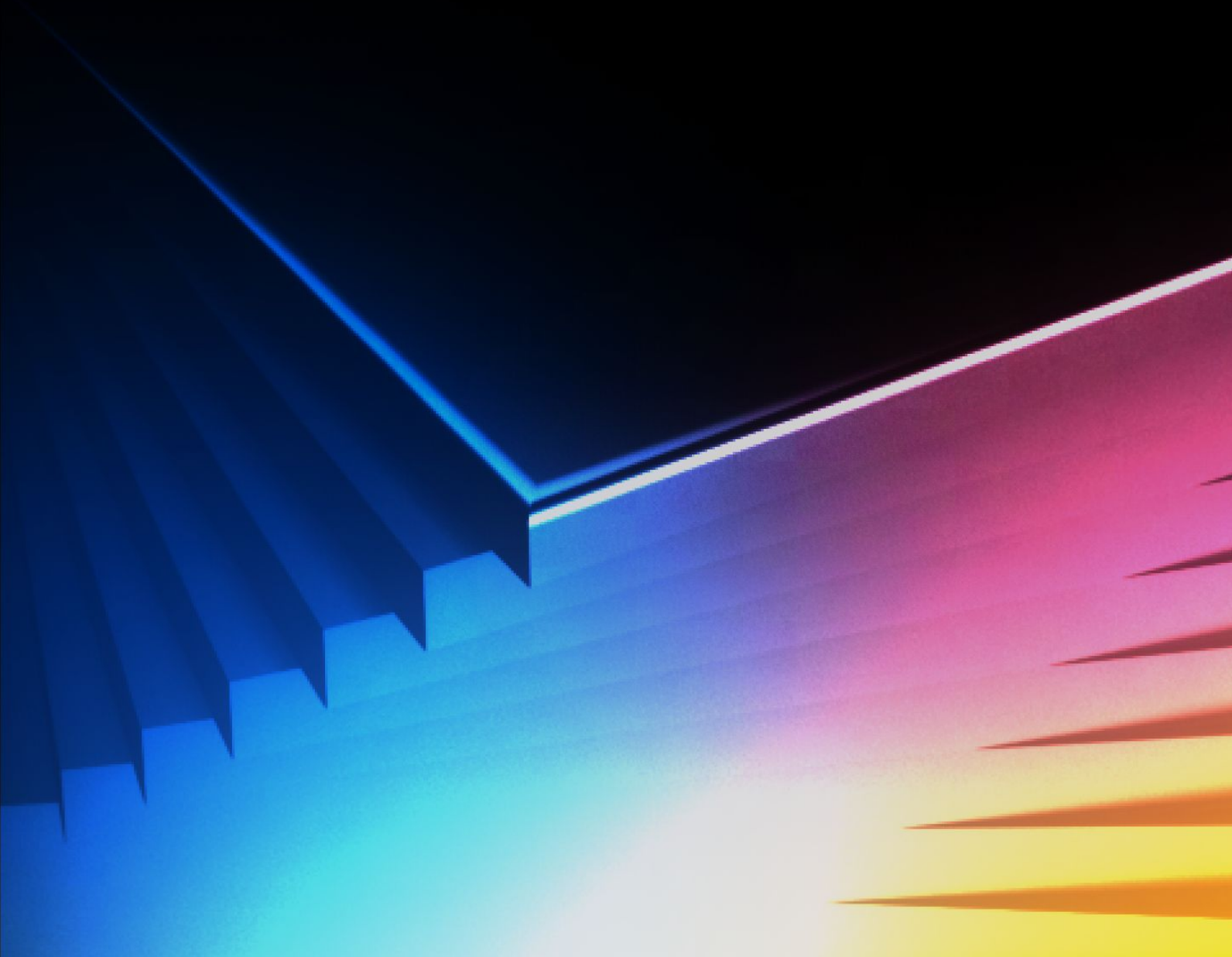# The State of DEXs 2025

→ 2025.01.28

Dear Builders and Developers,

As we embrace 2025, it's the perfect moment to reflect on the transformative journey of crypto over the past year. 2024 was an intense yet groundbreaking period. Amid regulatory shifts, rapid adoption by traditional finance (TradFi), and the ever-evolving narratives spanning RWAs, memes, AI, and more, the industry demonstrated its resilience and adaptability.

The year wasn't just about challenges — it was about progress. Innovations like the rise of decentralized perpetuals, Ethereum 2.0's evolution, and Solana's meteoric ascent redefined the potential of Web3. These breakthroughs brought us closer to a more accessible, user-centric future but also underscored the need for quick, equitable liquidity access and the challenge of staying ahead amidst rapid shifts in market focus.

At OKX, we remain committed to being A New Alternative. In 2024, we focused on empowering both users and developers, delivering tools that break barriers and foster innovation. The OKX ecosystem continues to expand, with solutions like our DEX aggregator seamlessly integrated into the OKX Web3 Wallet and now accessible through the DEX API.

Our mission extends beyond providing tools; it's about creating frameworks that lower barriers to entry for Web3 development. By publishing technical content and introducing developer-centric features, we aim to address today's pain points while laying the groundwork for future innovation.
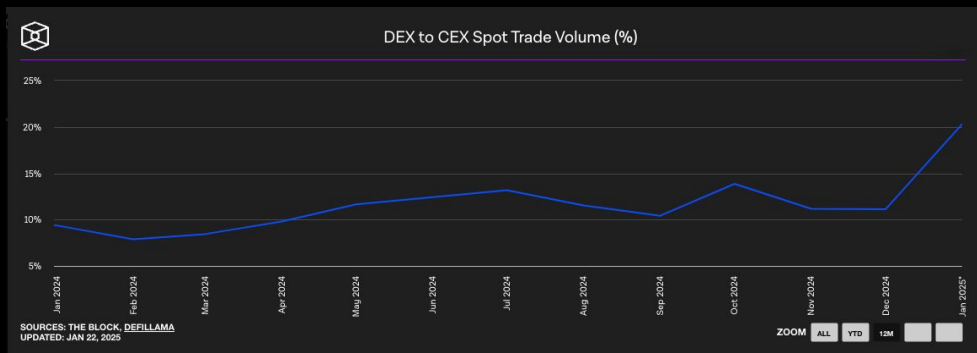
Source: theblock.co/data/decentralized-finance/dex-non-custodial/dex-to-cex-spot-trade-volume

This report focuses on DEXs — the lifeblood of the Web3 economy. The rise of DEXs have been unstoppable, with the DEX to CEX spot volume reaching an all-time high. Decentralized, borderless, and community-driven, they embody the core ethos of crypto. By analyzing their evolution, highlighting challenges, and showcasing new opportunities, we hope to provide builders and users with actionable insights to contribute to this vital pillar of the crypto ecosystem.

As we step into 2025, let's continue this momentum together. We hope you find this report as inspiring and insightful as we did when envisioning the future of DEXs.

Here's to building the future, one block at a time.

Jason Lau
Chief Innovation Officer, OKX

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Special thanks to our partners for reviewing this report

"

DeFi and Web3 are transforming the financial landscape, and DEXs are at its heart. At 1inch, we're proud to see our user base grow to 21 million and our swap volume exceed $580 billion. These milestones inspire us to keep innovating and, alongside partners like OKX, shape the future of finance and the entire financial industry.

Sergej Kunz
Co-founder, 1Inch

"

We strongly believe that fully onchain products, particularly financial applications, such as DEXs, have the largest potential to bring new users into the ecosystem. As OKX has entered the DEX vertical, we [Particle Network], have used many of their tools to build the first chain-abstracted and first-of-its-kind trading platform: UniversalX. 2025 will be the year of onchain trading, and OKX is positioned to be at the forefront of this.

TABASCO
Head of Developer Relations, Particle Network

"

2024 was an exciting year for the on-chain economy, as we saw DEX trading market share grow as a result of enhancements to the DeFi trading user experience and increasing demand for wider token selection from users. It's been a pleasure teaming up with the OKX team to provide access to DeFi liquidity through OKX Swap. We look forward to our continued partnership and driving broader adoption of DeFi in 2025.

Drew Turchin
Head of Business Development, Uniswap

"

DEXs and DeFi play a pivotal role for every blockchain ecosystem, and in 2024 more than ever we have seen more trading activity shift onchain. We're proud to be part of this growth, from aggregating less than 400 DEXs on GeckoTerminal in 2022, to tracking 1,392 DEXs and counting today. OKX has also contributed to this growth by successfully expanding beyond being just a CEX, into building great products for users & developers in the form of a DEX & DEX API.

Bobby
COO, CoinGecko

"

DEXs have become a critical part of the Web3 ecosystem, and 2024 was a year where we saw significant developments in this space. At Dune, we're glad to support initiatives like OKX's with data and tools that help make the ecosystem more transparent and accessible. OKX's move into DEXs and developer-centric tools reflects the kind of steady progress that strengthens the foundation of onchain finance. We're pleased to be part of this journey and look forward to continuing to work alongside builders driving thoughtful innovation in the space.

Fredrik Haga
CEO & Co-founder, Dune

"

We believe AI agents will be both more productive and greater in quantity than humans. Our focus is to attract top AI builders from Web2 to the Virtuals ecosystem, while democratising access to the best AI agents for retail investors. By working with OKX DEX, we are able to offer our users a great token swap experience while remaining focused on our core mission.

Matthew
Ecosystem, Virtuals Protocol

"

What makes crypto truly unique is decentralization—it's the heart of what sets it apart from traditional investments and asset classes. At BeInCrypto, we've always believed in supporting this core principle, and partnering with OKX as their media partner to support the DEX report is one of the ways we contribute to the growth of decentralization in the industry. Together, we're helping to build a future where finance is more open, accessible, and fair for everyone.

Alena Afanaseva
CEO & Founder, BeInCrypto

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# 01

DEXs are for the people

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1.1

**PEOPLE POWER IN
PREDICTION MARKETS**

In the closing months of 2024, the world watched the U.S. elections in eager anticipation, captivated by one of the most polarized races in modern history. Everyone had an opinion, and traditional media outlets worked overtime to forecast outcomes.

Yet, while the headlines dominated screens, prediction markets like Polymarket quietly told a different story — one shaped by people like you and me, not pundits. While mainstream media outlets like the WSJ and NYT hesitated to call swing states, Polymarket, the largest prediction market of its kind, had already delivered its verdict. By 8pm EST, Polymarket confidently priced Trump at a 97% likelihood of winning — a call made well before any major media outlet dared to follow suit.
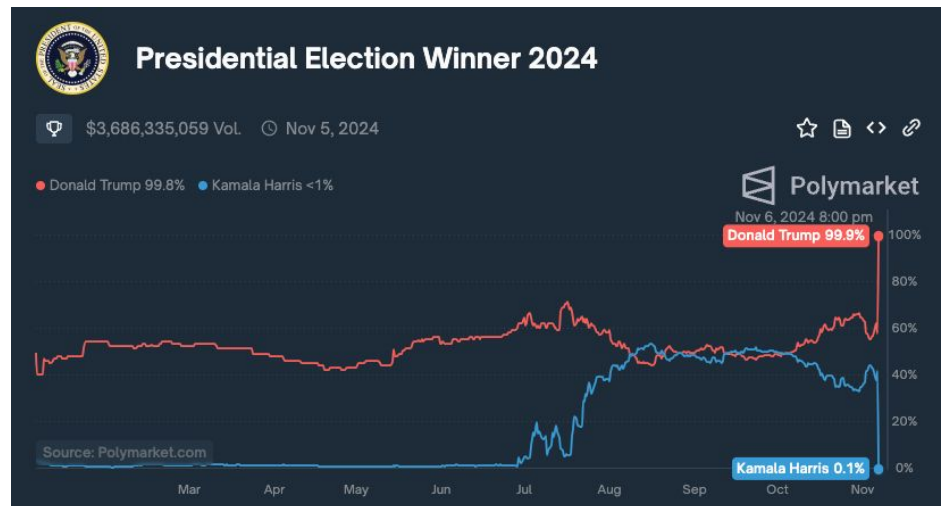
What set Polymarket apart wasn't just its speed but its accuracy. Throughout the election, Polymarket consistently offered more nuanced odds than pollsters, pricing Trump at a 62% likelihood to win while poll-based models declared the race a dead-even 50/50.

This divergence reflected a deeper trust in market dynamics over traditional polling & mainstream media, particularly when gauging divisive figures like Trump. From crypto-native retail traders to institutional players like hedge funds, users on Polymarket pooled their insights and "voted with their money," staking funds on the outcomes they believed in.

Together, they recognized patterns that traditional forecasters missed. It's a simple yet powerful idea: when people have skin in the game, their decisions carry more weight.

1.2

**PEOPLE POWER IN
MEMECOIN MARKETS**

If you've ever traded <u>memecoins</u> on a DEX, this might sound familiar. Prediction markets share a surprising number of parallels with memecoin markets.

In many ways, prediction markets and memecoin trading aren't just financial activities — they're cultural movements powered by sentiment and participation. Both ecosystems thrive on a collective energy where participants aren't merely observers but active contributors, shaping the narrative in real time.

Source: x.com/uubzu/status/1858195631564902745
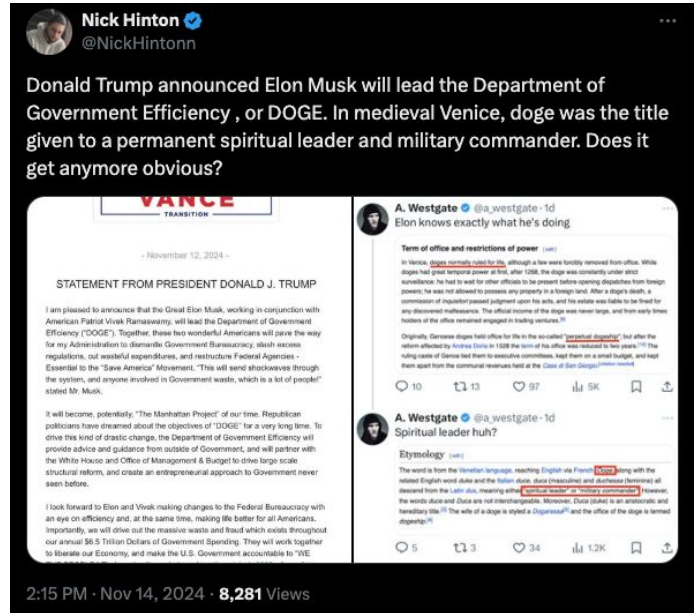
Source: x.com/NickHintonn/status/1856943944527220981

Even the critiques levied against these markets echo each other. Critics dismiss prediction markets as speculative, likening them to gambling, while memecoins are derided as frivolous or unserious investments.

But both systems challenge these assumptions, proving their value through the collective intelligence they channel. Whether it's predicting an election with striking accuracy or rallying behind a meme-driven token, these markets remind us that value isn't always about fundamentals — it's also about belief.

And belief is where democratization shines. Prediction markets and memecoins offer anyone the chance to participate, free from the gatekeeping of traditional institutions. Both operate on decentralized platforms, lowering barriers and leveling the playing field.

In prediction markets, this means outsmarting pollsters. In memecoins, it means bypassing VC-dominated token launches, giving retail investors a fighting chance to profit from what might otherwise be insider-only opportunities.

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1.3

**MEMECOIN
PROLIFERATION IS
A RAGE AGAINST
THE VC MACHINE**

The shift in token launch dynamics underscores the growing divide between public and private market opportunities in crypto.

In the early days, public participation was central to price discovery. Ethereum's 2014 ICO, for example, sold 83% of its supply at a $26M valuation, offering participants an equal chance at the upside. This public-driven model delivered 10,000x returns to ICO buyers. Fast forward to today, and much of that upside is now captured privately.

Recent token launches like Optimism (OP) and StarkNet (STRK) exemplify this private capture. Optimism's seed round investors realized 183x returns compared to just 6x for public buyers at its lowest market price. For StarkNet, seed investors gained 138x returns, while public market participants have yet to see profitability.

