



# NEAT Protocol Litepaper

**PRESENTED BY**  
NEAT Core Team



# Open AI Rollup Scaling Network

Born from the minds of early contributors to Near Protocol, NEAT Protocol is a rollup scaling solution designed for scaling artificial intelligence (AI).

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## Core Concept of NEAT

At its foundation, a blockchain operates as a replicated and synchronized database across multiple nodes. With proper consensus mechanisms, it achieves decentralization, immutability, and robustness. NEAT Protocol leverages blockchains as a data storage/availability layer, with execution and validation processes conducted off-chain.

A rollup is a scaling solution for blockchains where one node or a group of nodes perform transaction execution off-chain, and post transaction data on-chain. One can easily see the close correspondence between rollup and inscription: both use the L1 (layer one) blockchain as the data availability layer; rollups rely on sequencers, and inscriptions rely on indexers, to perform actual execution and make sense of the data posted on-chain. Both inscription and rollup can use the L1 blockchain for transaction ordering (in rollup's term it's called 'based rollup').

NEAT Protocol is the first inscription-based rollup network for scaling AI applications. It differs from other rollups in that NEAT uses client-side validation, meaning the canonical state of a rollup is determined by the indexer nodes, rather than the L1 blockchain. This eliminates the need to deploy smart contracts on L1 and run validation logic, further reducing the transaction cost for the rollups, making NEAT a better choice for computation-heavy applications like artificial intelligence.



## Decentralized Indexer Network for AI

Current inscription methods rely on centralized indexers, presenting potential failure points and attack vectors. NEAT is addressing this by developing a decentralized indexer network. Similar to how Espresso provides a decentralized sequencer network for Ethereum rollups, NEAT Indexers enable computation-heavy projects to inscribe data on NEAR, deploy custom indexing logic on decentralized nodes, and achieve verifiable execution with zero-knowledge proofs. This facilitates a network of AI-centric rollups that are interoperable and trust-minimized, powered by \$NEAT, capturing value from each rollup that runs on top of NEAT.

## Partnership with NEAR Foundation

In May 2024, NEAR Foundation [announced](#) a 1 million \$NEAR token staking delegation to NEAT Protocol. All rewards from this delegation will be redistributed to \$NEAT stakers. This support aims to bolster AI and blockchain projects on NEAR and promote broader AI-blockchain integration.

## Tokenomics

NEAT Protocol is powered by its native token, \$NEAT, both in its NRC-20 and NEP-141 form, with a total supply of 42,000,000. \$NEAT is used to secure the protocol and incentivize participation.



**NRC-20:** A new type of token standard on NEAR inspired by Bitcoin BRC-20.

**NEP-141:** The fungible token standard within the NEAR ecosystem.

## Benefits of \$NEAT

- **Staking Rewards:** \$NEAT-NEP141 stakers receive rewards from the NEAR Foundation's 1 million \$NEAR tokens. A portion of these rewards supports AI integration with NEAT.
- **Fee Sharing:** \$NEAT-NEP141 stakers share fees from wrap/unwrap operations and the NRC-20 marketplace.
- **Indexing Fees:** Following the deployment of decentralized indexers, a portion of indexing fees will be allocated to \$NEAT-NEP141 stakers.
- **Airdrops:** \$NEAT-NRC20 holders receive airdrops of new NRC-20 tokens.
- **Utility:** \$NEAT functions as a utility token for payments, DeFi integration, AI governance, and more within the NEAT ecosystem.

## Applications and use cases

- **Artificial Intelligence:** With NRC-20 and NEAT Indexers, AI data, algorithms, models, and outputs can be inscribed on-chain, integrating off-chain execution via zero-knowledge proofs. This innovation enables fully open-source AI-powered applications. For instance, AI-powered games with on-chain narrative histories, where AI agents' models and decisions are represented as inscribed NFTs, make AI accessible and open to all, fostering the development of a truly open network.



- **Orderbook Management:** NEAT excels in recording and organizing order book entries, ensuring accuracy and systematic sequencing, critical for financial applications.
- **Gaming Innovations:** Envision an autonomous gaming world, like 'West World', with history and AI NPCs existing on Near as inscribed data. NEAT also enables user-generated game logic and assets, creating a LEGO-like ecosystem for game development.
- **Decentralized Identity (DID):** NEAT facilitates the creation, modification, and integration of identity profiles across blockchain networks, forming an omnichain social layer. Personal data can be securely stored on-chain, leveraging NEAT Indexers for encryption and programmability.