VIKĀRA

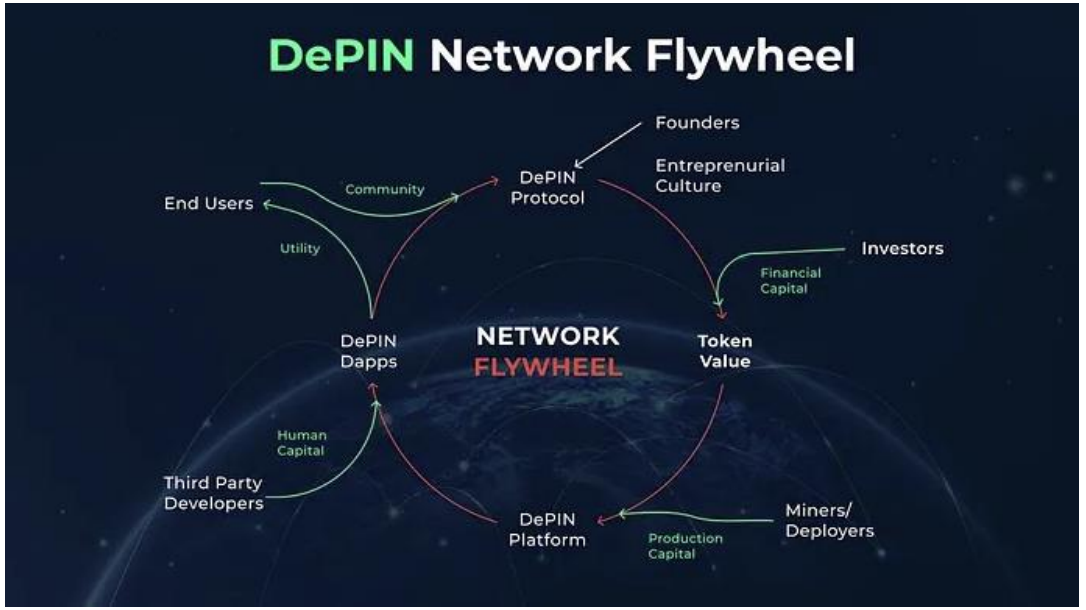
DePIN: Killer use case or solution looking for a problem?

Vikara.com

July 2025

Introduction

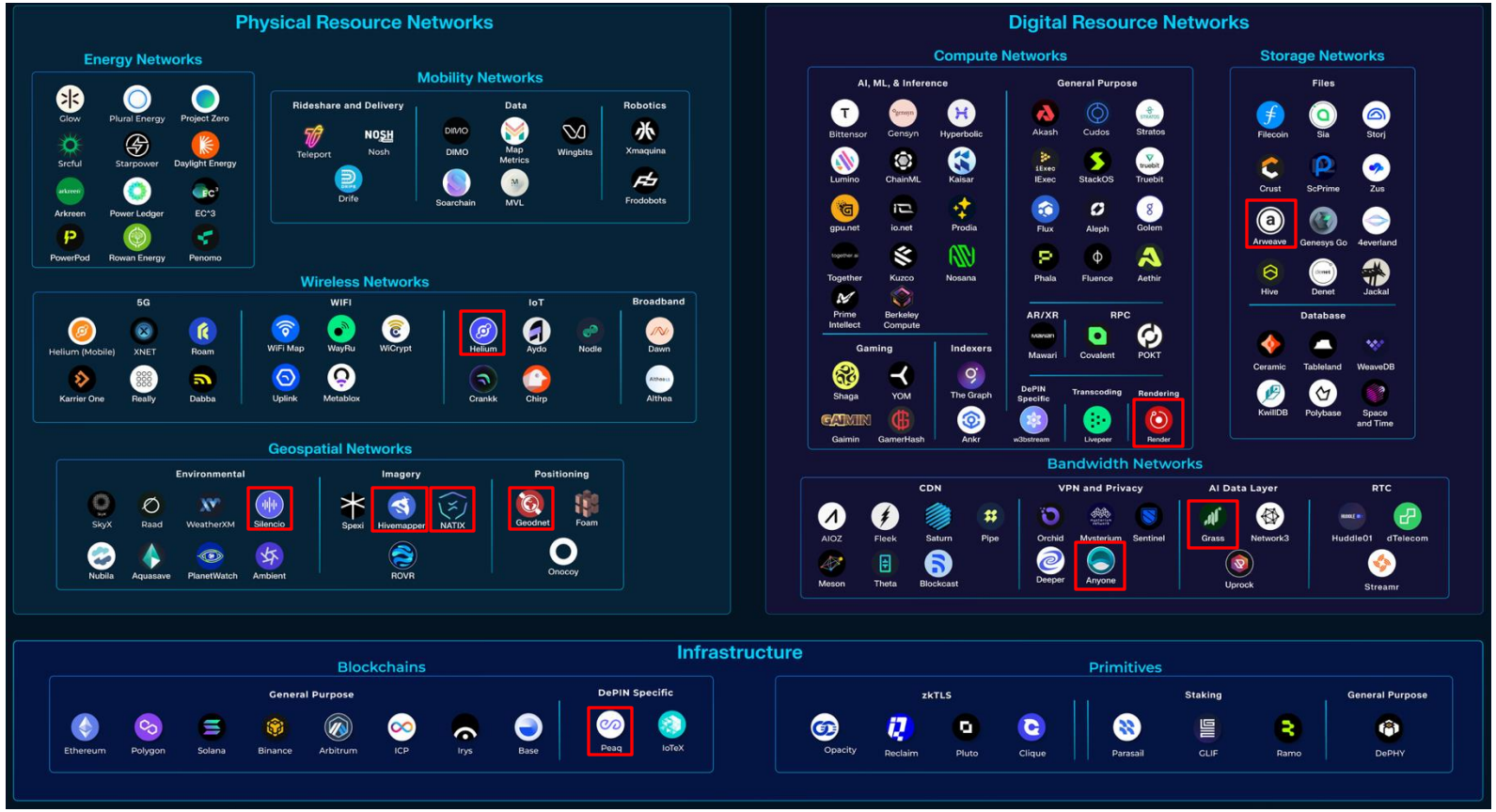
- Decentralized Physical Infrastructure Networks or DePIN, leverage blockchain technology to decentralize control and ownership of physical or digital infrastructure such as telecom networks, energy grids or data storage
- It has been advertised as a killer crypto use case, with promises to upend incumbents across cloud storage, mobile devices, compute power, or sensor and mapping data
- While some have successfully built large-scale networks through what is effectively crowd funding, many more have raised significant capital, yet most have fallen short of expectations, largely driven by lack of adoption by end users
- Our goal is to have a roadmap of opportunities that are more than just a means to enrich teams and early investors, in businesses that are solving problems versus potentially creating them
- Therefore, we've initially analyzed the data on 10 selected DePIN projects across a variety of subsectors, that have listed tokens, to try and determine if there is an investment opportunity, or is it just another solution seeking a problem
- We plan to follow this initial report with a second report on 10 additional projects of interest



Source: Coingecko

Overview

- We've summarized 10 DePIN projects in the slides the follow, ranked by market capitalization, all of which are in the graphic below outlined in red
- As a starting point, we have worked to answer the following questions for each business: (1) What is the company's business model? (2) Is anyone using the network or service? (3) What are the tokenomics?