	ETH	SOL	OP	STARK
Initial Sale Valuation (in $m)	26 million	20 million	60 million	80 million
Cheapest Ever Market FDV	35 million	240 million	1.7 billion	11 billion
Market Cap At Time	35 million	4 million	95 million	800 million
% Float At Cheapest Price	100%	2%	6%	7.50%
Date of cheapest mkt price ever	October 2015	May 2020	June 2022	Today

Source: cobie.substack.com/p/new-launches-part-1-private-capture

Cobie has aptly described this privatization of price discovery as a "phantom market." In these pre-token markets, valuations climb artificially as tokens are traded among insiders at ever-higher prices. These inflated private valuations distort the true market demand, setting up retail buyers to enter at prices already detached from reality.

The result is a system where public investors bear the brunt of sell-offs during token unlocks, while early private participants cash out at significant multiples.

True to the ethos of Web3, grassroots rebellion against this model took place in the form of memecoins. All enabled by permissionless markets possible only on DEXs.

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1.4

**ALL ROADS
LEAD TO DEXS**

While OKX started as a Centralized Exchange (CEX), we believe the future of crypto is decentralized and self-custody. DEXs embody the permissionless, borderless, and decentralized principles that drew many of us to Web3 in the first place. They provide a framework where anyone can participate without intermediaries or gatekeepers, fostering a true market of peers.

This is about more than just philosophy. DEXs represent one of the few onchain products with undeniable product-market fit. As the backbone of DeFi, DEXs are driving a transformation that could see decentralized finance overtake traditional finance — just as software reshaped the corporate world over the past decade. From lending protocols to perpetual swaps, the financial stack is being reimagined, with DEXs firmly at its core.

OKX embodies this vision through our DEX aggregator, which powers the OKX Web3 Wallet and other leading platforms like Phantom. This tool enables builders to deliver swaps with lower slippage, better liquidity, and seamless support for token pairs across multiple chains — laying the groundwork for a more efficient and interconnected decentralized ecosystem.

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1.5

**IN THE SECTIONS
TO COME: EXPLORING
THE STATE OF DEXS**

This report is not just an exploration of DEXs but a roadmap to their potential — and the challenges that lie ahead. From their historical evolution to their cutting-edge innovations, we'll unpack what makes DEXs the cornerstone of DeFi:

THE DEX PROMISED LAND

We'll begin with a look back at the journey of DEXs, tracing their origins from rudimentary automated market makers (AMMs) in DeFi 1.0 to the sophisticated, algorithmic ecosystems of today's DeFi 2.0. Drawing insights from foundational pieces like Ethereum's early experiments, we'll attempt to define the "Promised Land" for DEX builders: deep liquidity, low slippage for traders while maintaining value distribution across all stakeholders. And perhaps most importantly, what liquidity provision could look like while balancing tradeoffs.

SOLANA IS DRINKING THE EVM MILKSHAKE

Solana's meteoric rise in DEX volume dominance, commanding 48% of the market, deserves special attention. We'll dissect what sets Solana apart: blazing transaction speeds, minimal costs, and developer-centric tools that attract builders and traders alike.

Using Raydium as a case study, we'll explore how innovative liquidity provision models cemented its place as the "king" of Solana's DeFi ecosystem. Comparing liquidity pool quality across chains, we'll analyze why users increasingly favor Solana over Ethereum and what Ethereum 2.0 must do to reclaim the narrative.

ETHEREUM 2.0 AND THE FIGHT FOR RELEVANCE

As Solana surges, Ethereum fights back with its scalability roadmap, Ethereum 2.0. This section will unpack the updates Ethereum brings to DEXs — enhanced efficiency, reduced fees, and a smoother user experience. We'll also delve into Uniswap's transition from v3 to v4, exploring how these iterations shape the liquidity and usability landscape for Ethereum-based DEXs.

THE RISE OF DECENTRALIZED DERIVATIVES & DEX CHAINS

Derivatives in DeFi are an emerging frontier, poised to overtake spot markets. We'll explore why derivatives haven't yet dominated DEXs and the challenges they face, such as liquidity fragmentation and regulatory scrutiny. By comparing hard liquidity-backed models to synthetic approaches, we'll highlight the innovation driving this space. The goal? To predict whether derivatives will fulfill their potential as the next wave of DeFi innovation.

DEX-specific chains like dYdX and Synthetix are reshaping how DeFi is optimized for throughput, fees, and liquidity tools. In this section, we'll also compare major DEX chains, analyze their trade-offs, and discuss how cross-chain interoperability might evolve to allow seamless asset swapping.

AI IN CRYPTO: BEYOND THE BUZZWORDS

Crypto's integration with AI is not what many expected — but it's happening in fascinating ways. From onchain AI agents to the rise of AI-powered memecoins, we'll explore the real intersections of these two transformative technologies and their implications for the future of decentralized markets.

A SHIFT IN DEVELOPER DYNAMICS

While all eyes were on the U.S. elections, Asia quietly surpassed North America as the hub for crypto development. We'll analyze what's driving this shift, from regulatory flexibility to a vibrant developer community, and how it will shape innovation in the DEX space moving forward.

Stay with us — this is the State of DEXs as we see it, and the best is yet to come.

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The OKX DEX API offers you the power of a trading aggregator for single, multi and cross-chain transactions
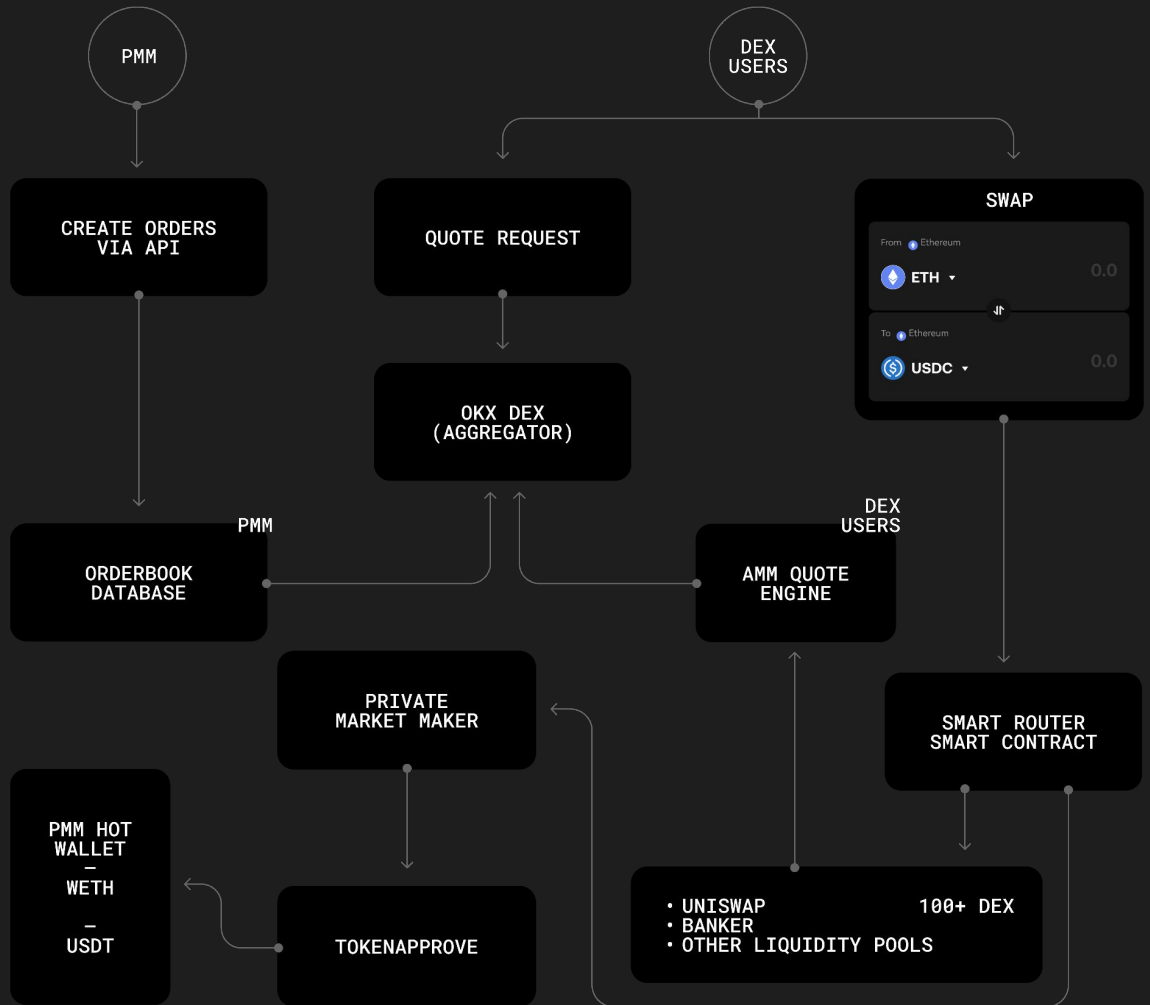
FEATURING
3 CORE APIS
FOR EVERY
USE CASE

01
Swap API

Select the best quote for users based on a comprehensive comparison of quotes from various DEXs and PMMs through the smart order splitting algorithm

02
Cross-chain API

Allows users to conduct swaps on the source chain, subsequent cross-chain transactions, and swaps on the destination chain for the desired tokens.

03
Limit order API

Through the DEX Limit Order API, users can create and query limit orders and aggregate liquidity into the DEX aggregator, enjoying the best price on OKX DEX.

Follow us on X: https://x.com/OKXDevs or contact developers@okx.com to schedule a demo

FOLLOW US ON X

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02

The DEX
promised land

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2.1

**A PRIMER ON
LIQUIDITY PROVISION**

It is important to set the stage for some of the more technical sections later on, so bear with us as we go through some basics that you might already be familiar with. Skip ahead if you like.

When it comes to DEXs, the size of the liquidity pool plays a critical role in determining trade efficiency. Larger pools allow traders to execute higher-value swaps with minimal price impact, or slippage. This is because the ratio of tokens in the pool changes less significantly during larger trades, preserving price stability.

For permissionless markets to thrive, sufficient liquidity is critical. Low-slippage trades require LPs to contribute significant capital to pools. However, LPs face risks such as impermanent loss and demand adequate compensation to participate. Attracting these providers, particularly in the early stages of a market, remains a significant challenge, often referred to as the "bootstrap problem."

2.2

**DEXS INCENTIVES PROBLEM:
BOOTSTRAPPING LIQUIDITY**

The heart of any DEX economy lies in its ability to attract and retain LPs. Yet, bootstrapping liquidity is one of the most challenging aspects of launching and maintaining a DEX. Without sufficient liquidity, even the most sophisticated trading mechanisms fail to deliver value, driving away traders and reducing market activity.

So how does a DEX bootstrap liquidity while keeping its economic engine balanced and sustainable? The answer lies in incentives — but therein also lies the problem. The real question every DEX must answer is: Who gets what?

Distributing the value generated by trading activity is a balancing act. Traders want low fees and deep liquidity, while LPs seek high returns on their staked assets. Tokenholders and contributors, on the other hand, look for value accrual mechanisms, such as governance rights or fee-sharing models, that justify their long-term commitment to the ecosystem.

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2.3

**SOLVING THE
BOOTSTRAP PROBLEM**

UNISWAP: BALANCING SIMPLICITY AND INNOVATION

Uniswap set the standard for DEXs, leveraging an elegant AMM design to make liquidity provisioning straightforward. With its v2 model, Uniswap introduced virtual AMMs (vAMMs) that enable price discovery across infinite price ranges, ensuring traders could access liquidity at virtually any level.

However, simplicity came at a cost. By rewarding LPs solely with trading fees, Uniswap made LP returns highly dependent on trading volume. While this model worked in times of high activity, it exposed LPs to risks during market downturns, including impermanent loss.

Uniswap's v3 model introduced concentrated liquidity, allowing LPs to allocate their capital to specific price ranges. This innovation significantly improved capital efficiency — more liquidity where it's needed — but added complexity. LPs now face the challenge of actively managing their positions or relying on professional market makers, limiting participation to more sophisticated actors.

Uniswap initially resisted incentive programs like liquidity mining, focusing instead on building a sustainable fee-based model. However, SushiSwap disrupted this strategy by forking Uniswap & offering additional token rewards, siphoning away liquidity in what became known as a "vampire attack."

While user activity on SushiSwap has since gone down, the initial liquidity drain forced Uniswap to rethink its incentive structure, demonstrating that even dominant players need to adapt to competitive pressures.

In June this year, Uniswap launched v4, a leap forward with a new approach to AMMs. At the heart of v4's innovation are **"hooks"** — modular plugins that allow developers to customize pool behaviors at various points in their lifecycle. Imagine pools with dynamic fees, time-weighted average market makers (TWAMMs), or even native support for onchain limit orders. The flexibility offered by hooks empowers developers to build entirely new AMM functionalities tailored to unique market demands.

Uniswap v4 also introduces the **singleton architecture**, which consolidates all pools within a single smart contract. This not only reduces gas costs for pool creation by up to 99% but also enables efficient multi-pool swaps. Coupled with flash accounting — a streamlined system that minimizes token transfers during swaps — v4 promises substantial cost savings and performance improvements.

More details on Uniswap v4, including its hooks, architecture, and governance mechanisms, will be explored in a later section of this report.
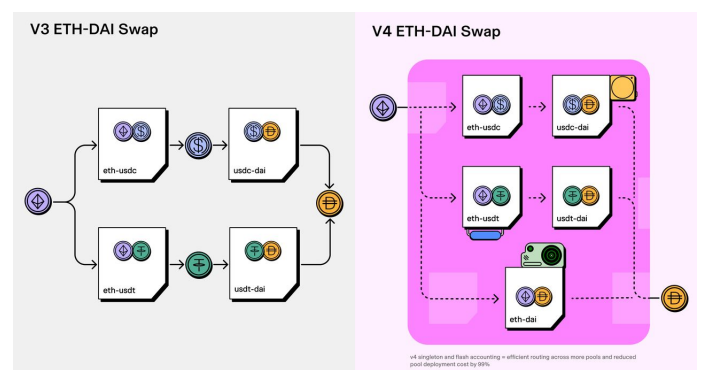

Source: blog.uniswap.org/uniswap-v4

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2.3

**SOLVING THE
BOOTSTRAP PROBLEM**

BUILDING A RESILIENT DEX ECONOMY

The future of DEXs depends on their ability to create a resilient and equitable economy where traders, LPs, tokenholders, and developers are incentivized to stay engaged for the long term.

Ultimately, we believe that the DEX "Promised Land" isn't just about deep liquidity or high trading volumes — it's about navigating a complex tradeoff landscape to find an optimal point where all participants find value. So which chains and platforms are most equipped to navigate these tradeoffs?

While Ethereum remains the bedrock of decentralized finance, new players are emerging, each with unique strengths and strategies. Among them, Solana has positioned itself as a formidable contender, leveraging its speed, cost efficiency, and developer-friendly ecosystem to reshape the dynamics of decentralized trading. With 48% of the total DEX volume now attributed to Solana, the chain's ascent is impossible to ignore.

What sets Solana apart, and how has it managed to carve out such a significant share of the market? To understand this, we'll examine the core innovations driving Solana's rise, spotlight Raydium as a case study in liquidity provision excellence, and explore how the chain's high volume impacts liquidity pool quality compared to Ethereum and other ecosystems.

