How NEAR Protocol Is Leading Blockchain-Based AI

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The convergence of evolving blockchain technology and artificial intelligence (AI) has given rise to an entirely new market sector within the digital economy. In a world where AI is increasingly centralized and opaque, NEAR offers a radically different path: one where every user can own, control, and benefit from the AI systems they interact with. NEAR isn't just another Layer 1; it is the infrastructure for a new kind of internet, powered by autonomous agents that work for the user, not the platform.

NEAR and the Future of "User-owned" AI

As the world shifts from Web 2.0 centralized apps run by mega-corporations to a more open Web 3.0 world with intelligent agents, the internet is undergoing a fundamental transformation. In this next phase of the internet and digital economy, AI agents will become increasingly important and autonomous. AI is no longer just a tool or backend service. It is becoming a network of autonomous agents that can reason, transact, and coordinate on behalf of its user, often without direct supervision.

In this future, intelligent agents will act like autonomous digital workers: negotiating, making decisions, executing transactions, and communicating across applications, chains, and data environments. For that future to be both open and aligned with user interests, a new kind of infrastructure is needed; one that can guarantee ownership, transparency, and sovereignty at the agent level. This is what NEAR calls User-Owned AI.

A user-owned AI future means:

- You own your AI agent the same way you own your crypto wallet.
- You control what data it accesses and when.
- You earn when your data is used to train models.
- You can verify, fork, or replace the models your agent runs on.
- You can delegate tasks to trusted agents and revoke access as needed.
- Your agent can move fluidly across applications, chains, and ecosystems.

NEAR is positioning itself as the blockchain purpose-built for this world. Its architecture supports not just smart contracts or decentralized finance, but full-fledged autonomous agents that are composable, interoperable, and user-controlled. Unlike traditional cloud-based AI services or API-bound agents limited by corporate platforms, NEAR's infrastructure enables open participation and verifiable interactions at internet scale.

Through NEAR AI, developers can now build, host, and manage intelligent agents across a decentralized stack that includes:

- Agent hubs to coordinate activity across networks,
- Model registries to fork, audit, and govern AI logic,
- Trusted execution environments (TEEs) for privacy-preserving computation,
- On-chain memory for stateful, persistent agents, and
- Intents and data aggregators for dynamic agent-to-agent interaction.

To date, the platform has nearly 1,000 deployed agents, with increasing levels of agent-to-agent interaction, an early sign of an emerging peer-to-peer AI economy. These agents are not bound by corporate silos or limited APIs. They act independently, communicate across ecosystems, and interact on behalf of their users in a verifiable and trustless manner. NEAR offers them what no other blockchain does today: sub-second execution, composability across chains, native privacy, and on-chain memory, forming the missing backbone for autonomous AI.

AI-Optimized Blockchain

NEAR's evolution into an "AI-first" blockchain is a natural extension of its core design philosophy. From inception, NEAR started as an AI company, pivoted to blockchain, and is now optimizing for the future where the two intersect. The NEAR blockchain prioritizes usability and scalability for an AI-driven world, offering human-readable account names, high throughput via sharding, and rapid finality. As of 2025, NEAR boasts over 48 million monthly active users (MAUs) and a robust validator set of ~290.

NEAR Protocol: Active addresses (monthly) vs Number of validators

● Active addresses (monthly)
45.1 M
Latest

● Number of validators
287.0
Latest

Source

The NEAR Foundation recognized that these strengths, if combined with new capabilities, could make NEAR an ideal settlement layer and coordination substrate for AI agents. More specifically, NEAR has enabled autonomous agents, like Mindshare, to operate with the security, transparency, and ownership guarantees of a blockchain, without sacrificing speed or user experience.

Crucially, NEAR's account model (which allows human names and flexible key management) and sharded architecture provide a foundation for what NEAR calls chain abstraction. Chain abstraction hides complexity, allowing users and even AI agents to interact across multiple networks as easily as using a single platform. NEAR's recent protocol upgrades have pushed performance into a league of its own, achieving roughly 600ms block times (compared to 12s for Ethereum and 400ms for Solana) and ~1.2 second finality (compared to ~13 minutes for Ethereum and ~13 seconds on Solana) on mainnet.

In short, NEAR's technical infrastructure, which achieves high throughput, low latency, and user-friendly accounts, is now being augmented with AI-centric innovations to position NEAR as the go-to decentralized platform for an AI-driven world.

AITP

In February 2025, NEAR introduced a new framework called AITP, the Agent Interaction and Transaction Protocol, designed to establish secure, standardized communication between AI agents operating across diverse ecosystems. AITP lays the groundwork for a future where intelligent agents serve as the primary interface for online activity, whether representing individuals, businesses, or decentralized entities. These agents will increasingly manage transactions, execute decisions, and engage with digital services on behalf of users, driving a shift in how applications are built and experienced.

