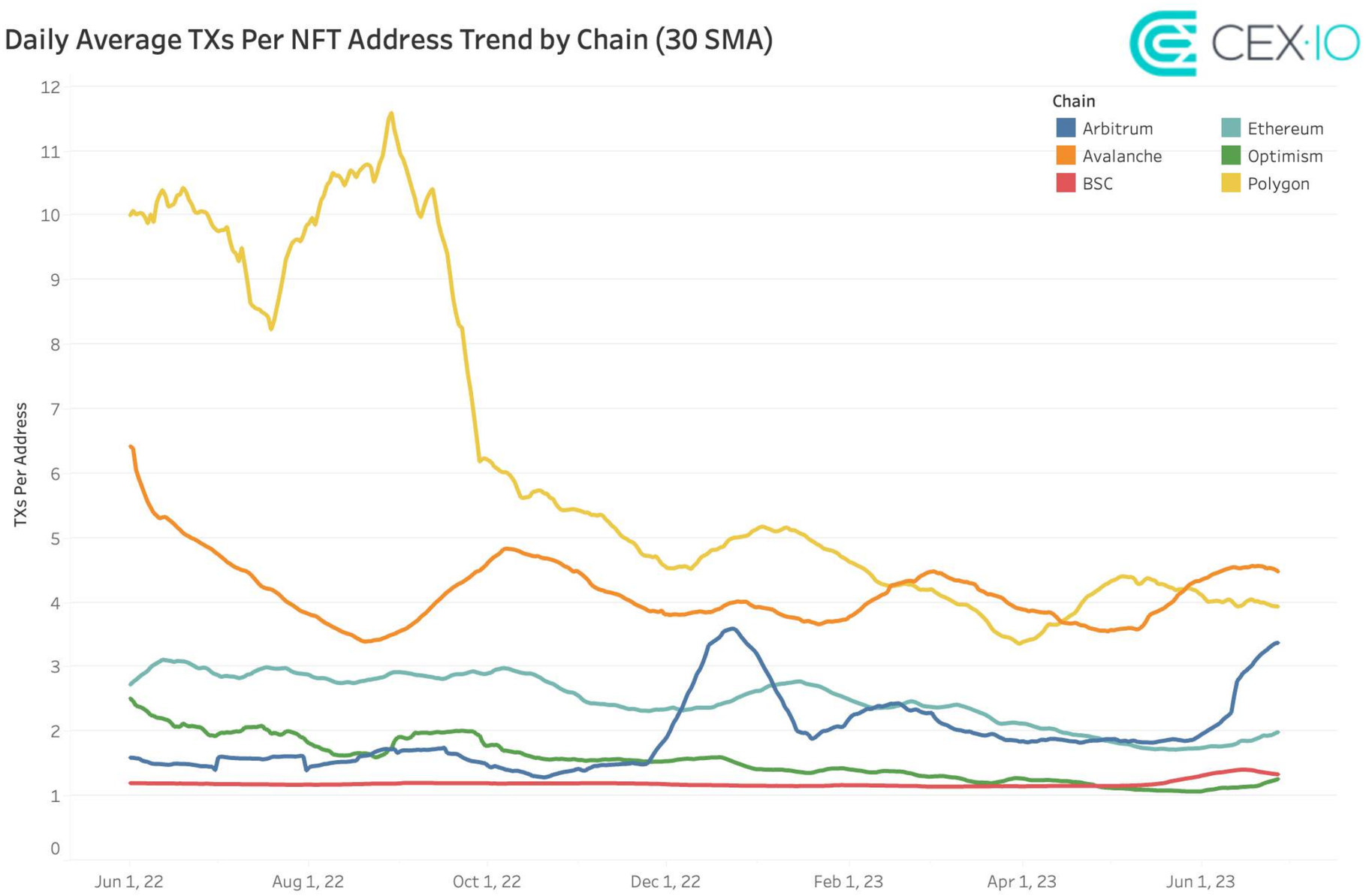
Rank	Chain	30 SMA (Jan 1, 2023)	30 SMA (June 30, 2023)	Change
1	Binance Smart Chain	26,110	22,592	-13.48%
2	Avalanche	1,350	818	-39.41%
3	Ethereum	68,877	41,467	-39.80%
4	Arbitrum	3,315	1,915	-42.23%
5	Polygon	16,525	9,200	-44.33%
6	Optimism	16,116	814	-94.95%

Source: Flipside Crypto

Average transactions per NFT address

Despite the decline in addresses interacting with NFTs through June 30, the average number of NFT-related transactions remained relatively stable across the subject chains. Coinciding with Optimism's sharp falloff in active NFT addresses, the network also held the least active cohort of NFT addresses. The average active NFT address on Optimism executed a single transaction per day. Avalanche and Polygon, however, held the most active groups of NFT addresses, and shared an average NFT-related transaction count of 4.1 through the first half of 2023.

The chart below depicts the 30-day SMA of NFT-related transactions per address since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

NFT address smart contract use

Comparing transaction counts per address can provide a general picture of NFT address activity for each chain, but how deep does it go? In addition to having the largest cohort of active NFT addresses, NFT use on Ethereum has the most breadth relative to the collection of chains used in this analysis. More than a quarter of all active NFT addresses use at least two contracts on a daily basis; and the network has the most substantial sect of addresses using 10 or more contracts on average.

Chain	1 Contract	2 to 5 Contracts	5 to 7 Contracts	7 to 10 Contracts	10+ Contracts
Ethereum	**75.12%**	**23.55%**	**0.79%**	**0.35%**	**0.19%**
Arbitrum	**96.27%**	**3.73%**	**0.00%**	**0.00%**	**0.00%**
Optimism	**92.28%**	**7.65%**	**0.04%**	**0.01%**	**0.01%**
Polygon	**89.71%**	**10.13%**	**0.13%**	**0.01%**	**0.01%**
Binance Smart Chain	**99.88%**	**0.12%**	**0.00%**	**0.00%**	**0.00%**
Avalanche	**78.26%**	**20.42%**	**1.01%**	**0.28%**	**0.03%**