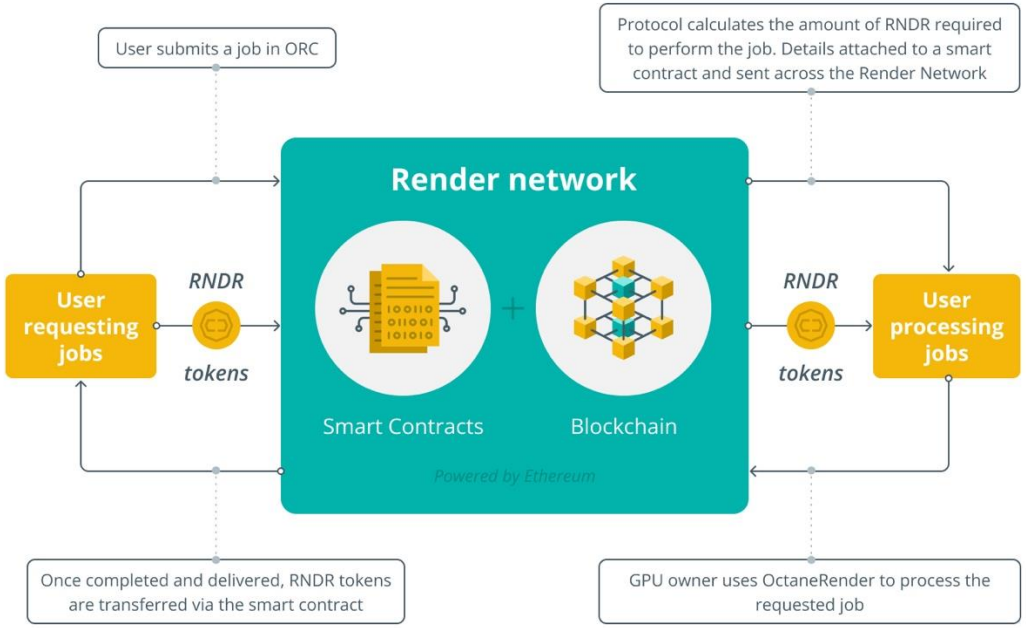


Source: Messari

Render Network

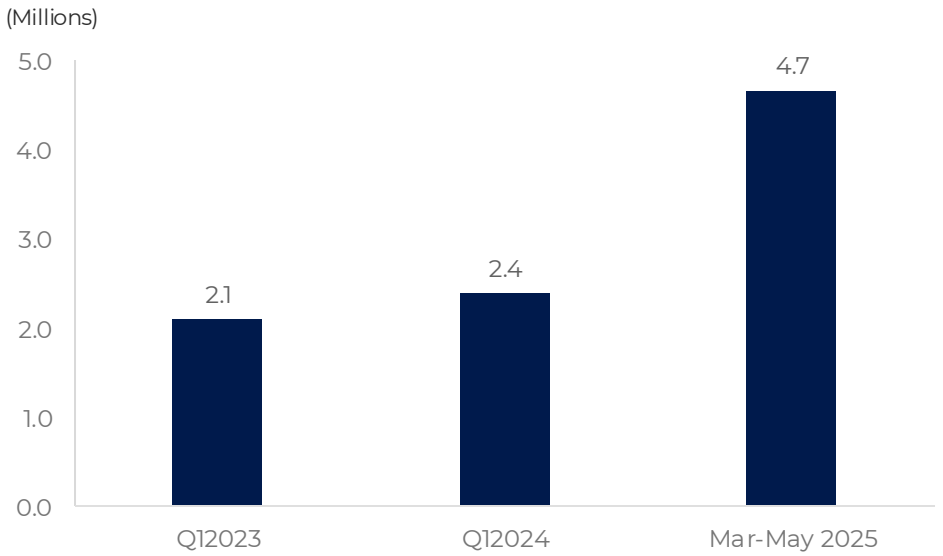
- Business: Render Network (RENDER) is a distributed rendering network created by utilizing blockchain technology to aggregate idle GPUs worldwide. The network is built on Solana.
- Usage: while reporting of usage data by the Render team has been sporadic, the overall trend has shown network growth, with 53.4 million frames rendered since inception, with 4.7 million cumulatively rendered in the last three months, up from 2.1 million in Q1 2024.
- Tokenomics: Node operators are paid in RENDER to provide idle GPU capacity to the network while users that require compute intensive tasks such as 3D rendering, or AI model training pay in RENDER tokens for the services. Underpinning this is a Burn-and-Mint Equilibrium (BME) model. Under a BME, when a rendering job is paid for by users, RENDER tokens are burned in proportion to the cost while new tokens are minted as rewards for node operators.

Render Network Process Flow



Source: Messari.io

Render Network Usage: Frames Rendered



Source: Render Foundation

Helium Network

- Business: Helium Network (HNT) is a decentralized, peer-to-peer wireless network that enables devices to connect to the internet using LoRaWAN (Long Range Wide Area Network) and 5G technologies. Individuals install Helium Hotspots at home, for example, which act as wireless network nodes. These hotspots provide network coverage in exchange for earning HNT tokens. The network supports the Helium Mobile (separate token MOBILE) cellular subnetwork, which we will cover separately. Helium migrated to Solana in April 2024.

- Usage: 376,500 active IoT hotspots across 163 countries. Helium sells data credits (DC) at a fixed price of $0.00001 and are used to pay for data transfers and onboarding fees on IoT, mobile, and future subnetworks. The total DC minted in 1Q25 was $2.2m, of which 2.1% was attributable to the IoT network and 97.9% to the mobile network.