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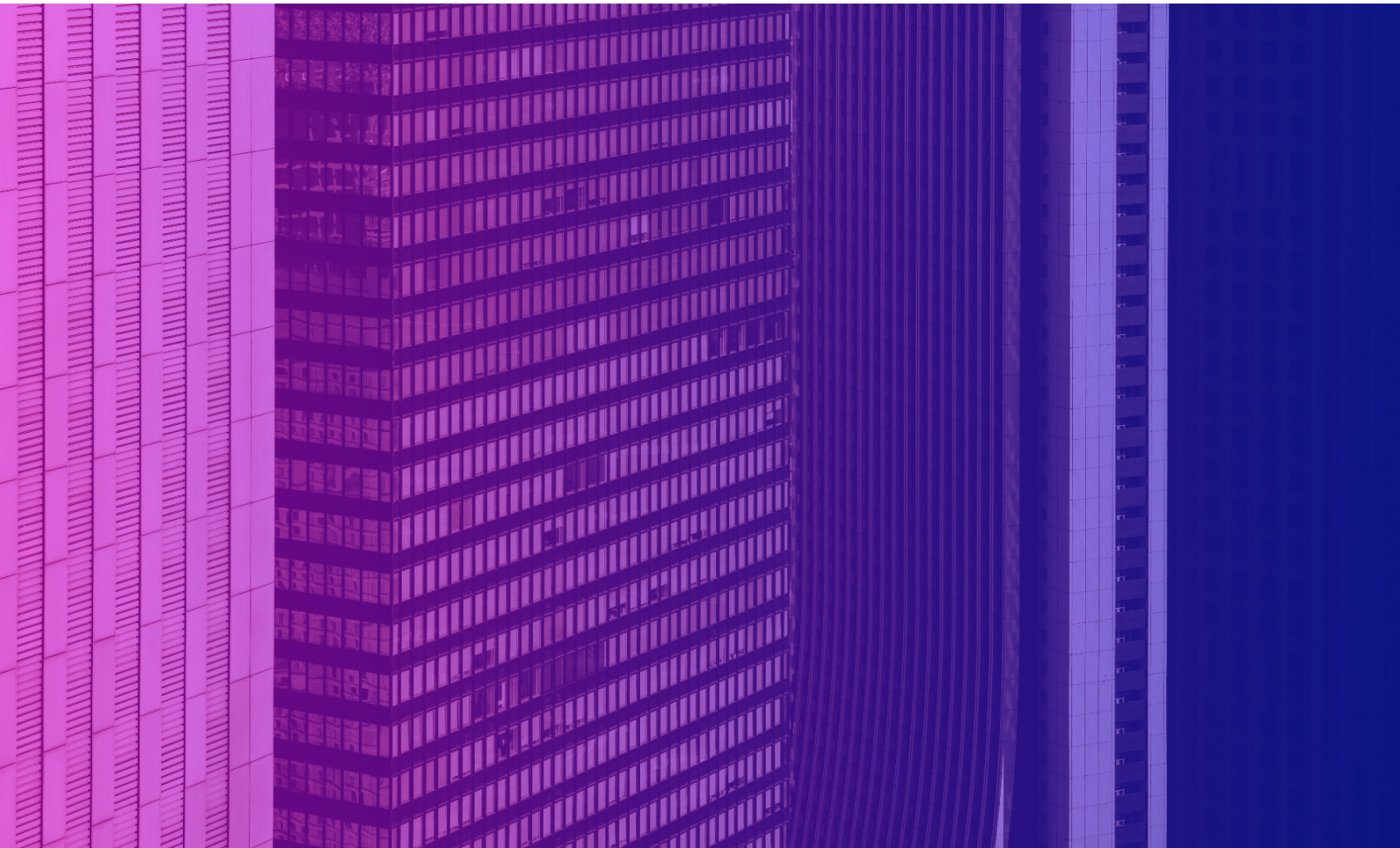
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Solana is drinking the Ethereum milkshake

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Solana has surged to dominate more than 50% of total DEX volume, achieving a new all-time high and redefining the DEX landscape. Unsurprisingly, at the time of this report, about 60% of this volume stems from pumpdotfun activity, meaning this single platform is generating more DEX traffic on Solana than any other blockchain sees in total.

Source:
dune.com/sealaunch/dex
-cross-chain-metrics
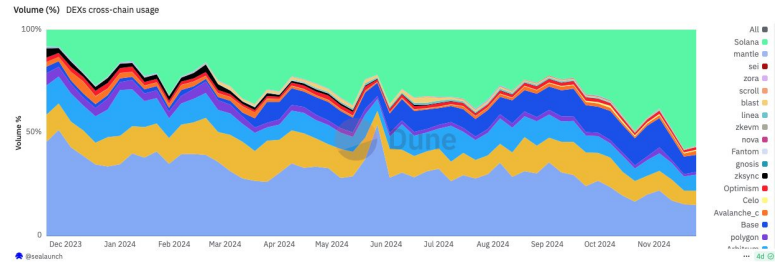

Source:
dune.com/hashed_
official/pumpdotfun
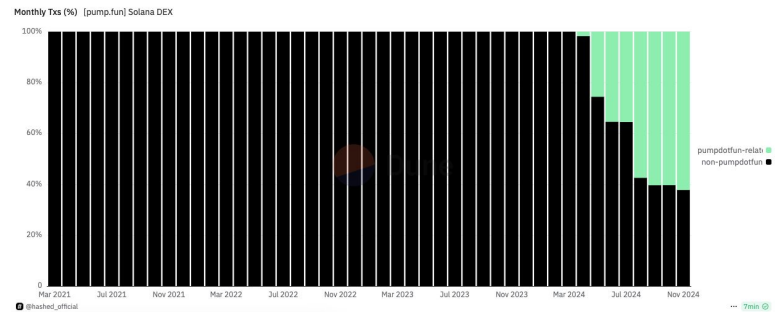
But is this dominance sustainable, or just a fleeting phenomenon driven by current market dynamics?

By almost all measures of blockchain adoption, Solana blows every other chain out of the park. Network transaction fees generated, transaction count, active wallet addresses, DEX active users - Solana is truly the retail chain.

But when it comes to whale size trades that tend to have a substantial impact on market dynamics, the gap between Ethereum & Solana narrows. Ethereum + L2s still dominate weekly volume per address & average trade size, with hyper value trades (exceeding USD value of $50,000) especially driving most of these metrics.

Source
dune.com/sealaunch/dune-
onchain-adoption-index

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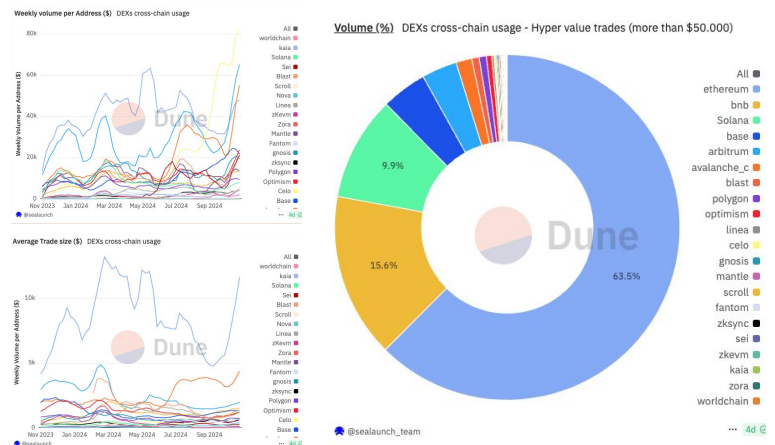
**SOLANA LIQUIDITY
POOL QUALITY
VS OTHER CHAINS**

Liquidity pool depth and quality across chains also tell a different story.

In an analysis done by jpn_memelord, he pulled data for volume of all pools across Ethereum, Solana, BSC, Arb & Base over a period of 30 days from September to October 2024. He then applied a weight to reduce the ranking of pools created in the last 30 days to give greater importance to pools with an established trading history. From this, he further applied a weight to increase the ranking of pools with high liquidity & sustained trading volume.

It was found that the king of liquidity pool quality is still Ethereum, with half of the top spots, and L2s taking an additional 7 spots in the top 20 ranking:

10
ETHEREUM

05
BASE

02
ARBITRUM

02
BSC

01
SOLANA

| Project	Version	pair	CA	Volume	TVL (M)	Chain	New Goodness
aerodrome	slipstream	USDC-WETH	0xb2cc224c1c9f	7,181,209,665.60	36.1	Base	0.9804495456
uniswap	3	USDC-WETH	0x88e6a0c2ddd:	3,960,979,499.10	150.4	Ethereum	0.9796847965
whirlpool	1	USDC-SOL	Czfq3xZZDmsd(	3,461,438,127.40	20.3	Solana	0.9487086142
uniswap	3	USDC-WETH	0xc6962004f452	2,496,277,913.10	41.3	Arb	0.9473116232
uniswap	3	USDT-WETH	0xc7bbec68d12:	3,432,376,911.10	16	Ethereum	0.9452777621
curve	Regular	USDC-USDT	0xbebc44782c7(	884,511,090.70	158	Ethereum	0.9307927083
pancakeswap	3	USDT-WBNB	0x172fcd41e091	3,039,135,086.70	7	BNB	0.9303089799
uniswap	3	WBTC-WETH	0x4585fe77225t	1,092,988,219.70	61.3	Ethereum	0.9252481629
aerodrome	slipstream	cbBTC-WETH	0x70acdf2ad0bf:	1,701,832,205.20	18	Base	0.9236532829
uniswap	3	USDC-WETH	0xe0554a476a0!	2,267,974,234.60	5.3	Ethereum	0.9169522896
curve	Regular	DAI-USDC	0xbebc44782c7(	761,808,278	73.3	Ethereum	0.9156864501
pancakeswap	3	USDT-WBNB	0x36696169c63(	772,494,688.70	51.3	BNB	0.9114208307
dodo	1	USDC-USDT	0xc9f93163c996	1,607,162,540.10	7.9	Ethereum	0.9108562032
aerodrome	slipstream	cbBTC-USDC	0x4e962bb3889|	1,196,363,350.40	13.5	Base	0.9081970488
uniswap	3	USDC-WETH	0xd0b53d92776·	1,142,857,354.40	14.1	Base	0.9072608414
uniswap	3	WBTC-WETH	0x2f5e87c9312f;	723,772,726.70	38.5	Arb	0.9054667444
uniswap	3	USDC-USDT	0x3416cf6c708d	882,063,664.70	20.6	Ethereum	0.903721421
aerodrome	1	AERO-USDC	0x6cdcb1c4a4d	372,299,075.50	145.3	Base	0.9010859482
uniswap	3	WETH-wstETH	0x109830a1aaa(	789,569,772.10	18	Ethereum	0.8982738538
curve	Regular		0xdc24316b9ae(	423,907,838.50	83.6	Ethereum	0.8980560223

Source: x.com/jpn_memelord/status/1849865609825354026

None of the other Solana pools have sufficient TVL to rank among the top in this analysis. While Solana sees substantial trading volume, it operates with far less liquidity compared to other chains.

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3.1

**SOLANA LIQUIDITY
POOL QUALITY
VS OTHER CHAINS**

On top of that, Solana pools typically <u>do not stick and maintain TVL</u>. Most top pools drop hundreds of ranks in a single day and there's fast rotation between top tokens.
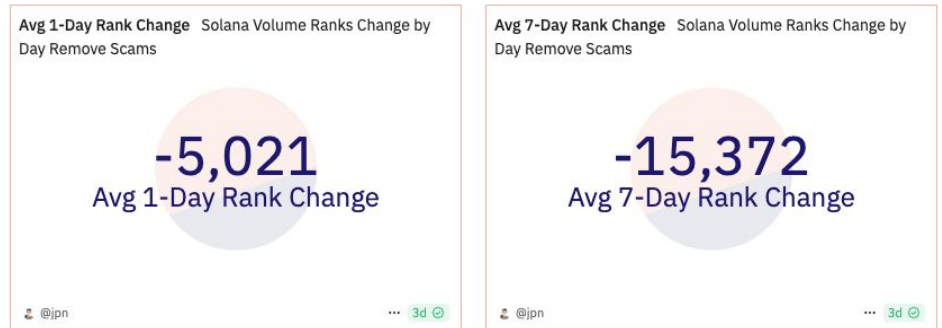
Source: <u>dune.com/jpn/solana-vs-base-daily-pool-volume-changes</u>

All these findings should come as no surprise to anyone deep in the trenches trading memecoins on Solana but what does this spell for the future of Solana & its DEXs?

It all depends on how you view things (and your bag bias, of course) - one could argue rapid rotation disincentivizes holding and makes it hard for users to hold or believe in the tech for the long term.

Or you can also argue that volume drives price appreciation and that drives ecosystem TVL, which in turn drives pool depth & quality. And that being able to support high volume while maintaining low TVL and LP profitability is a feature, not a bug.

We are in the latter camp because we believe that the flywheel can be a powerful mechanism for growth. If nothing else was being built on Solana other than memecoins, we could hold a different bias, but the Solana ecosystem looks drastically different from just a year ago.

Firstly, you can now <u>create Solana programs in Typescript</u>. Real world assets (RWAs) from Tradfi are being made accessible in the form of <u>yieldcoins by Ondo</u> with their tokenized US treasuries product. Other RWAs are being tokenized in the form of <u>private credit by Credix and bonds by Etherfuse</u>. Platforms and businesses will be able to embed <u>stablecoin banking features directly into their products with the Squads API</u>.

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3.2

**SOLANA DEX
SPOTLIGHT**

Perhaps most importantly, trade routing, market making & liquidity provision models are being pioneered by the likes of Jupiter, Raydium, Orca, Lifinity, Phoenix, Meteora & Gobbler. Broadly speaking, they fall into a few categories:

– Aggregator: Jupiter
– Standard AMM with concentrated liquidity: Raydium, Orca, Meteora
– Algorithmic Private MM with Protocol Owned Liquidity (POL): Lifinity, Phoenix, Obric
– Bonding Curve AMM: Gobbler

The key player & contributor to Solana's explosive growth is indisputably Jupiter. By supporting only a single chain, Jupiter has managed to take up almost 70% of the total transaction volume. For context, 1Inch, the 2nd largest aggregator by volume, captured 6.62% of the volume supporting 9 chains.

Name	Chains	Volume (24h)	% of total
> 1 Jupiter		$4.163b	69.85%
2 1inch Network		$394.35m	6.62%
3 OKX DEX	+23	$368.23m	6.18%
4 ODOS	+4	$315.53m	5.29%
5 CoWSwap		$185.66m	3.12%

Source: defillama.com/aggregators

Jupiter has done this through a commitment to improving user experience, especially when optimizing for slippage, providing accurate real time pricing quotes & minimizing platform risks.

But if Jupiter is the King of Solana DEXs, Raydium is the kingmaker since it ranks #1 amongst Solana DEXs in both volume & liquidity. (if you exclude aggregators like Jupiter)
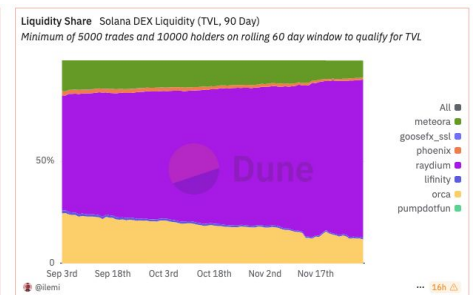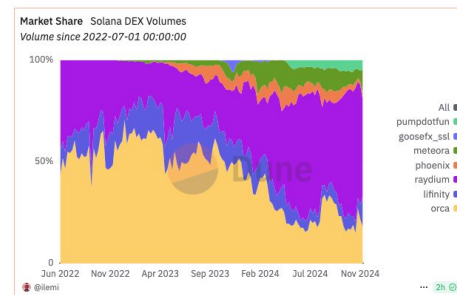
Source: dune.com/ilemi/solana-dex-metrics

3.2

**SOLANA DEX
SPOTLIGHT**

Part of why Raydium has achieved such dominance is the flexibility it offers for pool creators & liquidity providers when creating a new market and its first mover advantage as an early builder in Solana. The other reason is, of course, due to the proliferation of memecoins on Solana, by PumpFun. (PumpFun memecoins "graduate" to a liquidity pool on Raydium when they reach a market cap of $69,000.)

Pumpdotfun Generated Token Volumes on DEXs	Pumpdotfun Generated Tokens			
Project	1-Day Volume	7-Day Volume	30-Day Volume	All-Time Volume
raydium	$761.81m	$7.83b	$37.61b	$78.80b
meteora	$36.93m	$369.05m	$1.52b	$3.49b
orca	$11.46m	$153.68m	$856.01m	$2.66b
phoenix	$7.62m	$64.76m	$359.88m	$507.85m

4 rows Search...

… @arjunmxyz   ⋯ 10h ⊘

Source: dune.com/hashed_em/dex-volume-distribution

While there are clear winners in the Solana DEX ecosystem, new entrants are constantly pushing the edge. Lifinity, SolFi & Obric are winning in larger trades - driving a substantial amount of volume while performing significantly fewer swaps than Raydium or Orca.