Source: Flipside Crypto

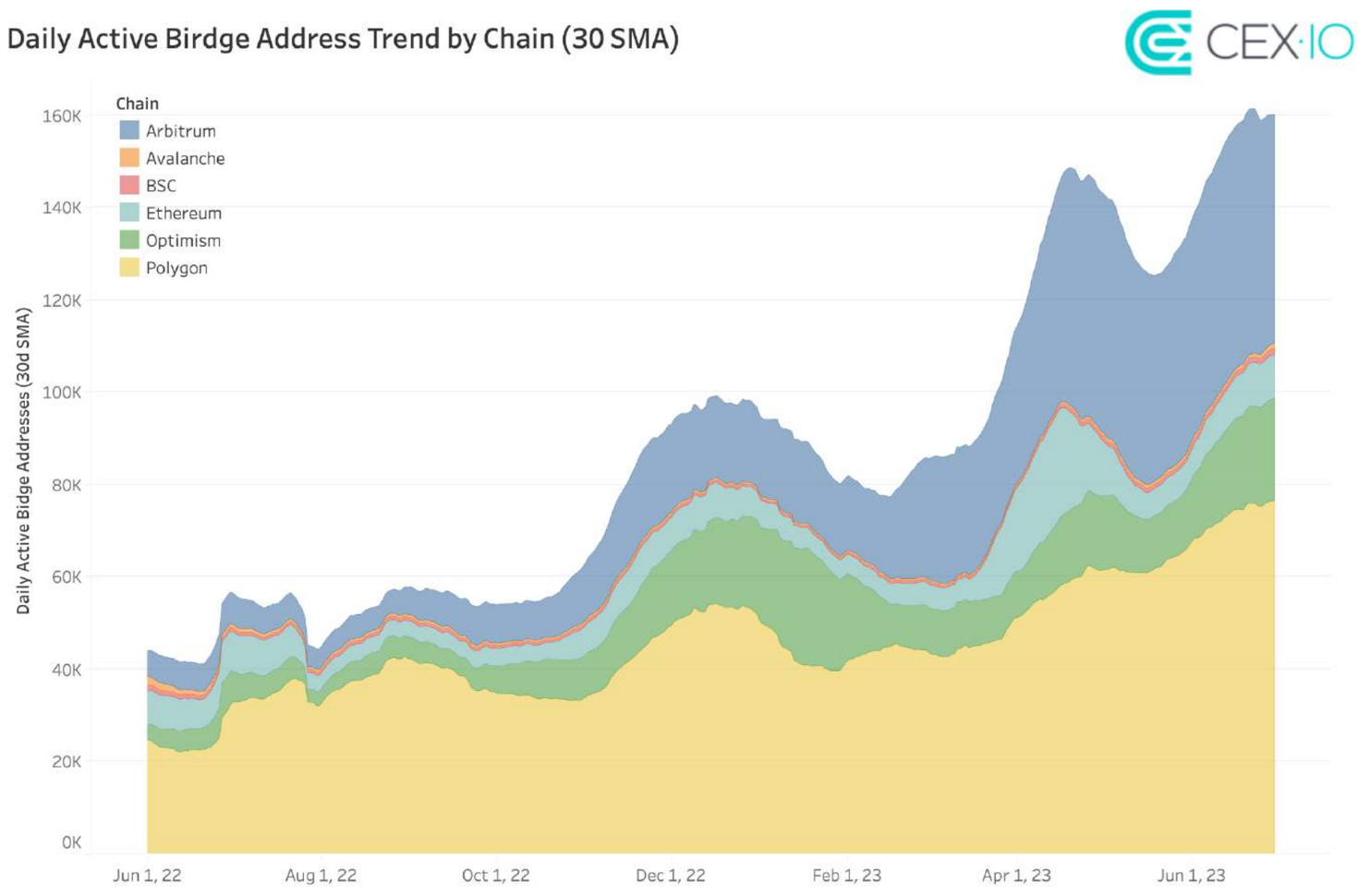
Bridge addresses

Lastly, we can examine the subject chains' cohorts of addresses using inter-network/inter-layer protocols. This monitors the same metrics from above to assess the inter-blockchain behavior and habits of addresses moving assets across chains.

Address count

The number of addresses bridging and contributing to the facilitation of inter-blockchain activity climbed the sharpest of all cohorts in this analysis. Cumulatively, the number of active bridge addresses rose by 65,063 addresses, or 69%, up from 94,902 on January 1 using the 30-day SMA. On June 22, the previous local high of 147,660 addresses from April 20 was shattered as the number climbed to a new height of 161,353.

The chart below depicts the 30-day SMA of NFT address counts since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

All chains tracked in this report saw their number of active bridge addresses broaden in the first half of the year. Arbitrum enjoyed the most impressive growth, adding 32,353 active addresses, and representing a 190% increase. Polygon maintained the largest count of daily active bridge addresses through the entirety of June 30 YTD, and grew by 52%, adding 26,009 new addresses. Optimism saw the lowest amount of expansion, with a modest gain of 8.5% over its 30-day SMA for active bridge addresses.

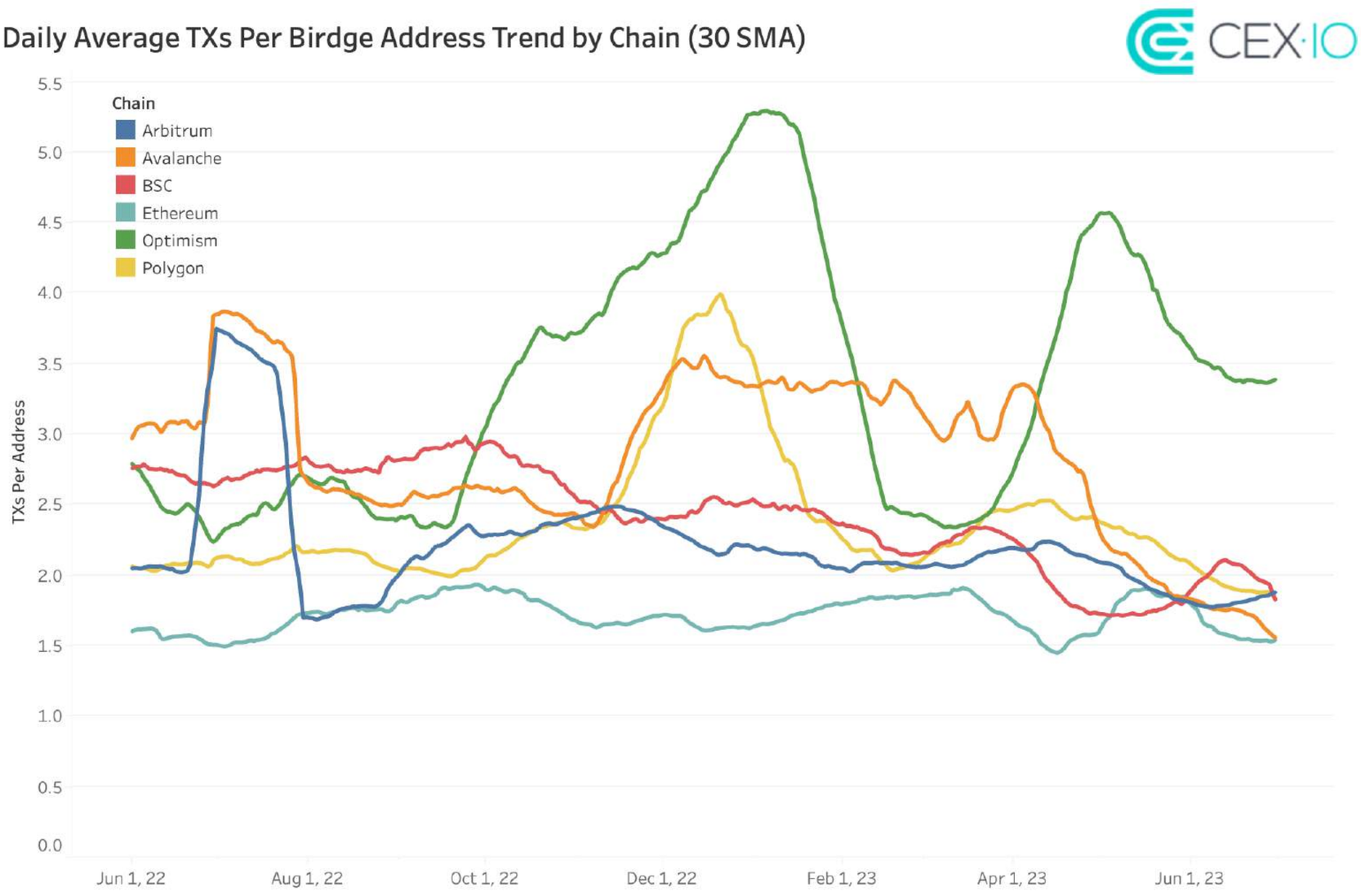
Rank	Chain	30 SMA (Jan 1, 2023)	30 SMA (June 30, 2023)	Change
1	Arbitrum	17,020	49,373	190.09%
2	Binance Smart Chain	449	1,294	188.11%
3	Avalanche	458	1,201	162.43%
4	Ethereum	6,104	9,474	55.19%
5	Polygon	50,428	76,437	51.58%
6	Optimism	20,443	22,187	8.53%