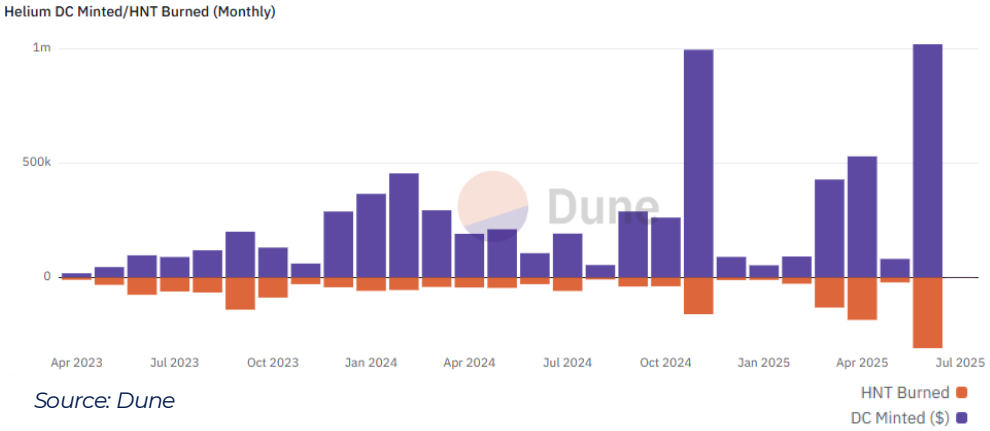
- Tokenomics: Helium hotspot miners are paid based on location, network density and equipment setup. Most miners report earning between 0.04 to 0.1 HNT per day, or $23-$83 a year at today's HNT price. They employ a Burn-and-Mint Equilibrium. Users pay for network services with DCs. To acquire DCs, users burn HNT tokens. The amount of HNT required depends on its current market price, as determined by Helium's price oracles, ensuring as network usage increases, more DCs are required. Also, 1% of burned HNT is recycled into a "Net Emissions" pool, ensuring ongoing rewards for hotspot operators even as the total supply diminishes.