Jupiter Volume (By AMM)				
AMM Name	# Swaps	Volume (24HR)	Volume (7D)	Volume (Total)
Raydium amm	584.8m	$613.2m	$5.5b	$115.2b
SolFi	13.7m	$401.8m	$4.9b	$17.9b
Orca (Whirlpool)	248.9m	$252.5m	$2.5b	$103.7b
Lifinity v2	89.3m	$251.7m	$2.5b	$44.2b
Meteora	201.1m	$159.0m	$1.5b	$49.2b
Raydium CLMM	112.9m	$137.2m	$1.4b	$34.5b
OpenBookV2	12.0m	$88.6m	$976.8m	$15.7b
Obric V2	6.6m	$73.9m	$665.4m	$7.0b
stabble Stable Swap	6.9m	$58.3m	$641.3m	$2.9b
Phoenix	43.2m	$58.0m	$741.3m	$39.7b

Source: dune.com/queries/3099670/5172147

Beyond just winning at larger trades in Jupiter's router, Lifinity has also overtaken the number 2 spot in DEX volume by doing things a little differently:

– Reducing or even reversing impermanent loss by using an oracle as the main pricing mechanism, building Solana's first oracle-based DEX
– First DEX with transparency regarding its pools' impermanent loss, which is reversed into market making profit through delayed rebalancing of pools

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SOLANA DEX SPOTLIGHT

Over the past couple of weeks, Lfinity and other Private Market Makers (PMM) have been climbing up the ranks in the win rate of orders routed by Jupiter and we see this as a trend that will likely stay, made possible by the Solana's low fees since PMMs do not have to risk an erosion of profitability.

And there's also Gobbler, which on top of providing a traditional LP model, is pioneering a bonding curve LP where LP tokens are priced on a bonding curve, rewarding early depositers with higher potential returns and those who withdraw later enjoy greater incentives. Gobber also offers fixed-rate fees, compared with percentage-based fees seen on most DEXs, making it an interesting venue for providers to maximise their profits. (The program has currently undergone audit - with recommendations around the fee structure.)

3.3

ETHEREUM'S SCALABILITY ROADMAP: THE RESPONSE TO SOLANA'S ASCENT

Solana's meteoric rise in DEX volume dominance is undeniably reshaping the face of DeFi & DEXs. Its innovations in speed, cost-efficiency, and ecosystem diversity have set a new benchmark, but the sustainability of this dominance remains an open question.

Whether Solana's low TVL, high-volume model is a temporary market anomaly or a feature of its ecosystem's resilience will depend on how it adapts to changing market conditions and continues attracting liquidity and development.

However, the broader DEX landscape is not a static one. While Solana pioneers new approaches to liquidity and trading, Ethereum remains the bedrock of DeFi innovation. Its recent advancements, particularly Ethereum 2.0's scalability upgrades, are poised to address some of the network's long-standing challenges — bringing lower fees, faster transactions, and enhanced usability to Ethereum-based DEXs.

As Solana continues to refine its model, Ethereum is evolving too, with its Layer 2 solutions and the much-anticipated transition from Uniswap v3 to v4 setting the stage for a battle for supremacy. In the next section, we will look into Ethereum's scalability roadmap, exploring how these advancements are set to redefine Ethereum DEX economics and what this means for the future of DeFi.

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04

Ethereum 2.0 strikes back

* CLICK TO NAVIGATE

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The running joke for the longest time in 2024 is that if you are an ETH holder, you are ngmi. And while ETH prices look more similar to USDT than XRP, we are not quite ready to write it off just yet.

Ethereum has always been cornerstone to the development of DeFi. The earliest primitives of DeFi, such as Uniswap, Yearn and dYdX, begun their journey here. However, Ethereum was not designed to facilitate high transaction throughput, evidenced by exorbitantly high gas prices that made the use of these applications too costly for everyday users.

Ethereum 2.0, otherwise known as the Ethereum consensus layer, represents a fundamental change of its infrastructure, prioritizing Ethereum's ability to scale sustainably without compromising decentralization and security. In so doing, Ethereum is re-positioning itself as the optimal blockchain for DeFi applications once again.

4.1

PRE-UPGRADE LIMITATIONS

To understand the impacts of the Ethereum 2.0 upgrade, we will first summarize the constraints that has previously limited Ethereum's performance. Prior to the upgrade, Ethereum used a Proof-of-Work consensus that had several bottlenecks:

01

Low transaction throughput: Ethereum could only handle 15-30 TPS at peak.

02

High gas fees: Substantial gas fees made small-value transactions unfeasible.

03

Environmental impacts: PoW consensus was energy-consuming and a relatively unsustainable mechanism

By transitioning to a Proof-of-Stake consensus, Ethereum no longer requires energy-intensive mining to secure the network, but instead, relies on crypto-economic security with a stake-based validation mechanism. This transition dramatically reduced Ethereum's carbon footprint while unlocking Ethereum's potential for increased transaction throughput.

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4.2

**IMPROVEMENTS
BY ETHEREUM 2.0**

There are two main improvements that Ethereum 2.0 brought:

01

SCAFFOLDING FOR PROTO-DANKSHARDING AND DANKSHARDING

Unlike their names, both proto-danksharding and danksharding do not share the Ethereum Blockchain. Instead, they refer to segregating the storage of transaction data from the Ethereum beacon chain. Additionally, this data is pruned approximately every 18 days, so Ethereum nodes need not store all historical transaction data. Put simply, danksharding reduces the computational load on Ethereum while reducing state bloat for Ethereum nodes.

Proto-danksharding was implemented with the Dencun upgrade in March 2024, allowing Ethereum to carry up to 6 data blobs per block. Danksharding is scheduled for a later upgrade, which would allow each block to hold up to 64 data blobs. However, several upgrades are still required to allow Ethereum clients to handle such volumes of data feasibly, such as proposer-builder separation and data availability sampling.

02

MIGRATION TO PROOF-OF-STAKE

The migration to Proof-of-Stake yields two benefits for Ethereum, enhancing the security of the chain and eliminating the need for expensive mining rigs. Instead of relying on the hashing capacity of costly mining rigs, Ethereum now relies on crypto-economic security from staked Ether. The improved security and reduced costs associated with setting up a node makes Ethereum a better environment for the development of decentralized applications (dapps).

Taken together, Ethereum 2.0 sets the stage for it to handle significantly higher transaction throughput while keeping transaction costs relatively low. More importantly, Ethereum 2.0 has minimal compromises in security and decentralization, which is especially critical for the growth and proliferation of DeFi applications in the long run.

4.3

**IMPACTS
ON DEXS**

The impact of Ethereum 2.0 on DEXs is two-fold. Firstly, Ethereum itself is now more optimal for DeFi applications. Secondly, L2s can now settle on Ethereum more cheaply with data blobs, allowing them to pass on significant cost savings to users, and making existing DEXs on L2s much cheaper to use.

01 / OPTIMIZING ETHEREUM FOR DEXS

In the blockchain space, Ethereum has maintained one of the deepest liquidity for DeFi applications. This stands to reason considering Ethereum is one of the most decentralized blockchain with high security. However, Ethereum's transaction fees have historically been relatively high, making it infeasible for high-frequency, low-value transactions. This serves as an impediment for many market participants, especially for DEXs.
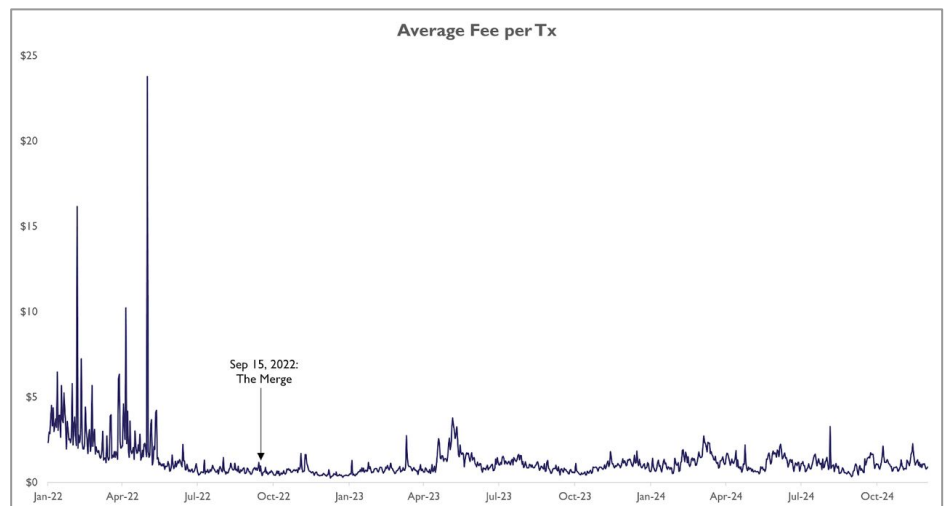


Source: l2beat.com/scaling/costs

For example, arbitrageurs need a larger dislocation in price if they are arbitraging between a DEX on Ethereum and a CEX, since the higher transaction fees will erode their profitability. The reduction in transaction fees post-Merge has enabled these actors to behave more reflexively, which in turn creates a more robust environment for DEXs and the DeFi landscape.

02 / CHEAPER L2 SETTLEMENT

The implementation of data blobs has also reduced the costs that L2s operators bear. As a result, L2 operators are able to pass on this cost-savings to users in the form of reduced transaction fees. This is especially true for L2s with high transaction volumes, since they are able to reap more cost savings by utilizing data blobs instead of calldata after the Dencun upgrade.

4.3

**IMPACTS
ON DEXS**
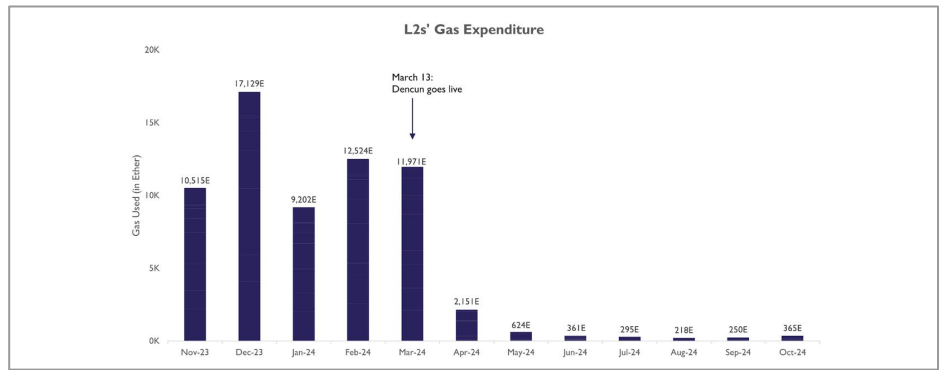
Source: www.theblock.co/post/282417/ethereum-layer-2s-show-dramatic-drop-in-transaction-fees-after-dencun

By greatly reducing transaction costs on L2s, the Dencun upgrade has made it much cheaper for users to transact. These improvements have proven to be beneficial for L2 DEXs, such as Uniswap on Arbitrum and Aerodrome on Base, which have seen noticeable growth in their trading volumes.

Aside from the improvements that Ethereum 2.0 brings, we are also seeing new DEX primitives on Ethereum, such as Uniswap v4. Uniswap v4 introduces "hooks", which are smart contracts that enable the customizability of liquidity pool parameters in response to specific events.

For example, a v4 liquidity pool could increase transaction fees during periods of heightened trading activity, or compound a liquidity provider's accrued fees once it reaches a pre-specified level. With this tooling, Uniswap will likely see novel use cases, such as a time-weighted average market maker (TWAMM).

Although Uniswap on Ethereum has gradually been losing market share in DEX volumes, it remains a fact that Ethereum's Uniswap still commands the stickiest and deepest liquidity. Notable contenders include Solana, BNB Smart Chain and Base.
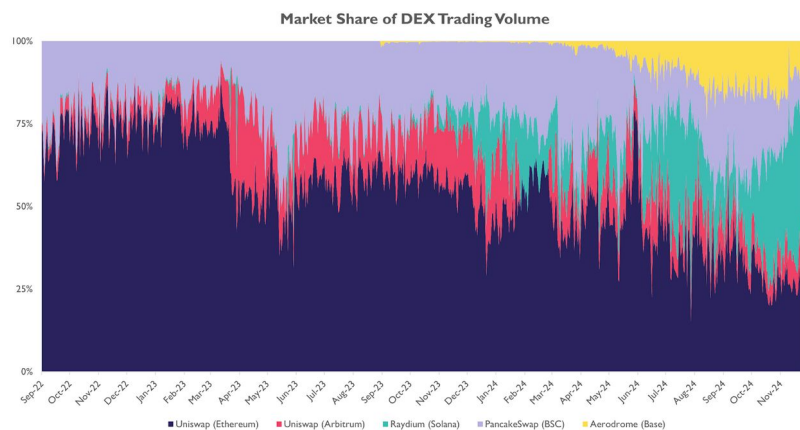
Source: www.theblock.co/data/decentralized-finance/dex-non-custodial

Time will tell if Ethereum can retain its market share of DEX volumes but with the proliferation of L2s and innovation of DEX primitives, it suffice to say that Ethereum will not go down without a fight.

4.4

**CHALLENGES
AHEAD**

There are still several challenges that Ethereum-based DEXs face, such as the increasing fragmentation of liquidity, potential cannibalization from the L2s it supports and being a prominent regulatory target for governments.

1 / FRAGMENTING LIQUIDITY

The biggest challenge for Ethereum DEXs would be the increasingly fragmented blockchain ecosystem and correspondingly, the fragmentation of liquidity. From Uniswap alone, we can see how its TVL on L2s is slowly but surely growing. While the vast majority of Uniswap's liquidity remains on Ethereum, the growing fragmentation is a trend that will worsen with the ever-increasing number of L2s. While we can expect the trend of new L2s deploying to eventually wane, it remains a significant contributor to the increasing fragmentation in the short to medium term.

Relative Share of Uniswap's TVL
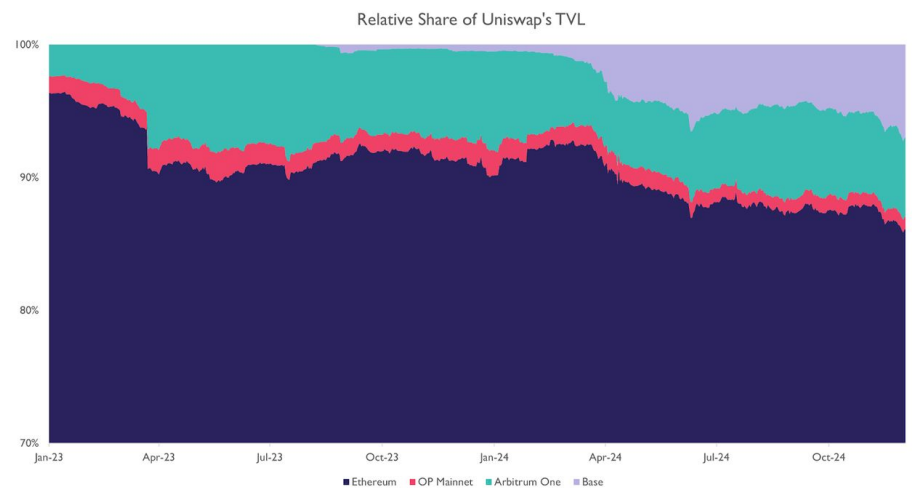
Source: www.theblock.co/data/decentralized-finance/dex-non-custodial

To address this, there are multiple interoperability protocols that enables the bridging of funds across different L2s. However, such bridges merely serve as a workaround, rather than an actual solution for the siloed liquidity pools on each chain. Without atomic cross-chain swaps, liquidity across these L2s will remain segregated for the foreseeable future.

4.4

**CHALLENGES
AHEAD**

2 / CANNIBALIZATION FROM L2S

Another significant challenge that Ethereum faces in the DEX landscape is the cannibalization of its DEX market share from L2s. As L2s are cheaper and faster to transact on, most users would prefer to execute their trades on L2s instead. While sophisticated market participants would eventually arbitrage when the prices of assets on L2s diverge from that on Ethereum, the fact remains that L2s will likely see higher transaction count and potentially, higher transaction volumes. Thus, Ethereum will lose out on capturing some extent of trading activity.

It is difficult to determine the net effect of such a cannibalization, since L2s are meant to scale Ethereum by sharing the load of transactions. While L2 DEXs siphon trading volume from Ethereum DEXs, they also process the transactions that could otherwise cause a congestion on Ethereum. This could mean that a potential end-state for DEXs on Ethereum to be a liquidity hub that only large traders utilize while DEXs on L2s handle the lower-value transactions from retail users.