Source: Flipside Crypto

Average transactions per bridge address

Optimism held the most active sect of bridge addresses, executing an average of 3.4 transactions per day. Cumulatively, the other five chains held an average of 2.1 transactions per day through June 30 YTD, 38% below that of Optimism. Overall, the average number of transactions per bridge address was down though the first half of 2023.

The chart below depicts the 30-day SMA of bridge related transactions per address since June 1, 2022 to offer a wider and cleaner view of the trends in the metric.



Source: Flipside Crypto

Bridge address smart contract usage

Last but not least, we can complement the general activity outlined by average transaction counts with that of smart contract usage to get an idea of participation depth. Arbitrum performed well in this category, with more than 26% of bridge addresses using at least two smart contracts on a daily basis. Following up closely behind was Optimism, carrying 25.2% of active bridge addresses using the same number of smart contracts daily.

Conversely, Avalanche and Binance Smart Chain held the least amount of breadth in their bridging activity of active addresses. In total, nearly every bridge address on the measured chains used five contracts or less in their day-to-day activities.

Chain	1 Contract	2 to 5 Contracts	5 to 7 Contracts	7 to 10 Contracts	10+ Contracts
Ethereum	91.65%	8.31%	0.02%	0.01%	0.01%
Arbitrum	73.73%	25.74%	0.42%	0.10%	0.01%
Optimism	74.74%	24.51%	0.58%	0.13%	0.03%
Polygon	85.85%	14.02%	0.10%	0.02%	0.00%
Binance Smart Chain	93.59%	6.41%	0.01%	0.00%	0.00%
Avalanche	95.60%	4.39%	0.00%	0.00%	0.00%

Source: Flipside Crypto

Observations and conclusions

The following draws lines in the sand through the information covered in this report. We will look at the data from a bird's eye view, and take a closer look at each network individually. Doing so helps identify and understand the bigger picture, while highlighting the nuances of each network.

General observations and conclusions

Below highlights general observations in the data presented above, and points that can be extracted through careful analysis:

- The combined average participation in DeFi of the sampled networks was ~42%. This means less than half of the headline "daily active user" (DAU) count that is often used in on-chain analytics, actually contributed to the network effect and utility of DeFi through June 30 YTD.

- Binance Smart Chain had the highest daily active address count of all the chains at 1.138 million, but held the lowest DeFi participation rate at ~4%. This suggests that, while Binance Smart Chain hosts a DeFi ecosystem, the network appears to have little interest in engaging with those services.

- DeFi activity on Ethereum L2s had more penetration per address than that of the Ethereum mainnet. 2.8% of daily active DeFi addresses across Optimism, Arbitrum, and Polygon used five or more smart contracts on a daily basis, compared to the Ethereum mainnet's 1.03%. Moreover, 32.3% of daily active DeFi addresses on the same L2s interacted with two or more contracts on a daily basis, compared to the Ethereum mainnet's 21.4%.

- The 30-day SMA of daily active DEX and NFT addresses held a R^2 coefficient of -.8 through the first half of 2023. This indicates that as more addresses were contributing to and using DEXs, less addresses were contributing to and using NFTs.

- Bridge addresses saw the largest growth of all DeFi DAA cohorts. This highlights the increase in interconnectedness of blockchain ecosystems.

Observations and conclusions by network

The following takes a closer look at the trends in active addresses, and extrapolates on the information presented throughout this report:

Arbitrum

- The correlation between network TVL and the 30-day SMA of DeFi addresses held a R^2 of .95; meaning there's a tight correlation between the economic growth across Arbitrum's DeFi services, and the number of addresses moving about in its ecosystem.

- This is a healthy sign that the network's economic growth is closely linked to new users joining the ecosystem. This is not the case with the other subject chains, which hold the following correlations between DeFi TVL and active DeFi address counts: Ethereum, .38; Optimism, -.6; Polygon, -.33; Avalanche, -.76; Binance Smart Chain, -.85.

- Arbitrum held the highest YTD DeFi address retention rate at 13%, meaning Arbitrum saw the largest share of DeFi addresses remain active through the end of Q2. This compares to: Ethereum, 6%; Optimism, 9%; Polygon, 5%; Avalanche, 6%; Binance Smart Chain, 5%. The bridge address cohort saw the highest retention rate of 12%.

Optimism

- Hemorrhaging more than 90% of its daily active NFT addresses through the first half of the year, Optimism only managed to retain 1% of its addresses interacting with NFTs.

Avalanche

- Avalanche enjoyed the largest growth in DeFi addresses of the subject chains, but held the second lowest retention rate at 6% YTD. This suggests that, while new addresses continuously joined the network's DeFi ecosystem, there was a consistent cycle of older ones going inactive at an equal rate.

Binance Smart Chain

- Binance Smart Chain maintained the healthiest and most consistent cohort of daily active NFT addresses. Sporting a retention rate of 26% for active NFT addresses through June 30 YTD, the network also dominated in this category by shedding the least amount of addresses among the subject chains. Moreover, 55% of their active DeFi addresses used NFTs on average through June 30 YTD, which suggests NFTs have been a prominent use case in DeFi on the network.