Helium IoT Miner

Source: The IoT Store

Price: A$699

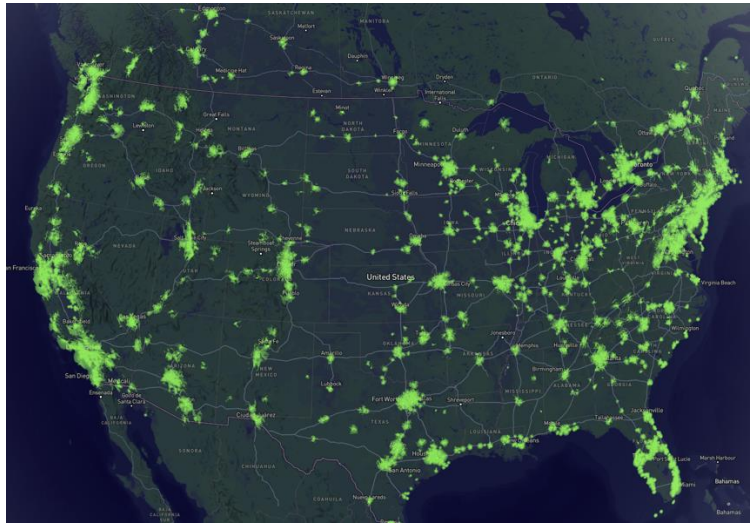
Helium BME Model



Source: Dune

- Record >1m DC minted in June 2025, with $308k in HNT tokens burned

Helium US IoT Network Coverage

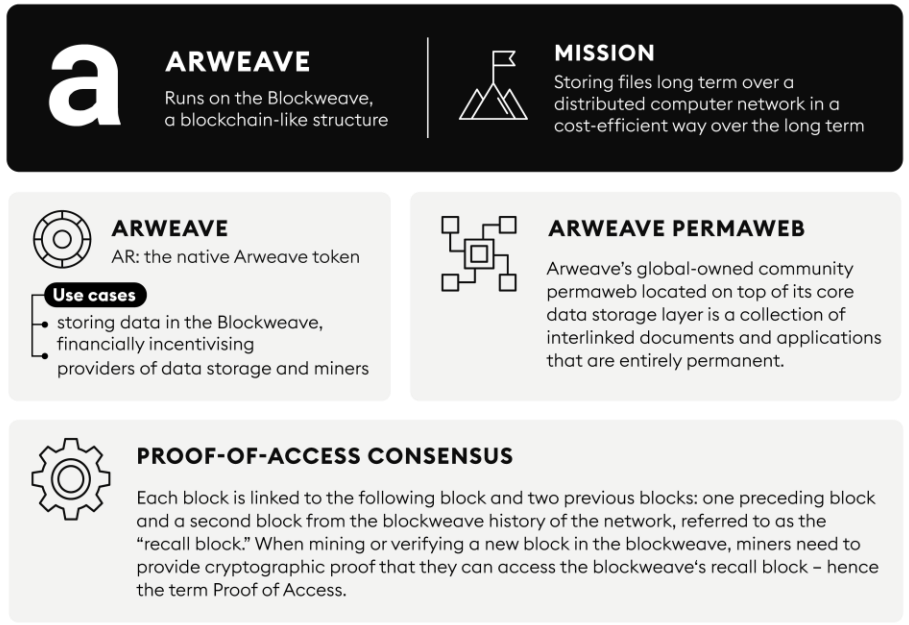


Source: world.helium.com

Arweave

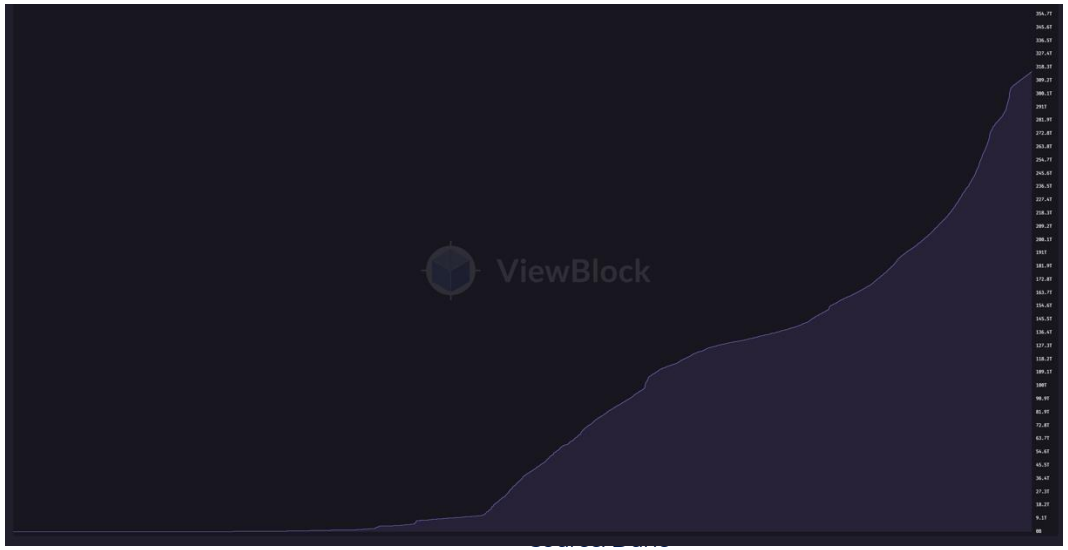
- Business: Arweave (AR) is a decentralized, data storage network built to enable a "permaweb," a permanent, decentralized web of apps, documents, and data, where files, websites and applications can be stored once and accessed forever. It uses a novel blockchain-like structure called "blockweave" to offer a sustainable, low-cost, and censorship-resistant alternative to traditional cloud storage solutions. It is built on Solana.
- Usage: Arweave does not disclose miner information. In terms of amount of data stored, the Arweave dataset, known as the "weave," is divided into partitions of 3.6 terabytes (TB). As of July 3, 2025, there were 315.2 TB of data stored.
- Tokenomics: Miners earn AR tokens for storing data and providing proof of access (PoA) to past blocks. Users pay in AR tokens to permanently store data. The payment is divided into a miner fee with the rest going to an endowment pool that subsidizes the cost of storage over time, with the idea that as the network scales, the cost of storage will converge to zero.

Arweave Overview



Source: x.com

Data Stored on Arweave Network



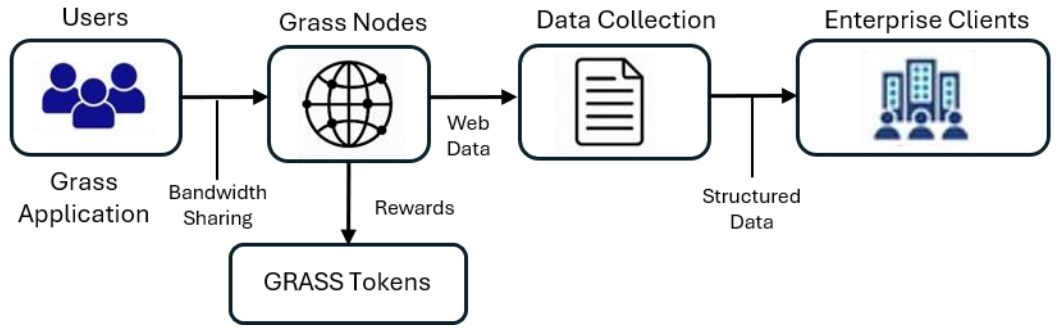
Source: Viewblock

- Arweave stored 315 TB of data as of July 3, 2025, up 76% YoY

Grass Network

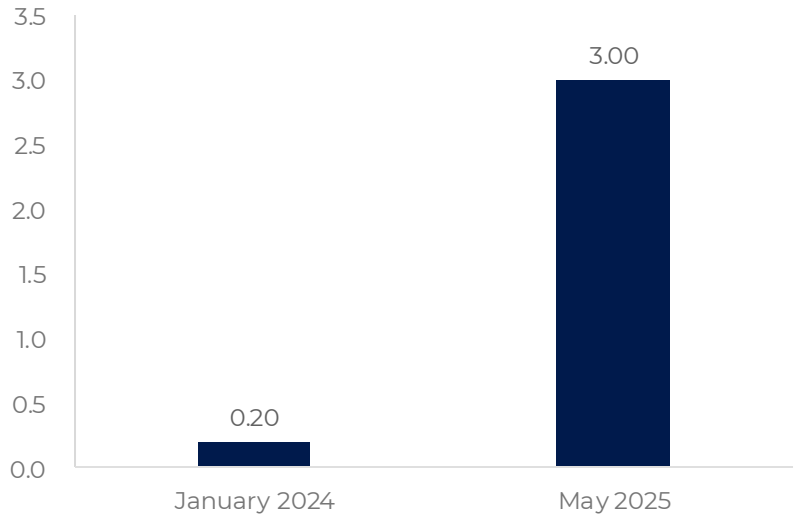
- Business: Grass Network (GRASS) is a decentralized platform that allows individuals to monetize their unused internet bandwidth to train AI models. Users install the Grass application, which enables their devices to act as Grass Nodes, sharing unused internet bandwidth with the network. Grass is built on Solana.
- Usage: Grass has >3 million users worldwide as of May 2025, up from 200,000 in early 2024, totaling ~80 terabytes of daily data retrieval. While they do not disclose sales, they generate revenue by reselling public web data collected via its decentralized network.
- Tokenomics: contributors are paid in GRASS tokens based on amount of bandwidth shared, frequency and stability of uptime and IP uniqueness and geolocation diversity. Users that want access to the structured web data, such as AI developers, pay in GRASS tokens.

Grass Network Flywheel



Source: Vikara Capital

Grass Network Contributor Growth



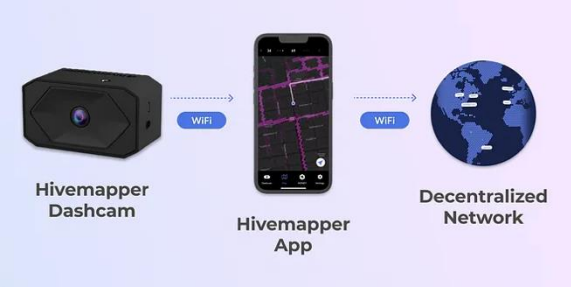
Source: natix.network

- Grass Network contributors are up 15x in 17 months since launch

Hivemapper

- Business: Hivemapper (HONEY) is a decentralized global mapping network that rewards contributors for collecting high-fidelity, 4K street-level imagery via dashcams.
- Usage: while uptake on the mapping contributor side of the business has been excellent, consumers of the mapping data appear to be relatively small, although they announced in May that Lyft selected Hivemapper's Bee Maps as a source of mapping and imagery data for their drivers, for example. Network coverage stats: 33% global coverage, 20m unique road km mapped, 545m total road km mapped.
- Tokenomics: Contributors (those with dashcams) are paid "Consumption Rewards" in HONEY while consumers of mapping data purchase map credits with HONEY. Hivemapper employs a BME model with 25% of burned HONEY reissued to contributors while the remaining 75% is permanently burned. There is also a cap of 500,000 HONEY per week in paid Consumption Rewards.