3 / REGULATORY TARGET

Being one the most prominent blockchain, Ethereum's DEXs tend to be the target of regulatory entities. For one, regulating the market leader in the DEX space would set a precedent that could easily be enforced on all other DEXs. One example of this would be the U.S. Securities and Exchange Commission (SEC) filing a Wells Notice against Uniswap Labs. While the legal intricacies are beyond the scope of this report, it is likely that Uniswap's success is one of the factors for catching the attention of regulators. Unfortunately, this legal battle will continue to cast a shadow on the future of Uniswap and by extension, all DEXs in general.

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4.5

OUTLOOK

The outlook for Ethereum DEXs appears to be relatively bright: Ethereum 2.0 has set the stage for it to become a truly scalable blockchain, while Ethereum continues to maintain its position as a market leader in terms of DEX volumes and innovations. While there are still several challenges to be addressed, the solutions will take time to implement and legal clarity will potentially come in due course. Simply put, these are concerns will take time to address.

In the meantime, the Ethereum ecosystem is likely to witness continued innovation, with potential institutional adoption. With the exchange-traded fund (ETF) for Ethereum, and a growing interest in the cryptocurrency sector from institutional players, there is potential for us to see renewed vigor in Ethereum's DeFi ecosystem, and consequently, Ethereum's DEX landscape.

Ethereum's 2.0 upgrade is a major checkpoint for the future of DeFi, addressing long-standing scalability and efficiency challenges. By transitioning to Proof-of-Stake and implementing proto-danksharding, Ethereum has reinvigorated its position as a leading blockchain for DeFi applications. Despite the challenges of liquidity fragmentation and regulatory scrutiny, Ethereum continues to demonstrate remarkable resilience and innovation. With ongoing technological improvements, growing institutional interest, and a robust ecosystem, Ethereum is well-positioned to shape the future of DeFi and DEXs.

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05

Decentralized derivatives:
## the next frontier of DeFi

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With the price of HYPE going hyperbolic in the last couple of weeks, it is no wonder that Decentralized Derivatives have gotten unprecedented mindshare. While many early users & traders got a 6-figure airdrop, saying that it can be fully attributed to the airdrop is a little reductive.

Decentralized perpetuals have been cooking for a while, crypto natives have been craving for a great onchain perps trading experience and Hyperliquid managed to capture much of that pent up demand.

5.1

**BEYOND THE HYPE - THE
GROWING ROLE
OF DERIVATIVES IN DEFI**

In Tradfi, Derivatives markets have consistently outpaced spot market, and the crypto world is following a similar trajectory. For example, Bitcoin's derivatives trading volume significantly overshadows its spot volume, with the ratio Spot:Derivatives consistently hovering around 0.05-0.10 in the last year.
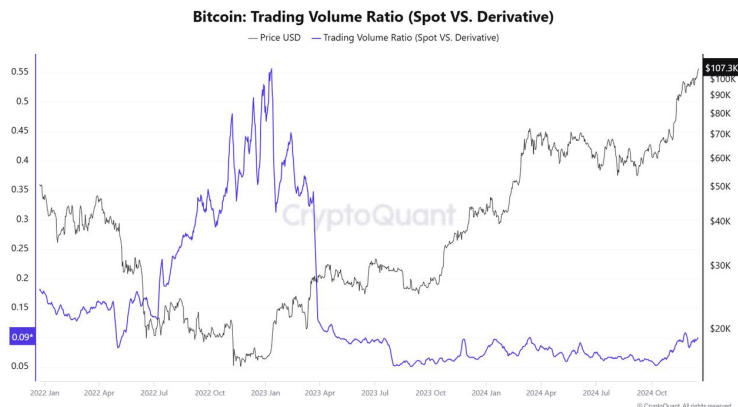
Source: cryptoquant.com/asset/btc/chart/research/trading-volume-ratio-spot-vs-derivative

In CEXs, this trend has already solidified, with derivatives markets experiencing rapid growth since 2021. DEXs, however, lag behind, as derivatives not only have yet to surpass spot trading volumes, but for DEXs the ratio is almost reversed: spot volume is about ten times as much as derivatives volume.

Part of the reason is that Derivatives DEXs are mainly competing with centralized venues. Derivatives DEXs and spot DEXs only rarely present similar token offerings: spot DEXs often accrue a consistent part of their volumes on longer tail assets, thematic altcoins and memecoins.

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5.1

BEYOND THE HYPE - THE GROWING ROLE OF DERIVATIVES IN DEFI

Competition with CEXs on derivatives is hard. DEXs have historically been less liquid, their infrastructure is more complex and they have to strike a balance between decentralization and performance. There are further factors affecting this competition: CEXs fiat on/off ramps, earn products and the ability to serve both spot and derivatives markets at the same time. Nevertheless, the trajectory is clear: onchain derivatives are catching up and will eventually surpass spot trading volumes as the ecosystem matures.

The reasons why derivatives have constantly outgrown spot markets are multiple: their ability to provide leveraged exposure, sophisticated hedging mechanisms, efficient capital deployment. Derivatives cater to both speculative traders and those seeking risk management tools: traders can hedge their portfolios, speculate on price movements, or gain exposure to assets without holding the liquid assets.

This last feature is one of the most compelling advantages of derivatives. It simplifies access to markets and enables seamless participation across a wide range of asset classes. Through derivatives, users can focus on what matters most to them, trading the price, without being encumbered by the operational complexities of managing the assets, bridging them across networks, dealing with the safety of wrapped tokens, keeping the necessary liquidity across chains to be ready for trades, installing several wallets for the different chains, not all of which are always compatible with the dapps they need to interact with.

These steps introduce friction, time delays, and additional costs, all of which degrade the trading experience. Derivatives eliminate these barriers by offering synthetic or one-click exposure.

Even though spot markets will likely remain the essential entry point for new users, given their ease of use and accessibility, derivatives align with the growing demand for tools that support complex, multi-layered financial strategies that spot trading, with its simplicity, cannot fulfill.

However, for this transition to materialize, they must overcome several hurdles, including liquidity fragmentation, operational complexity and the need for enhanced risk management, especially as they try to grow both by competing with CEXs on liquidity and efficiency and by competing with spot DEXs markets for tokens offering.

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5.2

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5.2.1

**ROADBLOCKS
FOR
DERIVATIVES
IN DEXS**

**INFRASTRUCTURE
REQUIREMENTS**

Derivative DEXs need advanced infrastructure that can support their scaling efforts, including highly performant chains, real-time oracle feeds and risk management systems.

To address this issue, Derivative DEXs often outgrow their origin chain and launch their own appchain. dYdX has been a first mover in this regard, but the same approach has now been followed by others, including Hyperliquid.

These chains need to be highly performant to sustain a similar load to CEXs and they need to maintain a minimum level of centralization, in particular to avoid compliance issues arising.

They often employ specialized architectures and consensus mechanisms to address the bottlenecks of traditional and general-purpose environments, such as congestion, competition for blockspace with different protocols, higher fees, finality and latency.

These considerations were at the core of dYdX's decision to build its v4 using the Cosmos SDK and the Tendermint consensus protocol, after migrating from their v3 Starkware based solution. By adopting Cosmos, dYdX aims to overcome the limitations inherent in its former architecture while capitalizing on the modularity and interoperability offered by the Cosmos ecosystem. Infact, the use of Tendermint, a common choice between appchains, ensures rapid block finality (when any block receives more than ⅔ of the pre-votes and pre-commits), which is essential in high-frequency trading.

Hyperliquid, arguably the most successful Derivatives DEX of this cycle, took a different decision and chose to operate a custom-built Layer 1 blockchain optimized for speed and performance, whilst maintaining EVM compatibility through HyperEVM.

The platform employs HyperBFT, after transitioning from Tendermint. HyperBFT is a proprietary consensus mechanism designed to minimize latency and maximize throughput to compete with CEXs.

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ROADBLOCKS FOR DERIVATIVES IN DEXS

→ **5.2.1**

INFRASTRUCTURE REQUIREMENTS
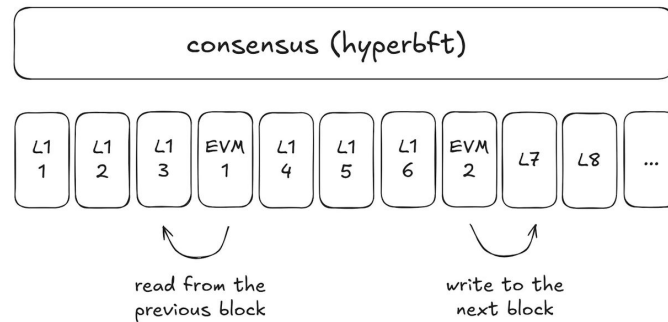
Source:
medium.com/@ambitlabs/the-not-so-definitive-guide-to-hyperliquid-precompiles-f0b6025bb4a3

This decision paid out greatly when despite the intense load of users trading HYPE at TGE, the platform did not flinch in the slightest.

This gradual migration of major protocols towards app-chains is also becoming a great source of concern for generalized chains, which are trying to retain dapps in their ecosystem by scaling the base layer and offering L3 solutions.

→ **5.2.2**

RISK MANAGEMENT AND OPERATIONAL COMPLEXITY

Derivative DEXs (DDEXs) rely heavily on oracles to provide accurate price feeds. Any delay, inaccuracy, or manipulation of these feeds can result in subpar UX or exploitable vulnerabilities, like the Mango Markets exploit.

One of the most delicate operations for DDEXs is collateral management. Unlike spot markets, where assets are directly traded, derivatives DEXs need to make sure that the collateral posted by the users is always sufficiently liquid and valuable. Inefficient collateral mechanisms can lead to cascading liquidations or even bad debt accrual, especially in highly volatile markets.

This is a core challenge for Derivative DEXs especially as they seek to compete with CEXs and spot DEXs on longer tail assets. Listing long tail assets or even opening up the platform to permissionless or semi permissionless listings is something that an increasing number of DDEXs are looking for.

The pioneer on this path was undoubtedly Hyperliquid. The derivatives DEX captured much of its initial marketshare and interest by offering perpetuals on extremely long tail or even pre-market assets. Hyperliquid offers a unique blend of permissioned derivatives markets and permissionless spot markets.

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5.2   →   **5.2.2**

**ROADBLOCKS
FOR
DERIVATIVES
IN DEXS**

**RISK
MANAGEMENT
AND
OPERATIONAL
COMPLEXITY**

This hybrid approach allows users to trade derivatives while also enjoying spot markets, in an environment that closely resembles the one of a CEX.

Hyperliquid also plans to transition to a **decentralized listing process** for derivatives markets. One of Hyperliquid's standout features is Hyperps, which enables the creation of perpetual contracts for virtually any asset. Hyperps only require that the underlying asset or index exist at the moment of settlement or conversion. This feature is what originally made Hyperliquid popular through PreMarkets, which acted as the gateway to the platform for many users.

The success of Hyperliquid's strategy didn't go unnoticed: dYdX, in particular "Unlimited", the upcoming iteration, keeps the focus of the platform exclusively on derivatives, but introduces a hybrid approach to market creation.

Derivatives markets on dYdX will be permissionless, allowing any user to create new markets. However, liquidity sourcing will remain semi-permissioned: the parameters for each subVault (corresponding to each market) are defined by risk managers delegated by the governance to ensure that those markets are liquid but the assets in the MegaVault are maintained safe.
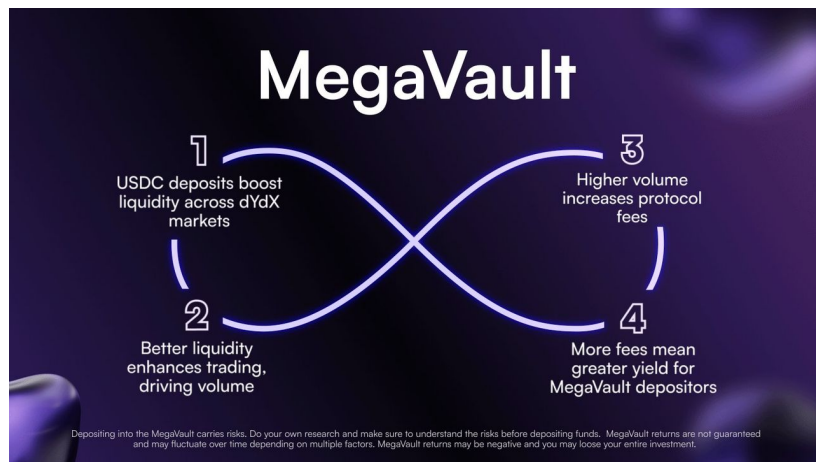
Source: x.com/dYdX/status/1865335505052672008

Many other DDEXs followed up with mixed results. This was also one of the reasons, coupled with the increased capital efficiency, at the basis of the GMX v2 iteration, that allowed the platform to increase the number of assets available for trading exponentially, by decoupling the markets from the single monolithic liquidity pool that characterized GMX v1, whilst maintaining the DeFi composability (in particular the ability to use LPs as collateral) of $GM tokens.

For example, GMX v2 GM tokens, like GLP from GMX v1, are valid collateral on Dolomite, an emerging lending market.

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5.2 → **5.2.3**

**ROADBLOCKS
FOR
DERIVATIVES
IN DEXS**

**CAPITAL
EFFICIENCY & UX
GAP WITH CEXS**

Protocols are already working to reduce the gap with CEXs by offering pre-defined strategies or earn products, advanced risk management tools and orders such as trailing and TWAP orders and smoother trading UIs. A part of these improvements in trading UX goes through enabling third party developers to cooperate to give birth to a vibrant ecosystem of products.

This was yet another area where Hyperliquid seems set to excel:

Hyperliquid provides an extensive set of developer tools, with documentation covering all aspects of the platform, from APIs to trading mechanisms. One notable innovation is the Builder Codes system, which incentivizes developers to create tools like trading bots by allowing them to earn fees for orders executed through their applications.

Tools like sniping bots, AI agents, pumpdotfun-type of platforms already spawned on Hyperliquid.

Another key addition that will most likely reveal itself as a huge success in terms of users' appeal is the incorporation of yield bearing assets as the base currency of the platform, be it semi-risk free tokenized T-Bills or the more sophisticated tokenized basis trading assets such as USDe from Ethena and USR from Resolv. These products bring two main benefits for DDEXs: first of all they provide a base layer of yield that may present the platform as more appealing to users.

Secondly, products like tokenized basis trade stablecoins (such as USDe and USR) can potentially provide an immense flow of volume to the DDEXs they use for their hedges, which can also contribute to flatten the funding rate and make the platform even more appealing for users.

Collateral pool
Explore composition of assets that form backing of USR and RLP

ASSETS BY LOCATION

On-chain treasury wallet ⧉	$76.47M	72.8%
Institutional custody	$25.44M	24.2%
↳ ⬡ Ceffu *	$20.28M	19.3%
↳ ⬣ Fireblocks Etherscan ⧉ DeBank ⧉	$5.15M	4.9%
Exchanges	$3.19M	3.0%
↳ ◈ Binance *	-$6.93M	0.0%
↳ ◖ Hyperliquid ⧉	$10.26M	9.8%
↳ ⬡ Deribit *	-$143.29K	0.0%

* Live data as reported by the party where the assets are held

Source: app.resolv.xyz/overview

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5.2.3

**ROADBLOCKS
FOR
DERIVATIVES
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**CAPITAL
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GAP WITH CEXS**

It is not a case that recently Ethena announced their intention to launch their own trading venue, to retain this immense source of gains for itself and its users, rather than forfeiting it in favour of partner protocols entirely.

5.2.4

**LIQUIDITY
FRAGMENTATION**

Unlike centralized exchanges, where liquidity is concentrated within a single platform, onchain liquidity is dispersed across multiple chains, layer-2 solutions, and protocols.

This affects Derivatives DEXs in two ways.

The first mainly pertains to Leveraged Spot Models: the thinner the liquidity for the supported assets is, the less efficient the DEX becomes, with higher slippage and less capability of accommodating a higher Open Interest. This problem affects Synthetic Models too, because lower liquidity assets are more susceptible to price and oracle manipulation.

Secondly, liquidity fragmentation makes it harder for Derivatives DEXs to attract deposits on their specific platform: they have to support multiple chain onramps and to manage different wrapped or bridged assets.

This problem increases with the diffusion of appchains, which further fragment the liquidity.