- BSC DEX addresses committed the most DEX-related actions per address each day, but held the highest share of addresses interacting with a single contract on a daily basis. This suggests that, while BSC DEX addresses were the most active, they were partial to the applications and smart contracts they interacted with.

Polygon

- Polygon maintained the lowest retention among active bridge addresses across Ethereum L2s through the first half of the year, at just 3%. This suggests the network saw a consistent flow of new addresses bridging to and from the network.

Ethereum

- Ethereum bridge addresses had the highest average fee per transaction at .021 ETH (paying a total of 22,349 ETH in fees through June 30 YTD). However, DEX addresses spent the most fees cumulatively at 210,581 ETH (.02 ETH per transaction) through the first half of the year. Ethereum NFT addresses paid the lowest average fee per transaction at .011 ETH, but spent a total of 94,752 ETH in fees.
- Ethereum experienced a 23,936 decline in DeFi addresses through the end of Q2, compared to Ethereum L2s (Optimism, Arbitrum, and Polygon) addition of 56,658 DeFi addresses, using the 30-day SMA values. This suggests DeFi addresses are moving their activity from Ethereum mainnet to the network's second layer.

What does all of this mean?

The takeaways from the above discussion can be assessed from fundamental, technical and human points of view.

The fundamental takeaway

The traditional DAU metric is misdefined and leads to the misstating of reality when taken at face value. There is a distinct difference between addresses and users, as noted at the beginning of the report. The DAU count conflating the two ends in an overestimation of adoption, as the definition of the metric assumes 1 user = 1 address.

Furthermore, the traditional user/address count metrics neglect to identify what an address or user is contributing to a network. Networks serve diverging purposes. Failing to track and identify the addresses/users fulfilling a network's use case is a massive missed opportunity; and, when substituted with the traditional DAU count, relies on assumptions and can give a false sense of reality.

The above notion stems from a greater problem looming around the space. That is, we need to take a closer look at how we define certain metrics, and how we sift through them to get the most accurate and actionable signals.

The technical takeaway

Ethereum L2s (Optimism, Arbitrum, and Polygon) exhibit healthier and more expansive DeFi use than Ethereum L1, and the leading alternative L1s observed in this report. Not only did the average activity on Ethereum L2s boast greater penetration, the networks experienced less address churn, and combined for 2.3 times more DAAs than Ethereum.

Moreover, by the conclusion of Q2 2023, Ethereum L2s connected to and contributed to inter-chain protocols for 12 times more addresses than the combined total of Ethereum mainnet and the other L1s. This suggests the networks' borders are more energetic and actively managed than that of Ethereum mainnet, and the other L1s in observance. The culmination of these points suggests that Ethereum L2s are becoming the DeFi chains of choice.

The human takeaway

Going deeper, the reporting above isolates how individual contributions play an integral role in the expansion and interconnection of the community. The ecosystem's collaborative, open-source existence can often lead to its human elements becoming obscured in the coverage of the space. However, none of the creativity and innovation we marvel at on a quarterly basis happens in a vacuum. Rather, the advancements that continue to shape the contours of the digital economy bare the mark of human hands and minds, and its actions that of human wants and desires.

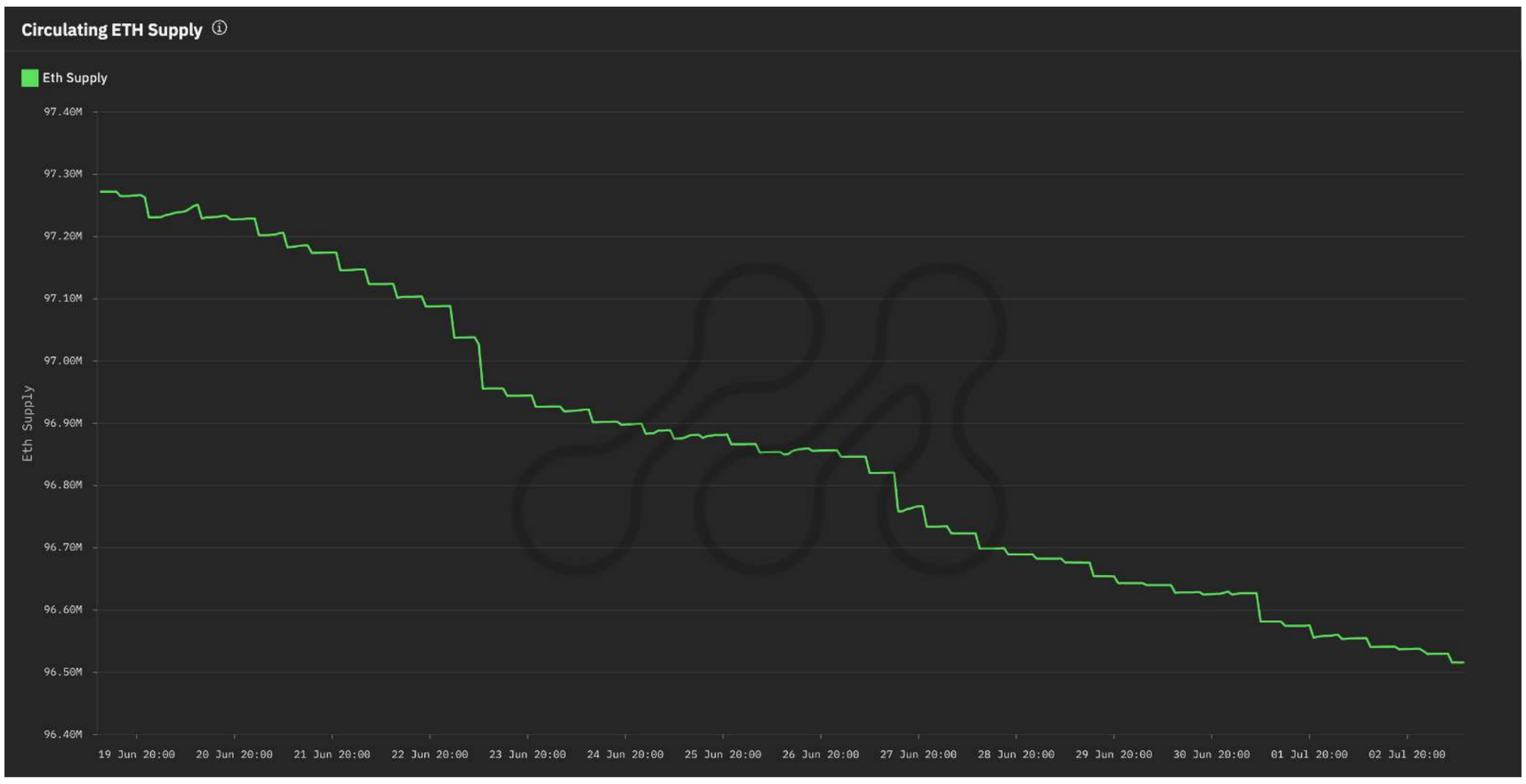
In our observance of the space for this report, we wanted to highlight how these very human emotions drive and define the limits of what is achievable through blockchain-based solutions. By consistently demanding and utilizing these technologies, participants can create a positive feedback loop that continues to strengthen the community and drive innovation. When this process is approached with such intent, we can instill a natural reflex that encourages the development of more agile and inventive solutions.