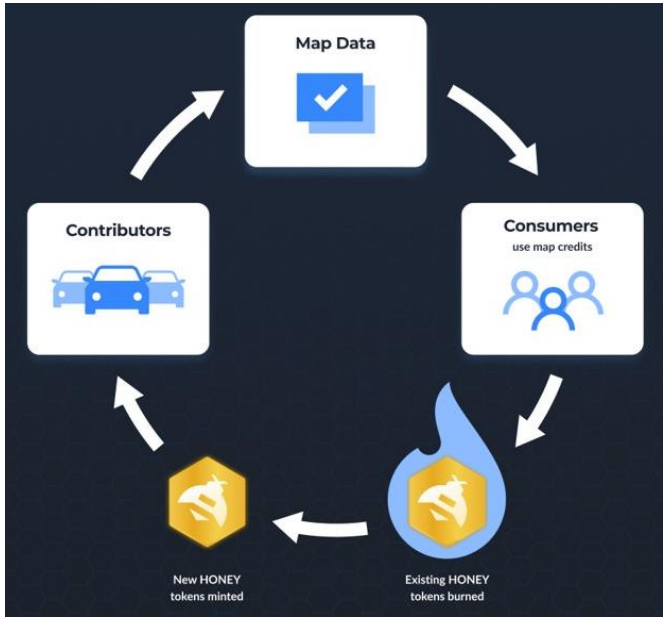
Hivemapper Process Flow



Source: Hivemapper

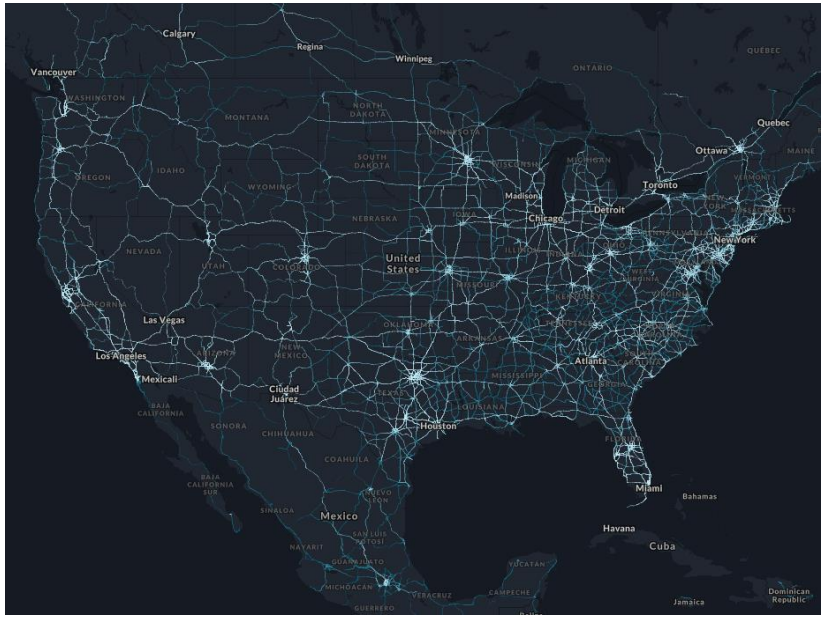
- Contributors purchase a dashcam and connect it to the Hivemapper app on their smartphone
- The real-time data is then uploaded to the decentralized global mapping network built on Solana

Hivemapper BME Model



Source: Hivemapper

Hivemapper North America Coverage

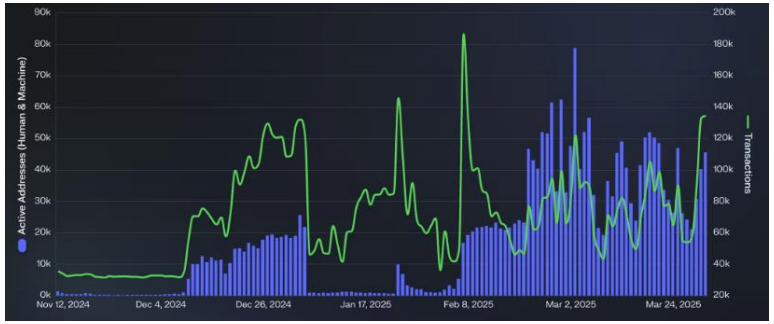


Source: Hivemapper

peaq

- Business: peaq (PEAQ) is a Layer 1 blockchain designed to power DePINs and Machine Real World Assets (MRWAs), hosting applications in verticals like mobility, agriculture, connectivity and smart cities.
- Usage: 54 companies are building on peaq, including Silencio (>1m connected devices in >190 countries), MapMetrics (41,000+ traffic updates daily), Tenio (1.1m users) and DeNet (3.5m registered users). On the customer (developer) side, they reported $44,300 in fees in 1Q25.
- Tokenomics: 40% of token supply allocated to rewards for validators and delegators securing the network. Tokens uses cases: 1) Pay for transactions fees (~$0.00025 per tx), including machine-to-machine interactions, data submissions, identity verifications and dApp interactions 2) Staking and network security where token owners can stake PEAQ to become validators or nominators under the Nominated Proof-of-Stake (NPoS) system and 3) Machines (e.g. vehicles, sensors, drones) use PEAQ to register their decentralized identities (DIDs), interact and transact with other devices and pay fees for accessing shared resources or networks.

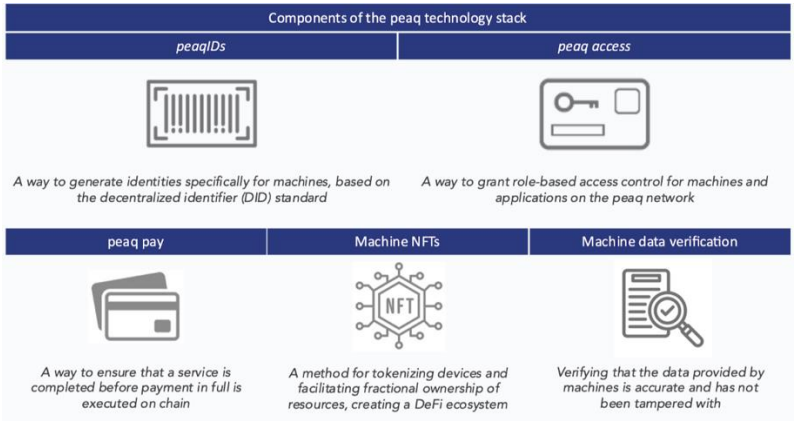
peaq Network Statistics: Transactions & Addresses