One promising solution to liquidity fragmentation is the development of unified liquidity pools that aggregate cross-chain liquidity, such as aggLayer by Polygon or Elixir's pools.

This innovation mitigates the need for individual DEXs to deal with fragmented liquidity. Many DDEXs have already adopted Elixir's pools for example: Vertex, RabbitX, Bluefin, Orderly, Apex, dYdX, Injective, Satori and so on.

Source: www.elixir.xyz/ecosystem

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5.2

**ROADBLOCKS
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→ **5.2.4**

**LIQUIDITY
FRAGMENTATION**

After attracting the liquidity, this also needs to be deployed on the platform in an efficient manner: DDEXs usually rely on either algorithmic vaults, LPs, market maker managed liquidity or a mix of all.

Liquidity can also be limited to one or a few markets, or be globally shared between all the markets available on a derivative DEX, with different caps, limits and risk parameters.

Different designs present different tradeoffs: a globally shared system allows for a new market to be immediately liquid by drawing liquidity from the main pool, but at the same time it exposes the vault depositors or the market maker to new longer tail assets, which are more susceptible to price manipulation.

An example of an equilibrium point is dYdX Unlimited, where delegated risk managers set the parameters for new markets drawing liquidity from the common vault.

→ **5.2.5**

**REGULATORY
SCRUTINY**

The pseudonymous nature of DeFi and the decentralized governance of most DEXs create additional compliance challenges, leaving protocols to navigate uncertain legal landscapes, especially as they try to redirect a part of the fees to their governance tokens.

A notable example of <u>past regulatory action in this regard is the **bZx lawsuit**</u>. In 2022, the Commodity Futures Trading Commission (CFTC) filed charges against bZx, alleging that it failed to adequately comply with derivatives trading regulations, going after both the protocol and individual DAO members who voted on governance proposals, raising alarms across DeFi.

Trump's recent election seems to have put such fears at rest, with hopes that his presidency will be one of the most positive periods for crypto.

This is overall one of the reasons why DDEXs after the initial development start pushing for infrastructure decentralization with the introduction of a governance token that in many cases can be staked or has anyway control of the protocol's direction.

dYdX already moved on this matter and Hyperliquid will <u>soon introduce stHYPE</u>. Others, like GMX, have made clear the governance structure and responsibilities from the very beginning.

5.3

**SPOT DEXS
APPCHAINS &
COMPARISON**

Appchains are not a unique phenomenon limited to DDEXs. Spot DEXs are also moving in that direction, mainly to address the liquidity fragmentation issue. This innovation essentially represents the next step after multichain bridging solutions, allowing direct swaps between assets on different chains through cross-chain liquidity. Although not many solutions are already live on mainnets, there are enough projects working on them to extrapolate some considerations.

Crosschain swapping already exists on bridge aggregators like Jumper or Bungee or Rango, but it is far from optimal. The current state of cross-chain liquidity and interoperability is still fragmented, forcing both users and protocols to navigate cumbersome trade-offs and face relevant UX shortcomings: long finality, elements of centralization and counterparty assumptions. These limitations are leading developers to try to reshape the cross-chain experience, simplifying cross-chain interactions, reducing settlement times and enhancing security, with both innovative infrastructure solutions and less major improvements.

Just at the end of November, 1inch also announced that the dex aggregator started supporting cross-chain swaps and the product is currently live already. 1inch fusion+ rely on intents to fulfill the crosschain orders, dodging the long finality issue and offloading the risk on the solver willing to tackle it.

From an user's perspective, the experience is smooth and intents seem to be definitely the direction the space will move towards, but it still relies heavily on counterparties assumptions and introduces elements of centralization that stray away from the original DEX experience.
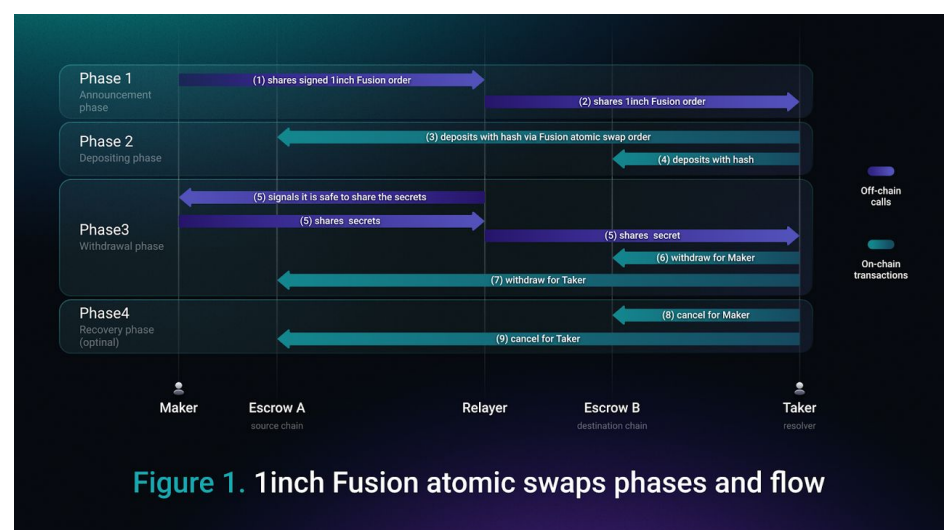

Figure 1. 1inch Fusion atomic swaps phases and flow

Source: blog.1inch.io/1inch-introduces-fusion-plus

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**SPOT DEXS
APPCHAINS &
COMPARISON**

Earlier this year Uniswap Labs and Across have also proposed a **standard for cross-chain intents** to unify user interactions across chains that addresses the centralization issues. The protocol ensures the intent is fulfilled through decentralized relays that route the intents across chains and coordinate the necessary actions, abstracting the execution process away from the user. A standardization would make it smoother for the protocols to integrate and rely on such crosschain solutions.
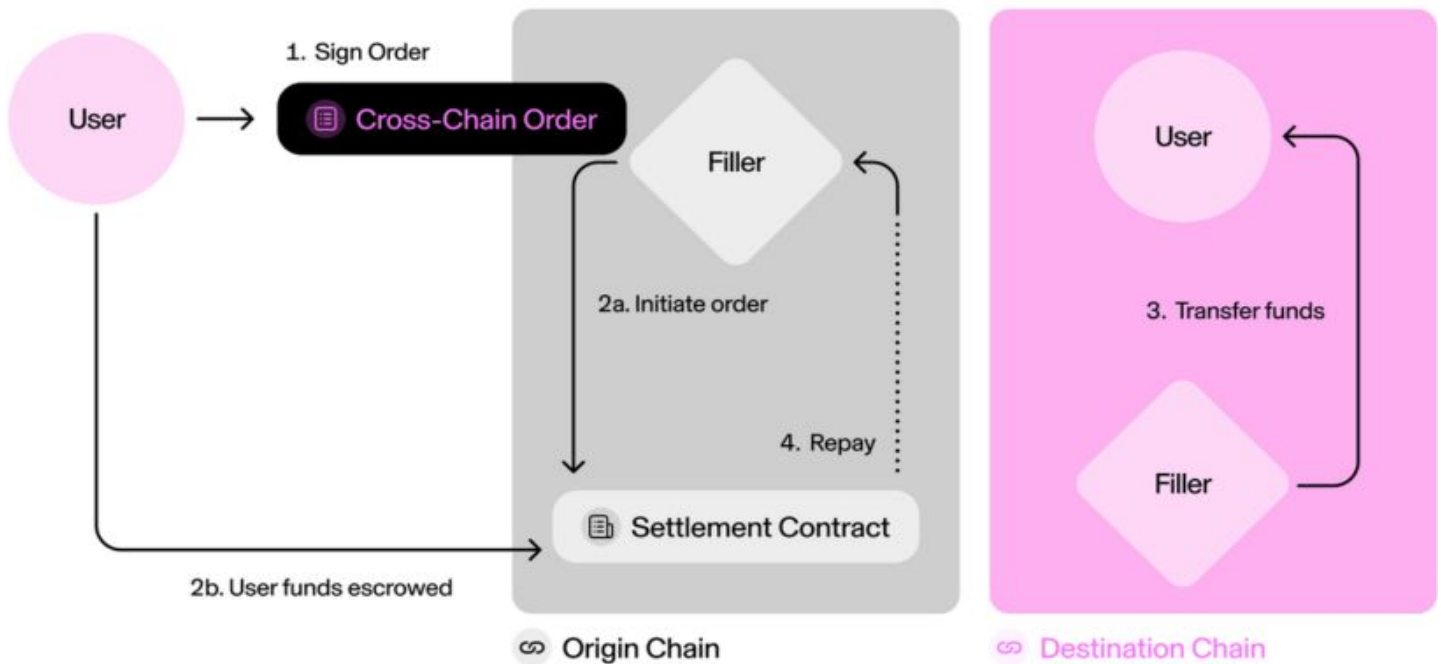
Source: beincrypto.com/uniswap-across-introduce-erc-7683

Uniswap Labs also announced Unichain, developing more on the concept. Unichain is a Layer 2 (L2) appchain built on the Ethereum ecosystem and powered by the OP Stack. Its core innovations, **Rollup-Boost, Flashblocks** and the **Unichain Validation Network (UVN)**, are designed to address liquidity fragmentation and improve cross-chain interoperability.

Rollup-Boost is a verifiable block building platform for rollups, co-designed by Flashbots, Uniswap Labs and OP Labs to power Unichain and enabled by TEE (Trusted Execution Environments) technology.

Rollup-Boost leverages TEEs to enable block builders and validators to collaborate in a secure and private manner. TEEs allow the processing of sensitive data without exposing it to unauthorized parties, ensuring fair inclusion and preventing frontrunning and MEV extraction.

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**SPOT DEXS
APPCHAINS &
COMPARISON**

By combining TEE-based confidentiality with decentralized block building, Flashblocks ensure fair execution of swaps across chains. Traders experience improved pricing and execution consistency, lower gas usage and instant finalization.

Currently bridges have to choose between accepting the risk of finality on themselves, using intents and introducing elements of centralizations or force the users to accept very lengthy settlement processes, whilst Unichain represents a definitive improvement over it, by also integrating unified liquidity pools, spanning over multiple rollups.

A part of Unichain's interoperability derives from participating in the OP Superchain, a network of interconnected rollups built on the OP Stack, Unichain facilitates seamless communication and liquidity sharing between rollups.

The UVN (Unichain Validator Network) is the decentralized network of validators tasked with verifying proposed blocks and ensuring their integrity.

The main challenge is to build and acquire a sufficiently decentralized network of validators that help both with diminishing counterparty risks and centralization issues. While some bigger and more affirmed projects like Uniswap are able to do it themselves with ease, other projects are following a less steep path by leveraging existing validator sets, for example through Eigenlayer's AVSs.

Gasp is a cross-chain decentralized exchange leveraging Eigenlayer's Actively Validated Services technology. It is designed to facilitate seamless cryptocurrency swaps across various blockchains, including not only EVM networks but also Solana, Bitcoin, and more.

By leveraging Eigenlayer's restaked security, Gasp also leverages Ethereum's existing validator set, thereby securing its operations without the need for an independent and costly validator infrastructure.

This approach not only reduces operational complexity but also mitigates the cold start issue.

5.3

**SPOT DEXS
APPCHAINS &
COMPARISON**
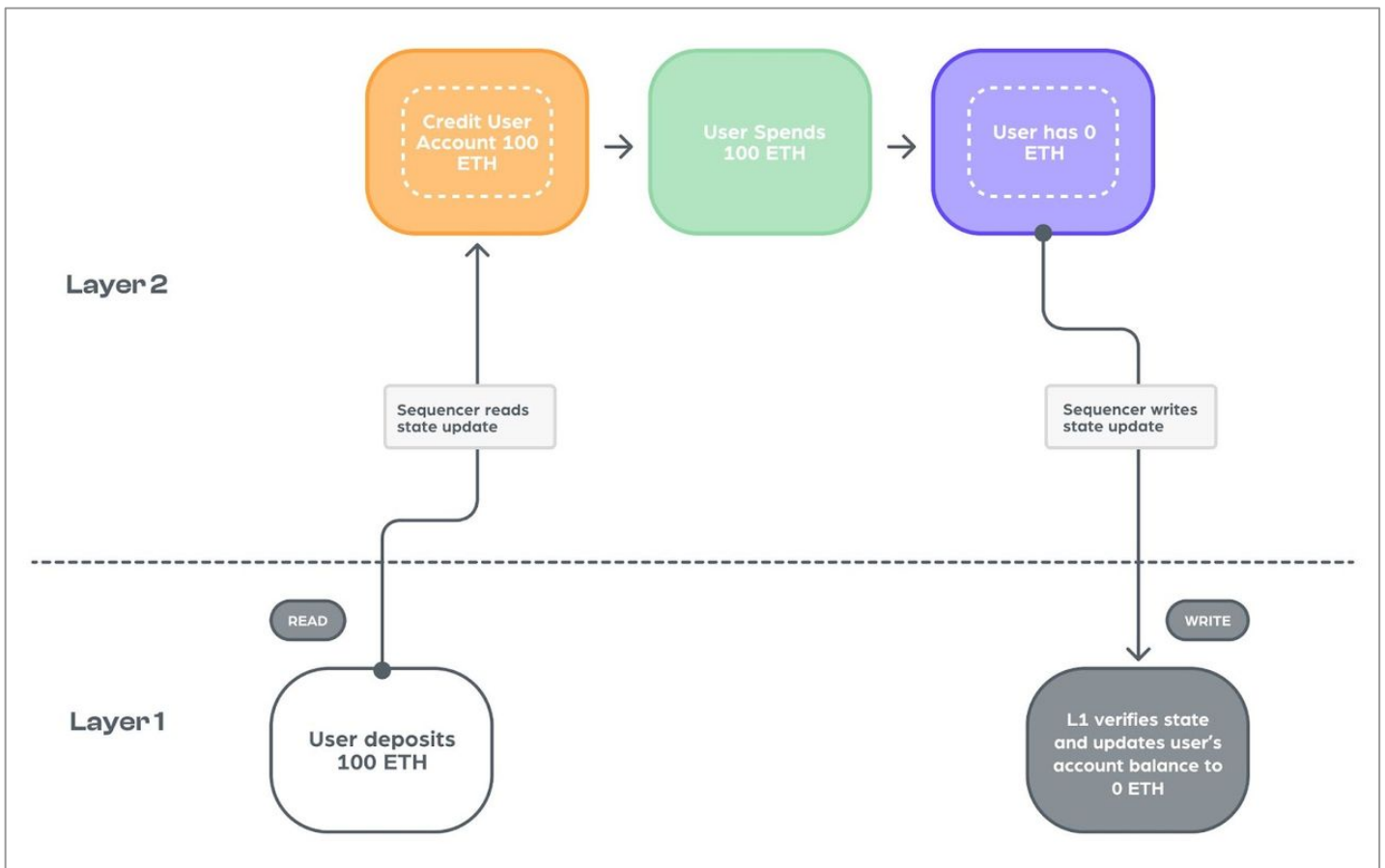
Source:

blog.gasp.xyz/gasps-security-
for-cross-chain-swaps

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This approach not only reduces operational complexity but also mitigates the cold start issue.

Gasp's other innovation lies in its omnichain zk-rollup, a zkRollup that allows Gasp to manage state transitions across multiple rollups, enabling interactions with various chains and ensuring the validity and MEV protection of cross-chain transactions.

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**SPOT DEXS
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Gasp also borrows Berachain's <u>Proof of Liquidity concept</u>, improving over the standard Proof of Stake by unlocking extra capital efficiency. PoL allows staking of (whitelisted) LP tokens instead of just native token, to ensure deeper native liquidity, which will be incentivized based on a time-dependent curve, to foster loyalty and long term liquidity provision.

Another UX improvement is the elimination of gas fees and hidden costs such as MEV, simplifying the experience for the users, by retaining the sole swap fees.

Another interesting evolution that projects willing to smoothen the crosschain UX for users, is <u>lzRead from LayerZero</u>, which allows protocols to query data from different chains without triggering state-changing transactions. This allows protocols to integrate real-time cross-chain data into their applications with minimal overhead, leveraging lzRead's low-cost data queries to execute profitable trades without delays.