So what else happened in Q2 2023?

In addition to the above examination of user address activity, and to continue centering the global crypto community in this report, we set aside space to unpack some of the other current trends circulating in the digital economy. In the following pages, we dissect how the landscape shifted through Q2, and what these emerging metrics could suggest looking ahead to the year's end.

ETH supply on execution layer moved under 100 million

The amount of ETH on Ethereum's execution layer, which calculates net fee burns and validator deposits/withdrawals, crossed below the 100 million ETH threshold. Synonymous with the base layer, or L1 of a blockchain, the execution layer is responsible for processing and executing smart contracts and transactions.



Source: Metrika

Why is this trend significant?

A dwindling supply of ETH on Ethereum's execution layer could be a sign that assets are in demand for alternative uses elsewhere. The success of the Ethereum Merge, and subsequent developments in staking services, has led to a growing portion of supply being staked with validators. Alternative use cases include deployment across Ethereum L2s, their DeFi ecosystems, and paying gas to execute actions. Additionally, the count being net of validator deposits indicates staking is playing a role in the reduction of ETH supply, and liquidity to some extent, on Ethereum's execution layer.

Other considerations:

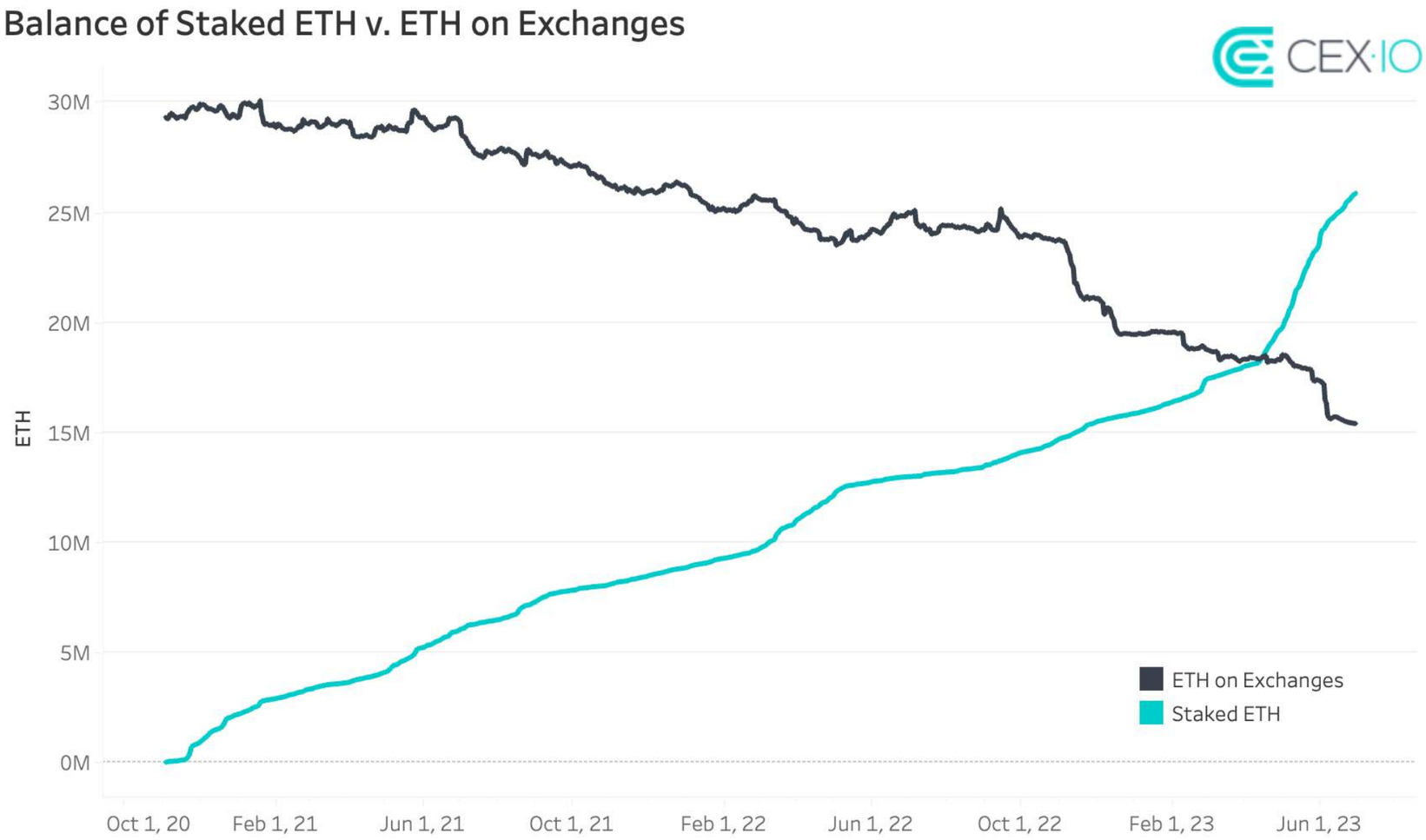
- **Liquid staking tokens (LSTs):** Despite enjoying measured increases in liquidity since their adoption, LSTs like stETH, rETH, and sfrxETH are not included in the circulating supply count. Since this cohort of ETH is deposited into validators, but omitted from the circulating supply count, the argument can be made that some portion of it is both liquid and deployable.

- **Gas shortage:** While LSTs are contributing to the steady decline in ETH supply on the execution layer, it's important to note that these tokens cannot be used to pay network fees. This is key to understand because the amount of ETH (a.k.a fuel to execute actions on the Ethereum network) is retreating at a brisk pace.