Source: Messari.io; peaq.subscan.io

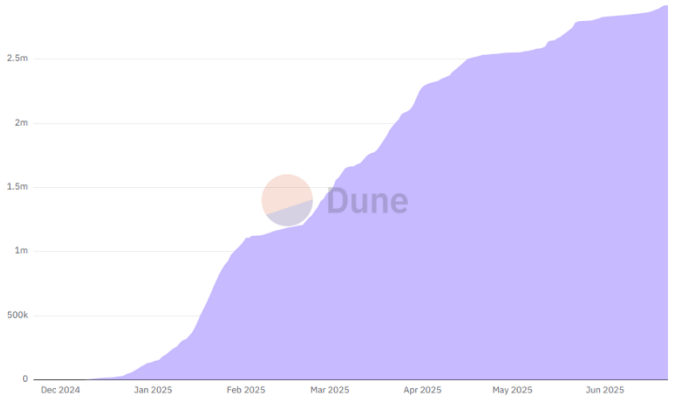
- peaq launched its mainnet on November 12, 2024
- Average daily transactions totaled 77,836 in 1Q125, up 32.5% from 58,424 in 4Q24
- Average daily active addresses rose 256.7%, reaching 22,738 in 1Q25
- Average daily new machine addresses increased to 23,603 in 1Q25, up 789.4% from 2,654 in 4Q24
- Protocol revenue grew 350.2% in 1Q25, totaling $44,300

peaq Technology Stack



Source: CMCC Global

peaq Network Total Machine & Device Users



Source: Dune

- 2.98m machine and device users as of 30 June 2025

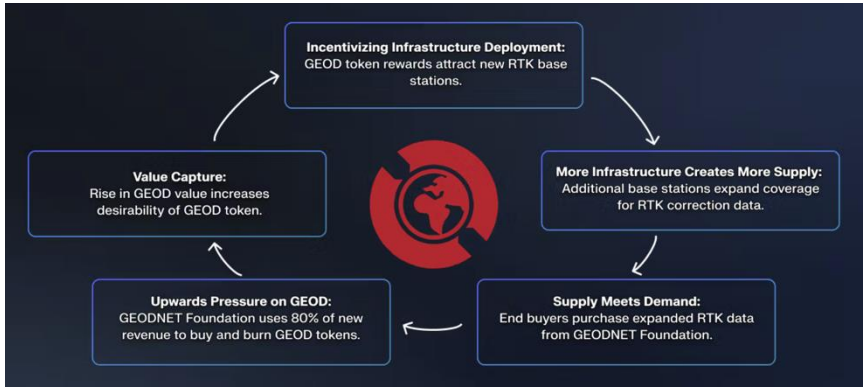
GEODNET

- Business: Global Earth Observation Decentralized Network, or GEODNET (GEOD), is a blockchain-powered, decentralized network designed to provide high-precision geospatial data via a global network of GNSS (Global Navigation Satellite System) reference stations, known as Satellite Miners, that collects and transmits real-time kinematic (RTK) correction data to enhance the accuracy of positioning services like GPS. GEODNET is built on Solana.

- Usage: Strong network growth >14,000 active Satellite Miners globally, across more than 140 countries and 4,000 cities. On the customer side, they generated annualized revenue of $3.9m in May 2025 from clients such as Propeller, DroneDeploy, Quectel and the USDA.

- Tokenomics: Satellite Miners earn a base rate of 12 GEOD per day adjusted for factors such as GNSS signal quality (SNR), effective satellite count and station uptime. The base rate is halved annually on 30 June. One the demand side, 80% of the revenue generated from RTK data sales is used to buy back and burn GEOD tokens, with 20% going to the GEODNET Foundation.

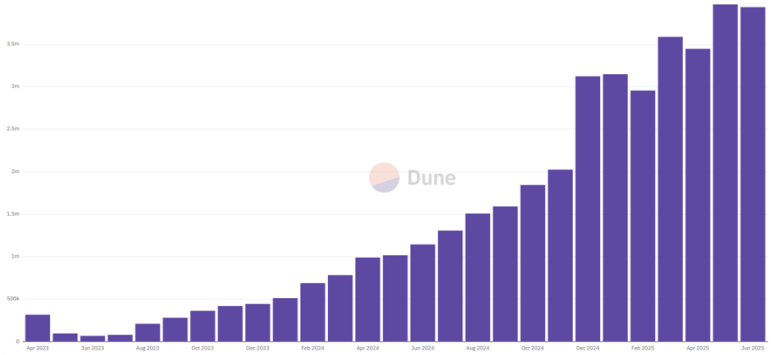
GEODNET Process Flow



Source: Messari.io

- Individuals purchase Satelittle Miners that are GNSS base stations equipped to collect real-time, high-precision geolocation data
- The real-time data is then uploaded 24/7 to the decentralized RTK network built on Polygon

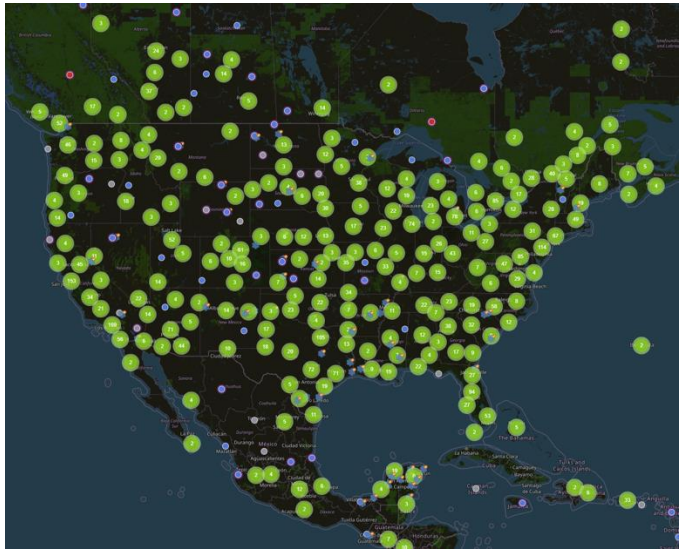
GEODNET Annualized Revenue



Source: Dune

- GEODNET earned $3.9m in annualized revenue in May 2025, up from from $1.1m in May 2024