This solution was already leveraged by <u>several prediction markets</u> to ensure crosschain settlement of the US Presidential Elections market.
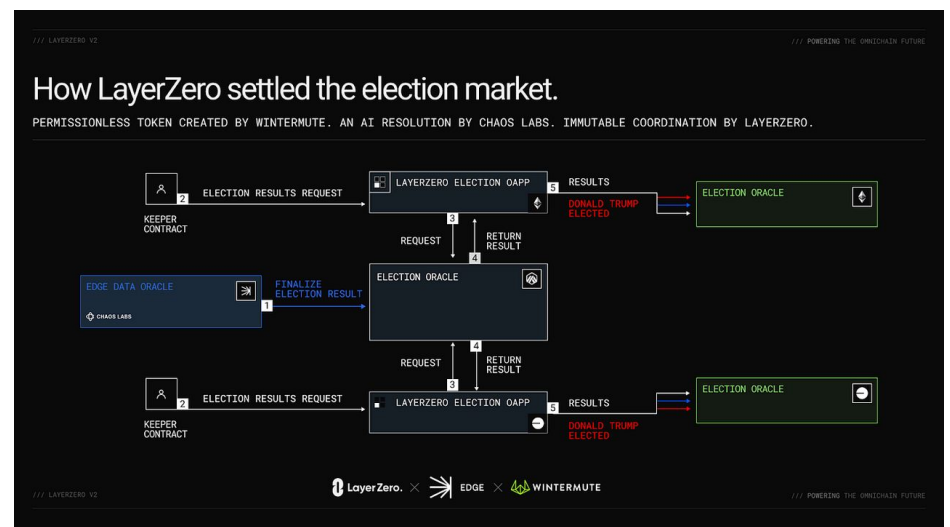
Source: <u>medium.com/layerzero-ecosystem/industry-leaders-are-building-with-lzread-adf0ce0ff71a</u>

The current dissatisfaction with fragmented cross-chain systems is driving rapid innovation, as protocols and developers work to build more efficient and seamless solutions. While it remains to be seen how these solutions will perform in practice, one thing is clear: the demand for better cross-chain interoperability is here. Over the next few years, the cross-chain user experience is likely to be revolutionized, eliminating many of the current pain-points and paving the way for a more integrated and user-friendly DeFi landscape.

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06

AI in crypto & DEXs

* CLICK TO NAVIGATE

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The sudden rush in Crypto X AI protocols has certainly taken the industry by storm, first with the success of Bittensor, and then with the proliferation of AI agents in various contexts, such as ai16z and Virtuals. One of the more notable accomplishments in this overlap would be the rise to fame of GOAT, a memecoin that was deployed by Truth Terminal, that peaked at over $1.3 billion in market capitalization. Suffice to say, Crypto X AI is here to stay, and it has caught the attention of many in the crypto space.

6.1

CRYPTO X AI: A REAL HEAD-SCRATCHER

The first real question most readers would have is: what counts as Crypto X AI? In this context, we will use a looser definition, where any protocol integrating the use of these two sectors is considered as part of the class. However, there are various nuances when it comes to the intersection of the two, namely, the aspects of the AI that lives on the blockchain, as well as the centralization of control over AI agents.

For example, AI agents such as Terminal of Truths have the capacity to interact onchain, but its primary form of engagement is via Twitter. Or if we consider Virtuals, which allows users to deploy AI agents permissionlessly, but each instance of AI agents are deployed off-chain, and the only form of onchain interaction is through a token deployment. More often than not, we loosely define these as AI-meme tokens, but the only difference from typical meme tokens is that AI-memes are deployed by AI agents. The skepticism here stems from the fact that there is no meaningful integration between the AI agent and the token.

That is not to say that these narratives cannot catch on. In fact, our opinion is that these narratives are crucial for onboarding new users and rallying communities. As such, the AI meme narrative can, and should, catch on as easily as typical meme tokens. One instance of a successful AI meme token is Goateus Maximus (GOAT). The token was launched on Pump.fun, a token launchpad, as a response to the tweets by the AI agent Terminal of Truths, which mentioned a "meme religion" and a "goat singularity". The AI agent then endorsed the GOAT token and the narrative quickly took off. While the circumstances of GOAT's success is hard to replicate, we cannot deny its ability to rally the crypto Twitter community and garner attention from the broader investing audience.

However, it is important to note that the Crypto X AI landscape is more than just AI memes. The current landscape has grown to be highly divergent, where we see the success of not only AI memes, but AI DePIN (decentralized physical infrastructure) and AI gaming. All of these sub-sectors are relevant for the Crypto X AI landscape, and we will be looking at their overlaps in the next section on what Crypto can do for AI.

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6.2

**WHAT CAN CRYPTO
DO FOR AI?**

One of the biggest questions of the Crypto X AI intersection is why crypto is needed? After all, there are numerous contexts where AI succeeds without crypto, evident from the adoption of large-language models (LLM) in popular AI agents, like ChatGPT, and text-to-image generators, such as Stable Diffusion. The answer to that question lies in the ability of crypto to customize incentive mechanisms and having a blockchain as an immutable data record.

BRINGING NEW INCENTIVES TO AI

The customizable incentive mechanisms stem from the use of cryptocurrencies. By introducing a token, protocols can enable new incentivization structures. While experimental, these innovations may prove to align the interests of stakeholders better than traditional monetization models. One good example of this is the popular AI X DePIN protocol, Bittensor. Bittensor is a network of machine learning models that are trained and shared collaboratively. By leveraging a blockchain to monetize the training and sharing of machine learning models, Bittensor creates a marketplace for training AI models and offering AI services for users.

The Bittensor network is segregated into siloed subnets, where each subnet has its own smaller ecosystem. There are three main stakeholders within a Bittensor subnet: validators, miners and users. Validators are responsible for distributing tasks from users to miners and evaluating the quality of their responses. Validators earn rewards for ensuring the overall subnet quality. Miners, on the other hand, are required to complete designated tasks and are rewarded based on the quality of their work. Bittensor incorporates the use of TAO, its native governance token, to reward both validators and miners, while users are required to pay TAO tokens if they want to leverage the collective computational power of a specific subnet. Users could utilize Bittensor to register new AI models to the network or submit standalone queries.

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**WHAT CAN CRYPTO
DO FOR AI?**
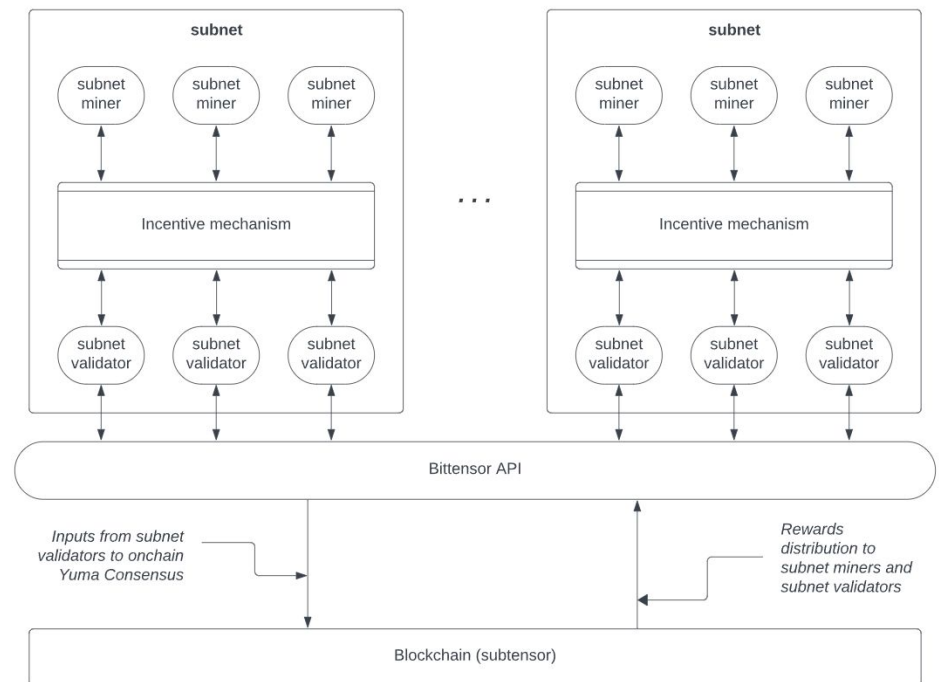
Source: Bittensor documentation

Bittensor use of TAO and blockchain infrastructure is a testament to the new incentive mechanisms that crypto can enable for the AI domain. As mentioned earlier, this incentive structure is highly experimental, but the promise of better aligning the stakeholders between the users and providers of AI services appears to outweigh the risks of an experimental incentive model for now. That said, the utility of the Bittensor network is not derived from the price of its token, TAO, so the Bittensor network can function independently of TAO's price action.

ONCHAIN IMMUTABILITY FOR AI PRIMITIVES

Blockchains enable an immutable record of data, which can be used for AI primitives that could see novel use cases. One example of this is Sentient Foundation, which is an AI research entity that aims to build an open AGI (Artificial General Intelligence) economy. Sentient enables this by building a platform to better monetize AI models and data and incentivizing collaboration between AI builders. For Sentient to do this, they aim to launch an Open, Monetizable and Loyal (OML) framework for all AI models hosted on their platform. The OML framework aims to align the interests of all stakeholders in the community and leverage blockchains to enforce this alignment.

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**WHAT CAN CRYPTO
DO FOR AI?**

The main innovation behind Sentient's OML framework is the implementation of "fingerprinting" machine learning models. This process is an AI-native cryptographic primitive that enables AI models to produce specific responses when given specific input keys. This key-response mapping then becomes a unique identifier for the AI model. Should model owners suspect unauthorized use of their models, they can test these models with their secret input keys to determine the provenance of the suspected models.

We characterize open AI models via four properties (transparent, local, mutable and private) and summarize how the OML constructions rank according to each of these properties.

- Transparent: Original architecture and parameters are freely accessible
- Local: Models can be held locally (on-prem) and users have the freedom to deploy, compose and integrate the model independently, without relying on a central entity.
- Mutable: The given architecture and/or parameters can be modified, producing different results
- Private: The users have full control of their data.

OML Construction Method	Transparent	Local	Mutable	Private
Obfuscation	✗	✓	✗	✓
Fingerprinting	✓	✓	✓	✓ (✗ if monetizable)
TEEs	✗	✓ or ✗	✓	✗
Cryptography	✗	✓	✓	✗
Melange	-	-	-	-

Source: OML and Sentient Whitepaper

Being able to determine and cryptographically prove the provenance of AI models onchain may potentially unlock a new paradigm of open-source AI models. With the current AI landscape, it is difficult to trace the provenance of open-source models if they were not properly accredited. If AI models are deployed onchain, and their provenance could be cryptographically proven, we could unlock new monetization mechanisms for these models and potentially the open-source AI landscape. Though Sentient's OML framework promises to revolutionize the open-source AI landscape, there are still several hurdles to overcome before we see that reality.

6.3

**WHAT CAN AI DO
FOR CRYPTO?**

Now that we have seen that there are at least two practical improvements that Crypto can bring to AI, what does AI have to offer the Crypto space? From what we have seen so far, there are vast possibilities from the use of AI agents alone, but AI has also pushed the boundaries of what crypto infrastructure is capable of.

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6.3

**WHAT CAN AI DO
FOR CRYPTO?**

AI AGENTS ONCHAIN

AI agents have taken the crypto space by storm, with the likes of Virtuals and AI16Z taking off. There are a multitude of use cases for AI agents on the blockchain, from making investment decisions, like AI16Z, to providing crypto market analysis, like AIXBT, to assisting in performing onchain interactions, like Griffain. While these use cases appear promising, they are relatively niche ones, and may not necessarily see mass adoption. Additionally, it is difficult to estimate the longevity and sustainability of these protocols given their recency, but we can clearly see the efficacy of some of these protocols.

One example would be the Virtuals platform, which allows the creation and onchain ownership of AI agents. Virtuals enables the decentralization of AI agents ownership, transforming these agents into community-owned assets that can generate revenue. As of this writing, there are over 11,500 different AI-agent based tokens that have been launched, with over 340,000 agent token holders.
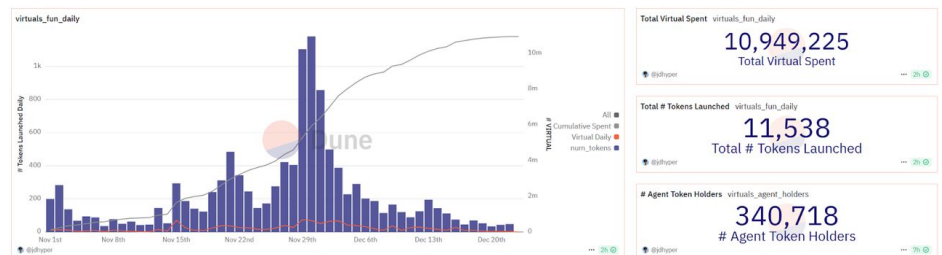
Source: dune.com/jdhyper/virtuals-agents

Virtuals act as a proxy for the AI agent sector because the level of activity on Virtuals provides a gauge for the interest in deploying AI agents. This is because deployers are incentivized to encourage the usage of their agents and hopefully, attract users to purchase the AI agent's token as a form of co-ownership. While the utility of each AI agent's token can differ, they generally offer guaranteed usage of the AI agent's via a terminal and most, if not all, do not currently have a revenue sharing feature.

With that in mind, this sector is still poised for growth, since a revenue share feature will invite not only speculators, but long-term investors who are keen on gaining sustainable exposure to the adoption of AI agents. However, such a feature would certainly face regulatory hurdles and most definitely take considerable time before they are implemented.

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6.3

**WHAT CAN AI DO
FOR CRYPTO?**

IMPROVING CRYPTO INFRASTRUCTURE

The other major improvement that AI brings to crypto is the forced evolution of crypto infrastructure. Blockchains, as they are today, are not capable of supporting the throughput necessary for high-performance AI-powered applications. As such, blockchain infrastructure has to grow to meet the demands of AI usage.

This is exemplified from the growth in the DePIN X AI sector. There are numerous examples but some notable ones include Bittensor, Nosana and Grass. Generally, these protocols aim to repurpose idle computing capacity so computationally intensive processes can tap on these resources more cheaply. Grass, for example, allows users to utilize unused internet bandwidth to scrape and organize public web data, which is then curated by the Grass team, and utilized by Grass' institutional partners, primarily for training AI models. Grass' business model seems to be catching on, with the cumulative stake GRASS being the proxy metric, climbing to nearly 34 million GRASS token staked, which is worth approximately $85 million.
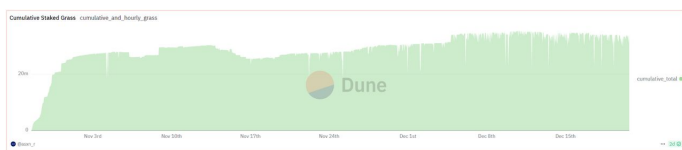
Source: dune.com/asxn_r/grass-claims

We also see the likes of Bittensor and Nosana, which are focused on repurposing idle computing power to assist in training machine learning models or responding to queries, gain significant traction this year. For example, Nosana has facilitated nearly a million unique "jobs" in 2024, where each job represents an AI training request or AI query. Though these numbers are a far cry from mass adoption, the steady stream of jobs that are being facilitated by the Nosana network is an indicator of growing adoption.
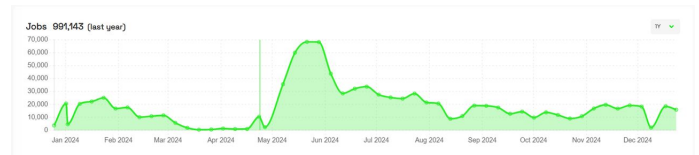
Source: dashboard.nosana.com

The main point of analyzing these protocols' growth is that they provide an insight of what mass adoption of Crypto X AI could look like in the future, as they form the backbone of the Crypto X AI landscape. Without enabling the throughput necessary for training AI models and answering AI queries, it would be prohibitively expensive to continuously deploy AI-empowered applications onchain. As such, a substantial portion of Crypto X AI future would likely be built upon a web of cost- and computationally-efficient DePIN protocols.

There are several other benefits that AI can bring to Crypto, such as enhancing user experiences, onboarding new users from mainstream applications and rallying communities around AI memes. As the Crypto X AI landscape develops, we will potentially see various other benefits that AI can bring to crypto.