The flippening taking place inside Ethereum

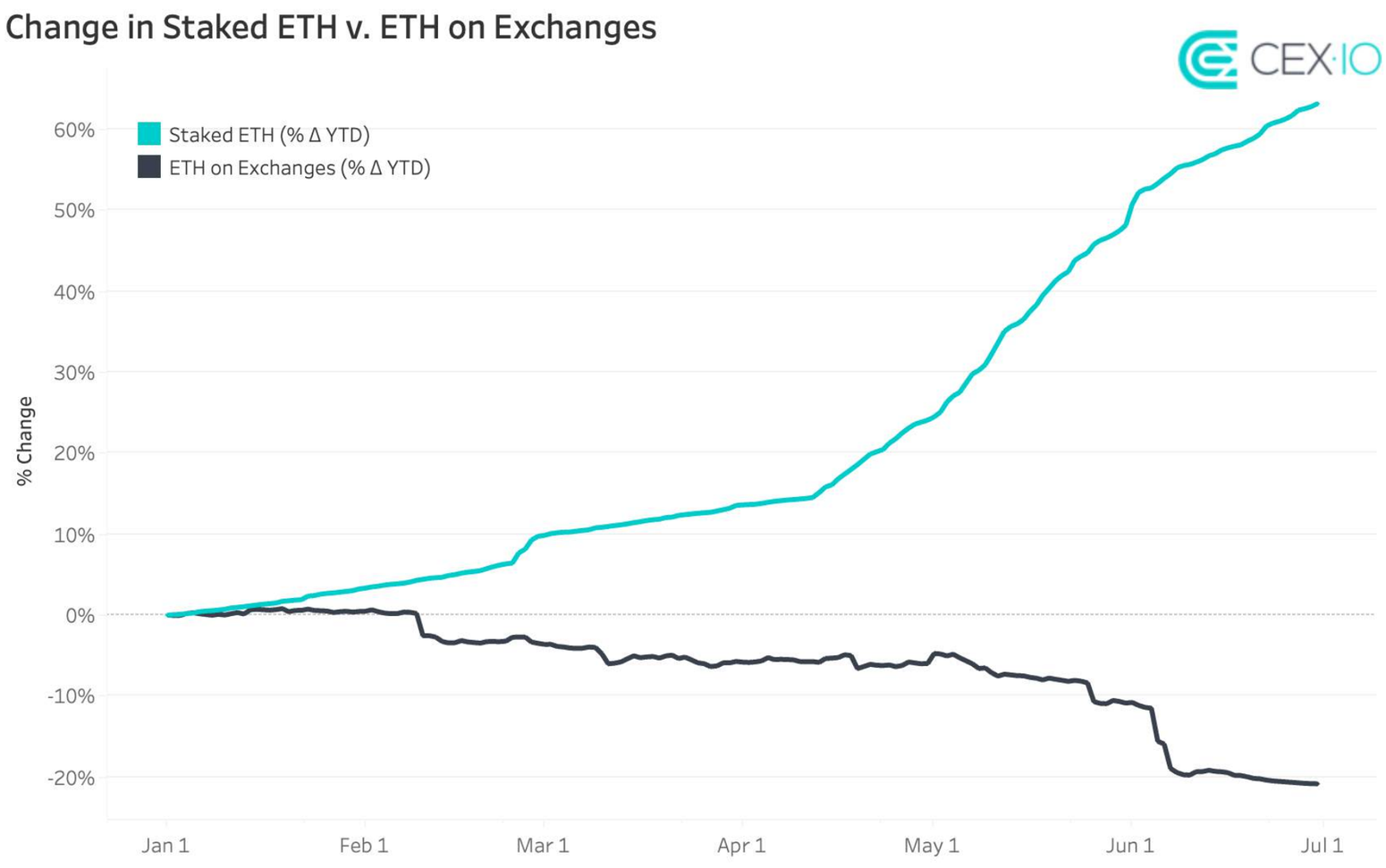
The community is fixated on the "flippening," or the possibility of the market capitalization of ETH exceeding that of BTC. But few have acknowledged an important flippening taking place within the Ethereum ecosystem itself.

Early in Q2, the amount of ETH being staked surpassed that of ETH sitting on some of the largest global exchanges. The trend marks a significant milestone in the asset's composition, as more users are placing their supply in validators, rather than seeking exchange services.



Sources: Dune Analytics / Glassnode

The amount of ETH on exchanges has fallen by ~21% YTD as the amount of ETH deposited into validators has increased more than 63% through June 30 YTD. The point at which Ethereum's long-awaited Shapella upgrade went live pronounced an inflection point for ETH staking. The upgrade, which enabled the withdrawal of ETH from staking contracts, helped establish confidence in these alternative use cases and propelled ETH staking balances to the level seen today.



Sources: Dune Analytics / Glassnode

Why is this trend significant?

It highlights the impact of changing ETH demands for use cases beyond crypto's primordial purpose: trading on exchanges. This relationship frames the intensity of the demand for and productivity of ETH, and helps explain the net impact on ETH centralized exchange liquidity.

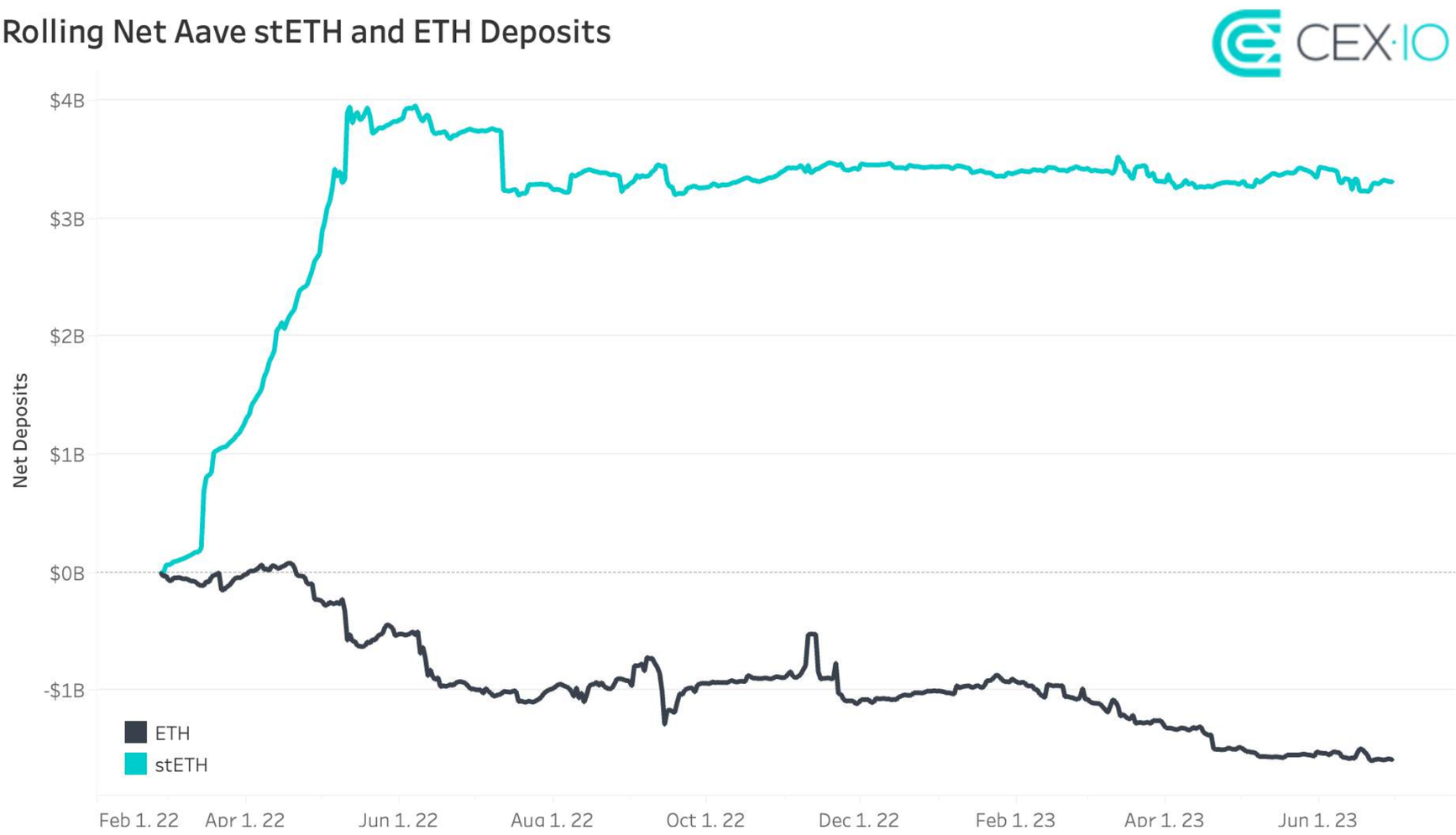
Other considerations: Misrepresented liquidity