GEODNET North America Coverage

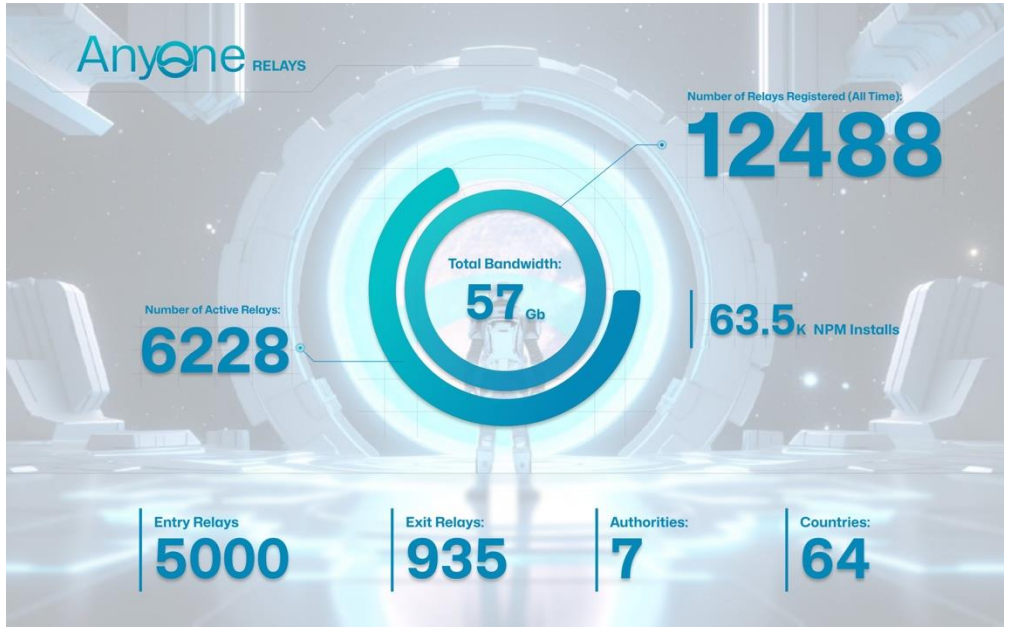


Source: console.geodnet.com

ANYONE Protocol

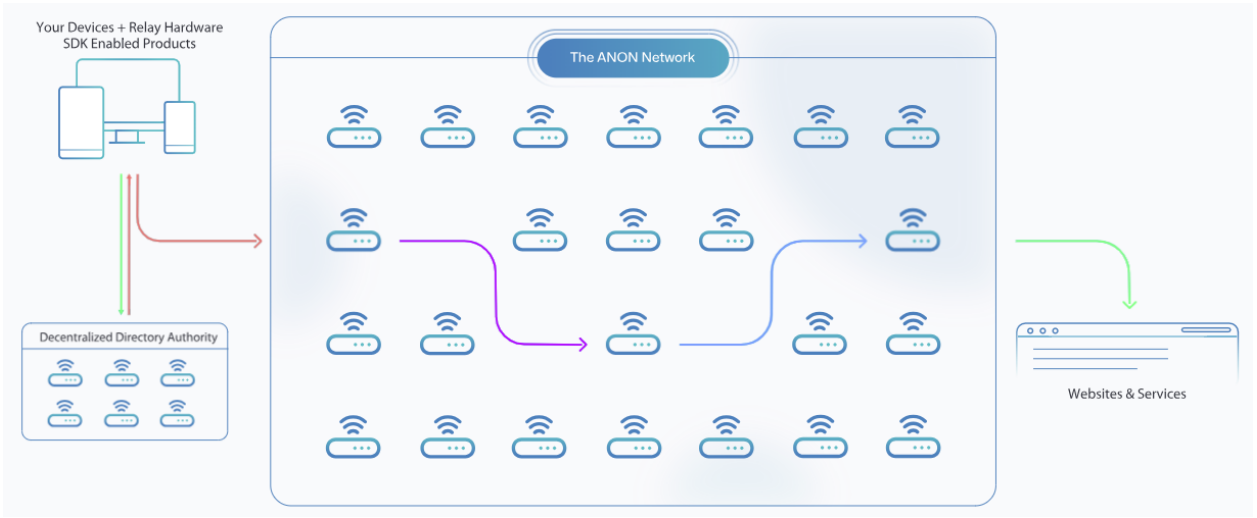
- Business: ANYONE Protocol (ANYONE) is a decentralized privacy network designed to provide users with enhanced online anonymity and data protection, utilizing a global network of relay nodes to route internet traffic through multiple encrypted layers, similar to onion routing. This ensures that no single node can access the complete data path, thereby preserving user privacy.
- Usage: Participants run software or dedicated hardware to act as relays nodes, earning ANYONE tokens based on amount of bandwidth provided, uptime and performance and number of successful relayed packets, with >6,200 relay nodes across 64 countries. On the user side, at the end of 2024, they reported >10,000 daily active users, with enterprise clients such as Pangea, Secret Network and AOX.
- Tokenomics: 50% of token supply is dedicated to participants running relay nodes. Customers can pay access fees in ANYONE for premium or high-throughput privacy traffic. While light on specifics, they claim that a percentage of protocol fees may be burned in order to supply over time.

ANYONE Network Statistics



Source: @AnyoneFDN

How ANYONE Protocol Secures User Privacy



Source: anyone.io

NATIX Network

- Business: NATIX Network (NATIX) is a decentralized geospatial data platform that transforms everyday cameras, such as those in smartphones, vehicles, and IoT devices, into a global network of smart sensors to support applications in smart cities, autonomous driving and AI systems. The patented AI technology blurs personally identifiable information like faces and license plates but does not alter the footage, hence retaining integrity. NATIX is built on Solana with additional applications built on peaq and Bittensor.

- Usage: >257k network contributors and >186m Kms mapped across 171 countries across. They do not disclose individual customers although claim to earn revenue primarily through data monetization by selling collected, anonymized geospatial data to clients such as navigation services and smart city platforms. Based on tokens burned, it is estimated NATIX has earned $674k in revenue since token launch in July 2024.

- Tokenomics: 37% of token supply allocated to "Detectors," who are paid in NATIX tokens for collecting and verifying real-world geospatial data. Revenue earned from data monetization is used for 1) token buyback and burn (40%) 2) staking and user rewards (35%) and 3) research and development including product development, AI research, app upgrades and ecosystem growth (25%).