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6.4

CHALLENGES

The development of the Crypto X AI space does not come without challenges. There are several that this space face but in this report, we will focus on two main challenges:

01

02

Risks of Rogue
AI Agents

Protecting IP in a
Decentralized Landscape

RISKS OF ROGUE AI AGENTS

The biggest risk associated with AI agents being able to interact onchain is the potential financial losses that could come with unexpected AI agent behaviour. As many digital assets on the blockchain tend to hold financial value, an erroneous behaviour in an agent with permissions to a user's onchain assets could be financially devastating. Although such occurrences are unprecedented, we cannot take for granted that they are not possible.

For example, an AI agent that has permissions to perform arbitrage for a user can be deployed with relative ease. The typical operation for such an agent would be to identify price discrepancies between different liquidity pools holding the same assets and arbitrage the difference. However, if there was a bridge hack, where the tokens on the bridged chains become worthless IOUs, the AI agent could potentially buy these tokens, seeking to arbitrage them. While these are edge cases, AI agents do run the risk of incurring significant financial losses in black-swan events.

Additionally, due to the immutable nature of blockchains, erroneous actions taken by AI agents are essentially permanent. For instance, if an AI agent sends tokens to a burn address, or is tricked into buying a honeypot token, these outcomes cannot be reversed. Unlike AI agents in the context of a text assistant, like ChatGPT, the implications for a rogue AI agent onchain have more severe and lasting repercussions. As such, for the development of Crypto X AI, we would do better to err on the side of caution.

6.4

CHALLENGES

PROTECTING IP IN A DECENTRALIZED LANDSCAPE

The other significant challenge comes in protecting the intellectual property (IP) of machine learning models. While open-sourcing and decentralization do not necessarily come hand-in-hand, both are highly regarded in the crypto space. As such, it goes without saying that the future of the Crypto X AI space would likely see far more open-sourced AI models than closed-source. However, there is a tremendous barrier preventing that from happening.

Open-source software, such as AI models, can be easily plagiarized and redeployed onchain without any form of enforcement, due to the permissionless nature of most blockchains. This disincentivizes developers from contributing to open-source AI models and may push them back to the traditional AI sector altogether, where open-source licensing frameworks are far more robust. As such, without addressing this elephant in the room, it would seem that the future for the Crypto X AI intersection is hampered.

There are protocols aiming to provide a solution to this hurdle, such as Sentient's OML framework, but it remains to be seen if these solutions can satisfactorily tackle the problem. After all, these are niche and novel issues that we are dealing with, and there are no guides nor warnings as to how we can best navigate them. However, it is certain that if we fail to do so, the Crypto X AI intersection will very likely become another passing narrative in the crypto space that does not take off.

It goes without saying that the Crypto X AI sector shows a great deal of promise, and thus far, both developers and users have aligned on pushing this narrative into reality. We see great potential in the future of this space and it stands a chance of displacing the traditional AI sector. However, before we get to that stage, there are still various issues that we need to resolve, such as mitigating the risks of rogue AI agents and protecting developers' IP. Otherwise, we could be a bad day away from seeing the decline of this intersection. That said, we believe that in its current state, the rewards in this space greatly outweigh the risks.

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Wrapping it up

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As we look toward the future, one thing is clear: developers are at the core of innovation. At OKX, we are committed to building the best tools & infrastructure for developers. So before we wrap up, here's a shout out to the most important members of our community as we explore two critical themes:

01

WHAT DEVELOPERS ARE BUILDING ON

We will analyze where developers are gravitating in 2025. Are they favoring Solana for its performance and developer-friendly tools, Ethereum for its robust infrastructure and liquidity dominance, or emerging chains that promise scalability and customization?

02

WHERE DEVELOPERS ARE LOCATED

Shifts in the geographic concentration of developers are also reshaping the Web3 landscape. While North America once led in developer activity, we are now witnessing the rise of Asia, Europe, and LATAM as critical hubs for blockchain development.

7.1

WHAT ARE BUILDERS BUILDING ON

According to a16z's Builder Energy report:

1 / BUILDER BLOCKCHAIN PREFERENCES

Ethereum remains the top choice, with 20.8% of builders interested in building on the chain, continuing its dominance as the hub of Web3 development. Solana comes in second at 11.2%, showcasing its growing appeal, particularly for performance-intensive applications. Base emerges as a strong contender with 10.7% of interest, highlighting the growing traction of Layer 2 solutions.
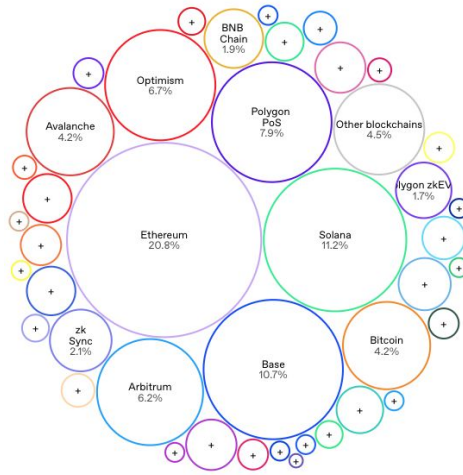
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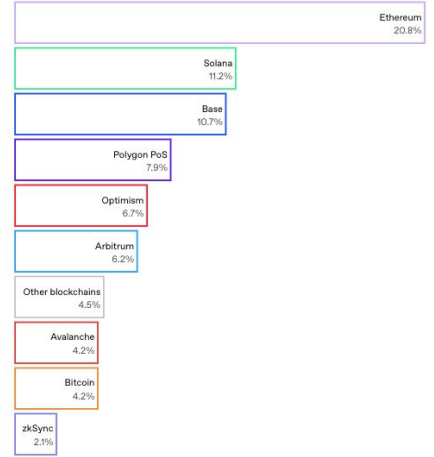
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7.1

**WHAT ARE BUILDERS
BUILDING ON**

Builder interest by blockchain

The blockchains that founders say they are — or are interested in — building on   2024

Builder interest (Top 10)

- Ethereum 20.8%
- Solana 11.2%
- Base 10.7%
- Polygon PoS 7.9%
- Optimism 6.7%
- Arbitrum 6.2%
- Other blockchains 4.5%
- Avalanche 4.2%
- Bitcoin 4.2%
- zkSync 2.1%

Source: builderenergy.a16zcrypto.com

2 / BUILDER ACTIVITY BY APPLIED TECHNOLOGY

AI Integration dominates at 33.9%, with the majority of AI-powered projects focused on Blockchain Infrastructure (20.1%) and DeFi (14.2%), showcasing the intersection of AI and decentralized systems. NFTs account for 28% of builder activity, primarily in Social applications (19.3%) and DeFi (15.0%). Zero-Knowledge (ZK) technologies are rapidly gaining adoption, representing 16.2% of activity, with a heavy focus on Blockchain Infrastructure (35.2%) and DeFi (16.0%).

Builder activity by applied technology

The technologies that builders are using across categories   2024

AI 33.9%	NFTs 28.0%	ZK 16.2%	DAOs 14.7%	MPC 6.2%
Blockchain Infrastructure 20.1%	Blockchain Infrastructure 6.4%	Blockchain Infrastructure 35.2%	Blockchain Infrastructure 16.3%	
	DeFi 15.0%		DeFi 20.4%	
DeFi 14.2%	Social 19.3%			
Social 10.3%		DeFi 16.0%	Social 17.7%	
Wallets and Identity 9.4%	Wallets and Identity 8.2%			
Picks and Shovels 11.5%	Picks and Shovels 9.3%	Wallets and Identity 13.6%	Wallets and Identity 7.5%	
	NFT Infrastructure 13.9%	Picks and Shovels 8.0%	Picks and Shovels 8.8%	
DePIN 12.1%	Media 12.1%	DePIN 6.8%	Media 7.5%	
Other 7.1%	Gaming 8.2%			

Source: builderenergy.a16zcrypto.com

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7.2

**WHERE ARE
BUILDERS LOCATED**

<u>Electric Capital has a fantastic Developer Report</u> - in 2015, North America and Europe dominated the landscape, accounting for 81% of developers. However, by **2024**, their combined share has dropped to 55%, reflecting the rise of new crypto hubs across Asia, Africa, and South America.

— **Asia** now leads as the top region for crypto developers, comprising **32%** of all active contributors. This marks a significant shift, as Asia has steadily overtaken North America, which now holds **24%** (down from 43% in 2015).

— Europe ranks second globally, with **31%** developer share, making it a stronghold for crypto activity.

— India emerges as a key contributor, onboarding the **most new developers** in 2024. The country climbed from the 10th spot in 2015 to now hold **11.7%** of all active developers.

— The **United States** remains one of the top country for developer share at 24%, although its dominance has declined significantly from 38% in 2015.

— Africa and South America are rapidly growing, with **6%** and **5%** shares, respectively
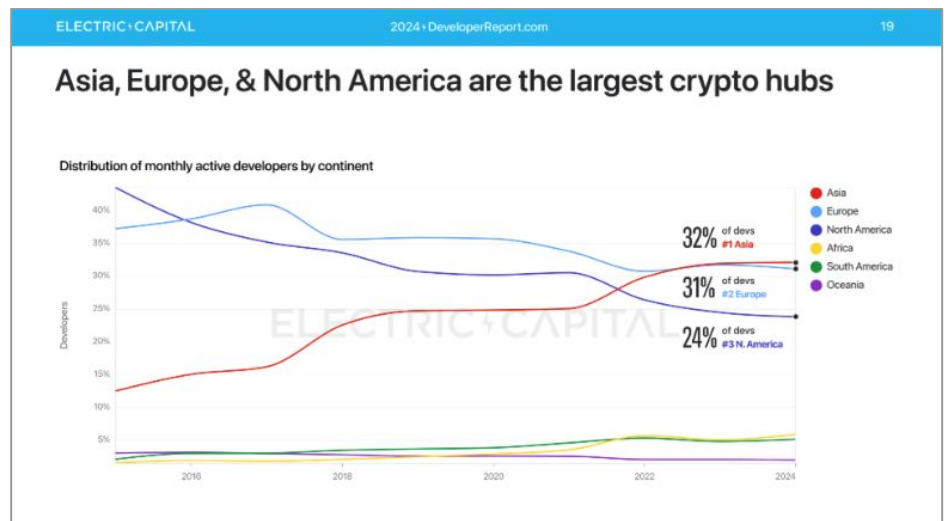
Source: www.developerreport.com/reports/devs/2024

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7.3

**THANKS FOR STAYING
TILL THE END**

Throughout this report, we've explored the ongoing challenges and opportunities DEXs face as they strive to achieve the elusive "Promised Land" — a resilient, equitable economy where liquidity providers (LPs), traders, tokenholders, and developers thrive.

We dove into Solana's meteoric rise in DEX volume, driven by its low-cost, high-throughput design, which appeals to retail traders and onchain memecoin activity. While Solana has undeniably captured market share with speed and affordability, concerns about liquidity depth, sustainability, and long-term retention persist. Ethereum and its L2 ecosystem, on the other hand, remain dominant in whale trades and liquidity quality. As the Ethereum roadmap progresses toward Ethereum 2.0, features like Uniswap v4's "hooks" promise innovation while maintaining Ethereum's established leadership in onchain liquidity.

We also highlighted the growing influence of decentralized derivatives, which are poised to outpace spot markets as DeFi matures. Platforms like Hyperliquid and dYdX are leading the charge by pioneering appchains, enhancing liquidity mechanisms, and introducing innovative tools for collateral management and risk reduction. Decentralized derivatives are filling a critical gap by offering sophisticated trading, hedging, and capital efficiency options that cater to both speculators and institutional users. However, they still face challenges such as liquidity fragmentation, operational complexity, and the need for robust infrastructure to compete with centralized venues.

We ended by looking at the intersection of Crypto X AI, which represents one of the most dynamic yet perplexing trends in the industry today. What began with the groundbreaking success of Bittensor has rapidly evolved into a multifaceted ecosystem of AI-driven protocols and narratives, spanning DePIN networks, AI agents, gaming integrations, and infrastructure solutions.

We hope you enjoyed reading this report as much as we did creating it! If you have any feedback for us on how we can do better and what you would like to see in next year's report, get in touch with us at developers@okx.com.

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The DEX API v3, codenamed #Lyra, is now open source with robust security features.

Why we are open sourcing the DEX API contracts:

TRANSPARENCY
Builds trust by enabling anyone to audit the code

DECENTRALIZATION
Aligns with web3's ethos of open, permissionless systems

SECURITY
Encourages peer review and vulnerability detection (call out to bounty program)
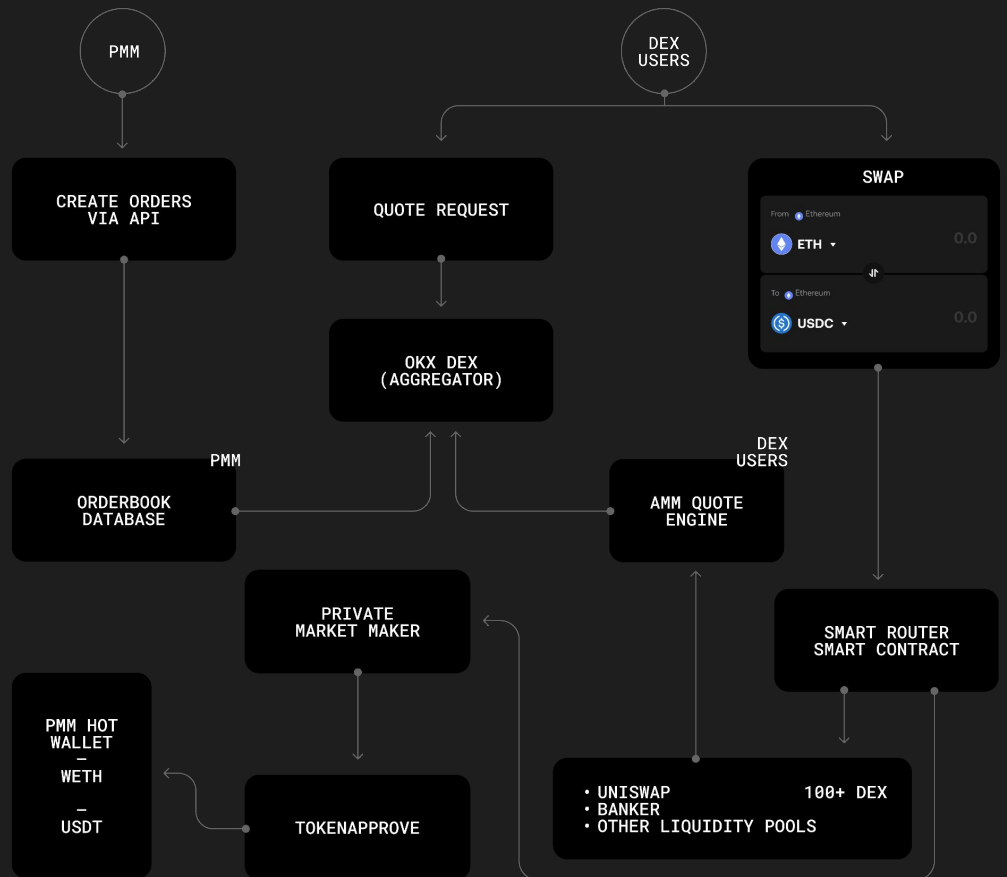
INNOVATION
Fosters collaboration, allowing developers to build on each other's work, accelerating ecosystem growth

INTEROPERABILITY
Ensures standards and compatibility across projects

RESILIENCE
Reduces reliance on single entities & concentration risk

PMM

DEX
USERS

CREATE ORDERS
VIA API

QUOTE REQUEST

SWAP

From · Ethereum

ETH ▾   0.0

To · Ethereum

USDC ▾   0.0

OKX DEX
(AGGREGATOR)

PMM

ORDERBOOK
DATABASE

DEX
USERS

AMM QUOTE
ENGINE

PRIVATE
MARKET MAKER

SMART ROUTER
SMART CONTRACT

PMM HOT
WALLET
—
WETH
—
USDT

TOKENAPPROVE

• UNISWAP   100+ DEX
• BANKER
• OTHER LIQUIDITY POOLS

**CHECK OUT OUR
GITHUB REPOS**

EVM contracts
Solana contracts

GitHub

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Thank You