While the rise in staked ETH and decline in ETH on exchanges is a noteworthy dichotomy, the role of LSTs can obfuscate the message presented by the data. Some LSTs, like cbETH, are available to trade on centralized exchanges. Similar to the point in the above section about execution layer supply,, LSTs held on centralized exchanges theoretically add to ETH liquidity. While ETH and LSTs hold diverging qualities and purposes, LSTs sitting on centralized exchanges can be viewed as added ETH liquidity that is not reflected in the data.

LSTs replacing ETH as a source of leverage

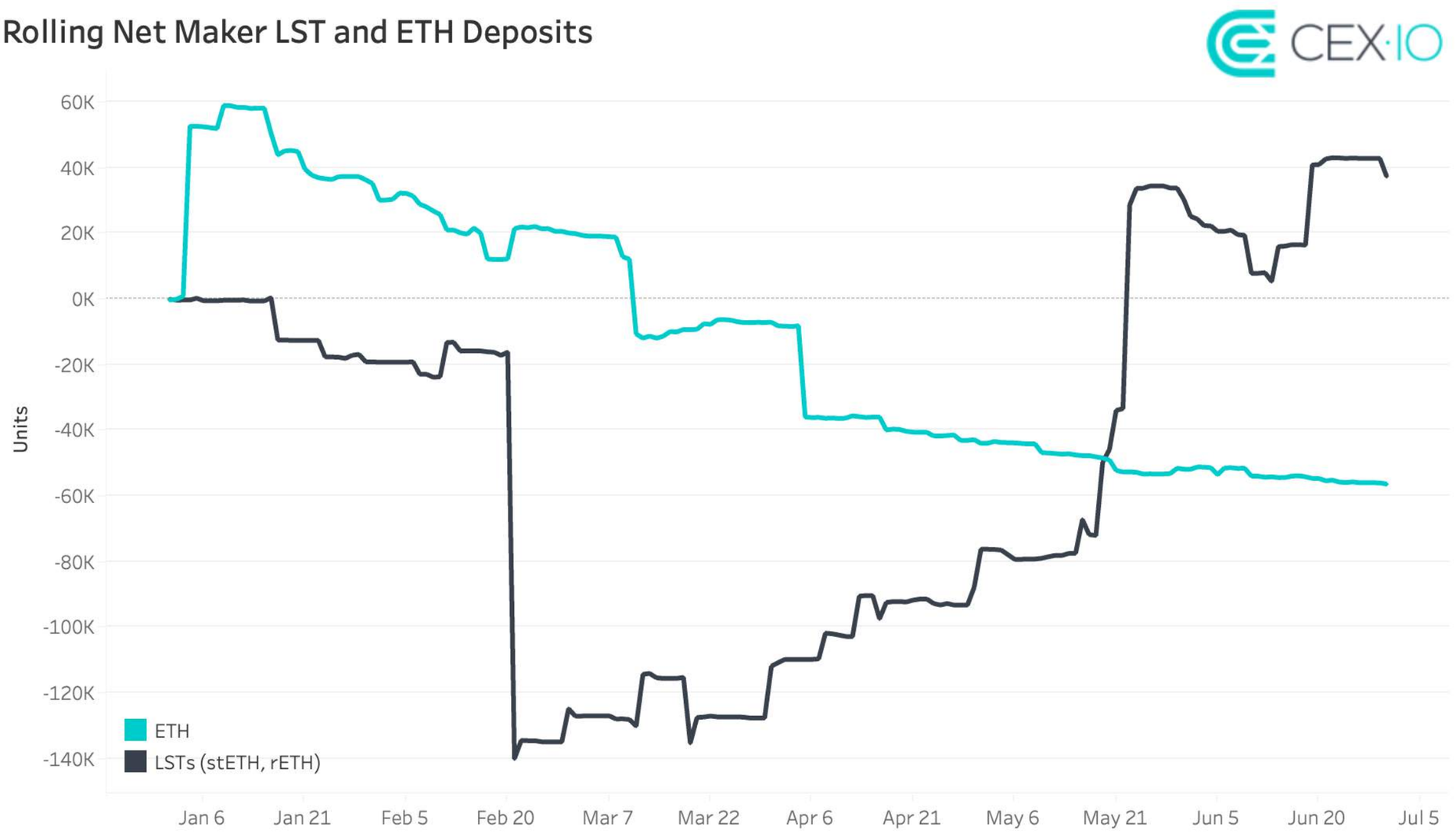
Liquid staking tokens are increasingly being used in place of ETH across Ethereum DeFi. This is perhaps most notable in how LSTs are functioning as an alternative to ETH for acquiring leverage. Borrowing/lending protocol, Aave, and MakerDAO, a collateral debt position protocol for minting the DAI stablecoin, saw LSTs seemingly replacing ETH for acquiring leverage in the long- and short-term.

The chart below tracks net deposits (deposit amounts - withdrawal amounts) for ETH and stETH on Aave since stETH was introduced as a form of collateral in early 2022. Since then, stETH saw $3.32 billion in net deposits compared to ETH's -$1.59 billion.



Source: Flipside Crypto

Additionally, combined YTD net deposits of stETH and rETH have recently crossed that of ETH on MakerDAO. Since January 1, 20,689 stETH and 16,580 rETH have been deposited onto the platform net of withdrawals compared to ETH's -56,493. This sudden divergence in popularity on MakerDAO also indicates a rising preference for LSTs.