NATIX Network Flywheel

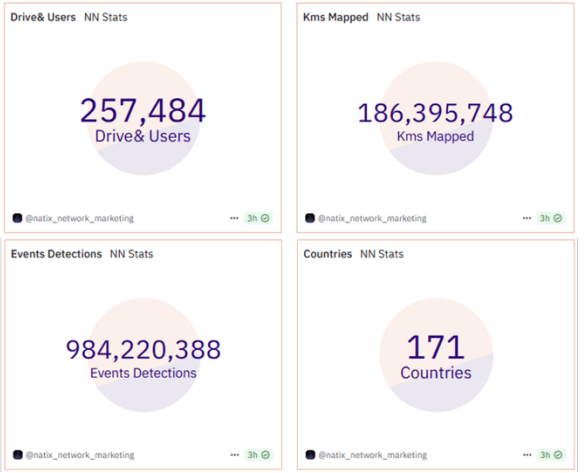
Source: @NATIXNetwork

NATIX Tokens Burned

Source: natix.network

- NATIX has burned 274.4m tokens worth $269k at the 3 July 2025 NATIX price

NATIX Network Statistics



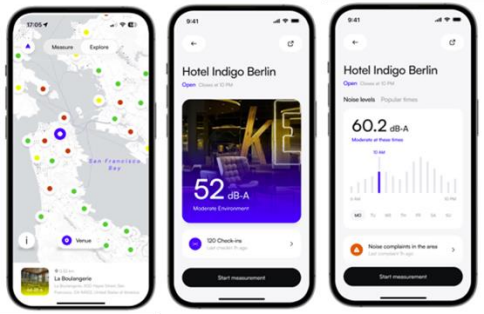
Source: Dune

- NATIX has over 257k network contributors and over 186m Kms mapped across 171 countries

Silencio

- Business: Silencio (SLC) is a decentralized network built on the peaq blockchain designed to monitor global noise pollution by using smartphones as real-time noise sensors.
- Usage: strong network growth with >1m devices connected to the decentralized noise intelligence platform, across >190 countries, that have collectively contributed 38.8bn environmental data points or 10.6m hours of acoustic data collection. On the customer side, they do not disclose individual customers although claim to have a paying customer base comprising both commercial entities and research institutions including those in urban planning, real estate, hospitality, and public health sectors.
- Tokenomics: 40% of token supply allocated to rewards for users contributing noise data. Customers can use fiat or SLC tokens to pay for the noise data.

Silencio App Example



Source: silencio.network

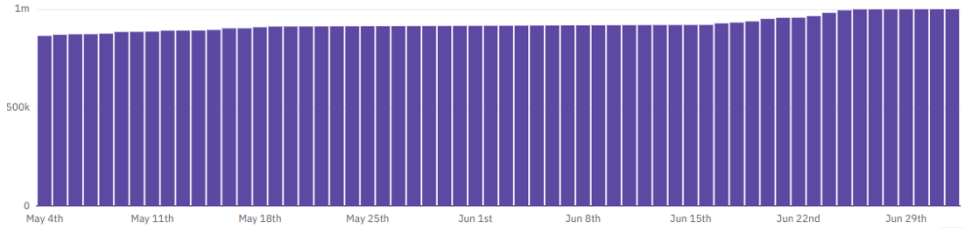
- Silencio enables users worldwide to contribute to a comprehensive, local noise map including real-world acoustic insights, location data and POI visitation data, while earning token rewards

Silencio Data Pricing Model Per API

0-50,000	50,001-100,000	100,001-500,000	500,000+
0.006 USD per each	0.005 USD per each	0.004 USD per each	Contact Sales
(6.00 USD per 1000)	(5.00 USD per 1000)	(4.00 USD per 1000)	Contact Sales

Source: silencio.network

Silencio Connected Devices



Source: Dune

- Silencio network has increased from 800k connected devices at the beginning of 2025, to >1m by mid-2025

DePIN Company Summaries

Company	Token	Market Cap[1]	% Supply Out	YTD Price Perf	Down from ATH	DePIN Category	Revenue/Fees	Blockchain
Render Network	RENDER	$1.62bn	97.6%	(54.0%)	(76.9%)	Compute Networks: Rendering	Not reported	Solana
Helium Network	HNT	$420.9m	100.0%	(62.9%)	(96.0%)	Geospatial Networks: Imagery	1Q25 - $46,200	Solana
Arweave	AR	$349.0m	100.0%	(70.6%)	(94.5%)	Storage Networks: Files	Not reported	Solana
Grass Network	GRASS	$272.6m	24.4%	(49.6%)	(71.2%)	Bandwidth Networks: AI Data Layer	Not reported	Solana
Hivemapper	HONEY	$82.6m	44.4%	(79.7%)	(96.0%)	Geospatial Networks: Imagery	Not reported	Solana
peaq Network	PEAQ	$78.3m	23.0%	(84.8%)	(89.7%)	Infrastructure: Blockchains	1Q25 - $44,300	peaq
GEODNET	GEOD	$54.8m	32.1%	(26.6%)	(52.1%)	Geospatial Networks: Positioning	May 25 annualized revenue: $3.9m	Solana
ANYONE	ANYONE	$40.3m	97.5%	(68.9%)	(83.0%)	Bandwidth Networks: Privacy	Not reported	Near
NATIX Network	NATIX	$16.0m	16.0%	(23.4%)	(52.7%)	Geospatial Networks: Imagery	LTM revenue: $674,000	Solana
Silencio Network	SLC	$3.1m	17.6%	(35.6%)(2)	(86.5%)	Geospatial Networks: Environmental	Not reported	peaq

Note: Ranked by market capitalization. (1) Circulating supply market capitalization. Data as of July 4, 2025.

Takeaways

- Most of the DePIN projects we analyzed have been successful at creating user contributed or user funded networks, while also having a growing, albeit small, user base.
- A tokenomics model that includes a burn mechanism to reduce the outstanding tokens that are required to incentive the network builders and secure the network is most commonly used
- A larger proportion of projects are being built on or moved to Solana, reflecting its reputation as a cost efficient and fast Layer 1
- DePIN has been one of the worst performing subsectors of crypto, with many tokens down significantly from their highs

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Disclaimer

About Us

Vikara is a liquid, open-ended fund investing in digital assets (excluding Bitcoin and Ethereum) with no lockups (add or redeem monthly). Vikara's proprietary investment and rigorous risk management processes aim to outperform the broader digital asset markets. Founders have over 40 years combined investment experience at Millennium, Balyasny, Platinum, Merrill Lynch and Macquarie.

Vikara, in Sanskrit, describes the process of change. Its definition is constantly evolving, changing with economic cycles, technology, and geopolitics. It is a transformation of thought or logic, a modification in the direction of travel, an alteration in action or participation. It is one thing to want change, but another to drive it. We believe in a world where commerce doesn't need intermediaries. Where people are paid directly for content, time, and effort. Where privacy, data and free speech is given, not something to opt-in for.

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