Source: Flipside Crypto

Why is this trend significant?

The transition from ETH-sourced leverage to LST-sourced leverage shows LSTs are increasingly being used in place of ETH across Ethereum DeFi. This underscores the market's acknowledgement of LSTs as becoming recognized alternatives to ETH across a number of prominent use cases.

Other considerations:

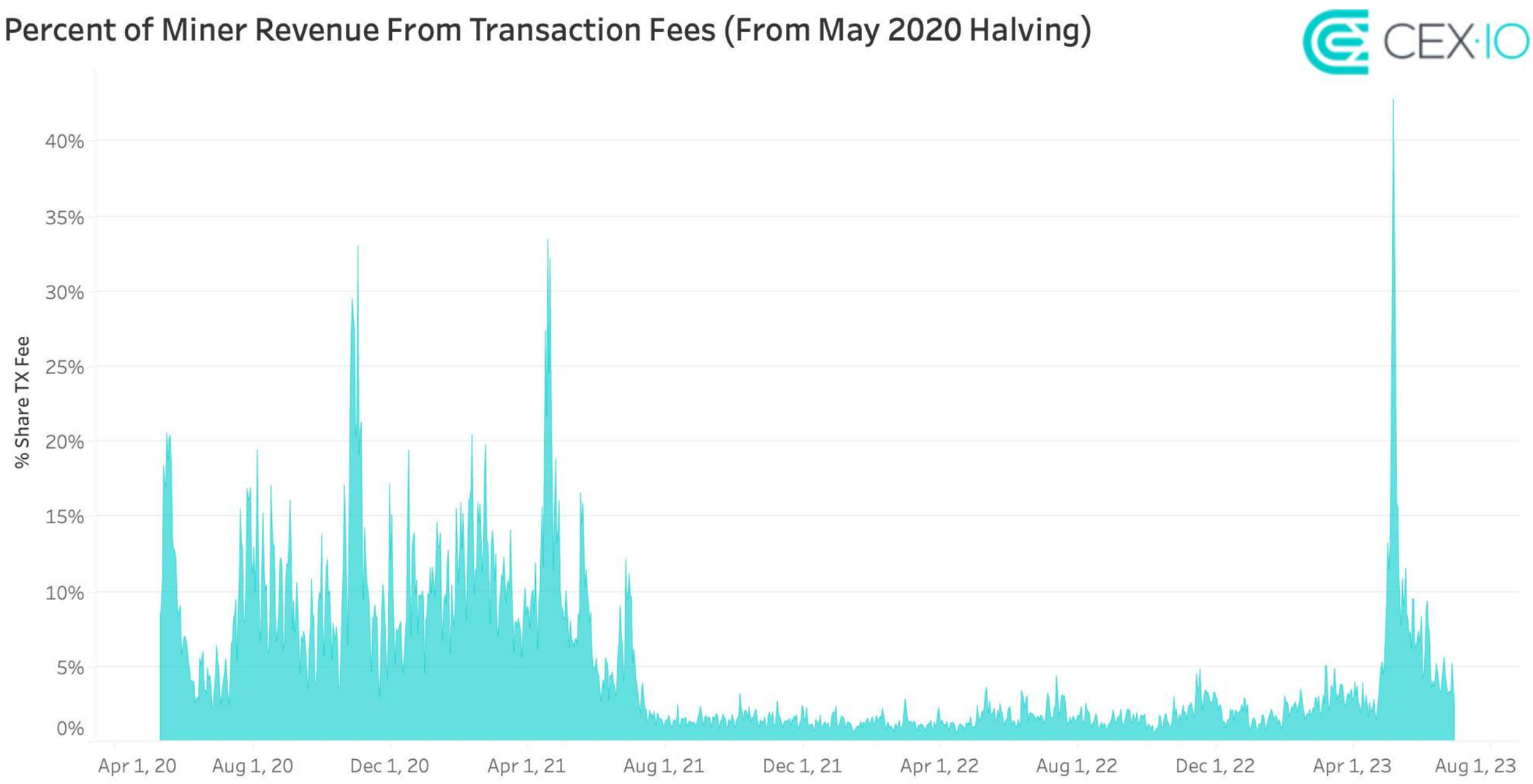
- **Baby steps:** LSTs are still in their infancy, and many questions remain. Whether the market will value these assets differently across their many use cases, and how protocols plan to integrate unique qualities, such as yield generation, are yet to be defined.

- **Potential for risk:** LST use across DeFi has its own set of risks. Experimenting with entrenching these assets deeper into the ecosystem could surface under-recognized outcomes.

The Bitcoin boom

Late Q1 and Q2 saw an explosion of activity across the Bitcoin network. Fueled by Ordinals and BRC-20 tokens, several on-chain metrics reached all-time and multi-year highs. The number of transactions sitting in the mempool reached 217,000, average block size cleared 2.1 Mb for the first time, and single-day transactions almost reached 600,000.

Among the more notable milestones reached was the share of miner revenue sourced from transaction fees. On May 7, the estimated share reached a high of 43% for the current halving epoch. This means, nearly half of all miner revenue came from the fees paid by Bitcoin users.



Source: Blockchain.com

The advent of BRC-20 tokens and Ordinals offers a glimmer of hope around the long-term sustainability of Bitcoin's internal economics. In its current state, Bitcoin operates at an economic deficit. Meaning, the U.S. dollar value of BTC devaluation (i.e. block rewards, supply inflation, and miner incentive) exceeds the transaction fee revenue generated by the network on a daily basis. The revenue generating opportunities established by these alternative use cases could provide a possible avenue for mitigating this headwind in the future.

Why is this trend significant?

This evolution could suggest that an era of experimentation with the capabilities and limitations of the network is underway. Additionally, these burgeoning solutions have worked to exercise the internal economic challenges facing the network. The culmination of these factors have created a sense of urgency in and a pipeline of resources to the development of Bitcoin.

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Other considerations:

- **BRC-20s need work:** Aspects of the BRC-20 token standard exacerbate their perceived use on the network, most notably around trade and transfer. To move BRC-20 tokens, users forge alternative copies of their assets, which requires a transaction for each movement. These “transfer” tokens can then be sold and moved around on-chain like any other token, but also aid in cluttering the internal economics of Bitcoin.
- **Framing the problem:** Unlike their Ethereum-based cousins, BRC-20 tokens require users to create the equivalent of a fresh ERC token for each action. This can spark a flywheel of transactions all to perform a single action. Overtime, these cycles can inflate on-chain metrics, such as transaction count and fees paid, and muddy network data.

The preceding lists a few of many trends unfolding around the space. However, their deeply held roots at the core of the ecosystem suggest they have potential to bring change to the ebb and flow of DeFi, and alter what the community is building towards. The change will not happen overnight. Nonetheless, tracking these movements could lead potential answers to what the blockchain future might hold.

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