AITP addresses a key trust issue in AI by enabling agents to anchor metadata, training history, and data provenance directly onchain. This creates a transparent audit trail, ensuring that AI-generated content can be verified and attributed, helping mitigate risks such as misinformation, deepfakes, and regulatory noncompliance. The protocol supports a range of agent types—from personal assistants to autonomous agents acting on behalf of token holders—and provides the interoperability layer needed for agents to transact, negotiate, and operate seamlessly across an emerging "Internet of Agents." Like how HTTP standardized web communication, AITP is positioning itself as the universal protocol layer for agent-based interaction and decentralized AI infrastructure.

Decentralized Confidential Machine Learning

The NEAR team recently released a paper outlining a decentralized architecture for artificial intelligence that reconciles three often-conflicting goals: privacy, verifiability, and open access. This work even led to NEAR co-founder, Illia Polosukhin, being invited to present on this topic at NVIDIA GTC 2025. At the heart of this effort is a system for decentralized confidential machine learning (DCML), which enables developers to train and deploy large language models and AI agents without compromising user data. Unlike centralized AI platforms that require users to surrender sensitive information, this design leverages Trusted Execution Environments (TEEs), zero-knowledge proofs, and multi-party computation to ensure that data remains private and computations are verifiable.

The platform introduces "Proof of Response," a mechanism that ensures service-level guarantees in decentralized environments. This approach enables encrypted model weights to be hosted securely and monetized without exposing the underlying data or model. TEEs serve a dual purpose: preserving confidentiality during inference and enforcing verifiable execution, all while minimizing computational overhead. This architecture is already being tested through a partnership with Phala Network to build a Confidential Virtual Machine (CVM), allowing AI models to operate as secure, abstracted services.

The implications are far-reaching. AI models can now be fine-tuned with proprietary data and deployed across untrusted hardware environments, enabling use cases in sensitive domains such as healthcare and finance. Monetization flows are built in, allowing developers to earn revenue from model usage without handling user data directly. Importantly, the system supports collaborative training and profit-sharing across decentralized participant groups, unlocking a future of user-owned, private, and globally accessible AI infrastructure.

NEAR MCP

NEAR's Model Context Protocol (MCP) introduces a foundational standard for AI agents operating in decentralized environments, enabling them to maintain awareness, continuity, and coordination. At its core, MCP serves as a memory and context management layer that allows large language models and autonomous agents to access, reference, and update information onchain securely. It provides a structured format for agents to persist their state, track goals, and synchronize across devices or blockchains, eliminating the need for centralized memory stores and reducing fragmentation across agent ecosystems.

This system is essential for building truly autonomous agents. In the absence of a verifiable, persistent context, agents are limited in their ability to collaborate, retain history, or function independently across sessions. MCP solves this by embedding context into tamper-proof onchain structures. Whether it's a decentralized AI assistant that needs to remember previous conversations or an onchain DeFi agent coordinating trades based on market signals, MCP ensures these agents retain continuity and can resume their tasks reliably.

Designed for interoperability, MCP integrates with NEAR's broader AI-native infrastructure, including the Open Agent Protocol, the Agent Interaction and Transaction Protocol (AITP), and privacy-preserving identity tools. It is chain-agnostic by design, creating a foundation for composable, cooperative AI systems that operate fluidly across different blockchain environments.

x402

Coinbase, alongside leading collaborators AWS, Anthropic, Circle, and NEAR, has introduced x402, a new open payment protocol designed to integrate stablecoin transactions directly into the foundational layers of internet communication. x402 enables instant payments for APIs, digital services, and data access using stablecoins such as USDC. This protocol targets a longstanding gap in the internet economy: the absence of fast, automated, and globally accessible payment systems.

x402 offers a simplified alternative to the traditional rails like credit cards and banks, which remain too slow and expensive for use cases involving AI agents and autonomous software. By embedding payment prompts directly into standard HTTP responses, the protocol enables clients, whether human users, automated scripts, or AI agents, to settle transactions as easily as they request web content. A client sends a request to an x402-enabled server, which replies with a 402 status containing payment parameters. The client then submits a signed stablecoin payment payload via HTTP headers. A facilitator service verifies the transaction onchain and releases the requested resource, with all exchanges conducted through standard HTTP flows. The result is a streamlined and composable system that allows value transfer to become as native and automatic as data transfer, with minimal infrastructure changes.

Technical Differentiators Enabling AI on NEAR

NEAR has introduced a series of novel protocol features and tools that uniquely position it as an optimal blockchain for AI. These include:

- Blockchain for AI
- NEAR Intents
- Chain Signatures (with EdDSA support) and OmniBridge
- Shade Agents
- AI

Each of these components addresses key requirements for AI systems: autonomous operation, cross-chain interoperability, flexible user interaction, and speed. Below, we examine each differentiator in turn.
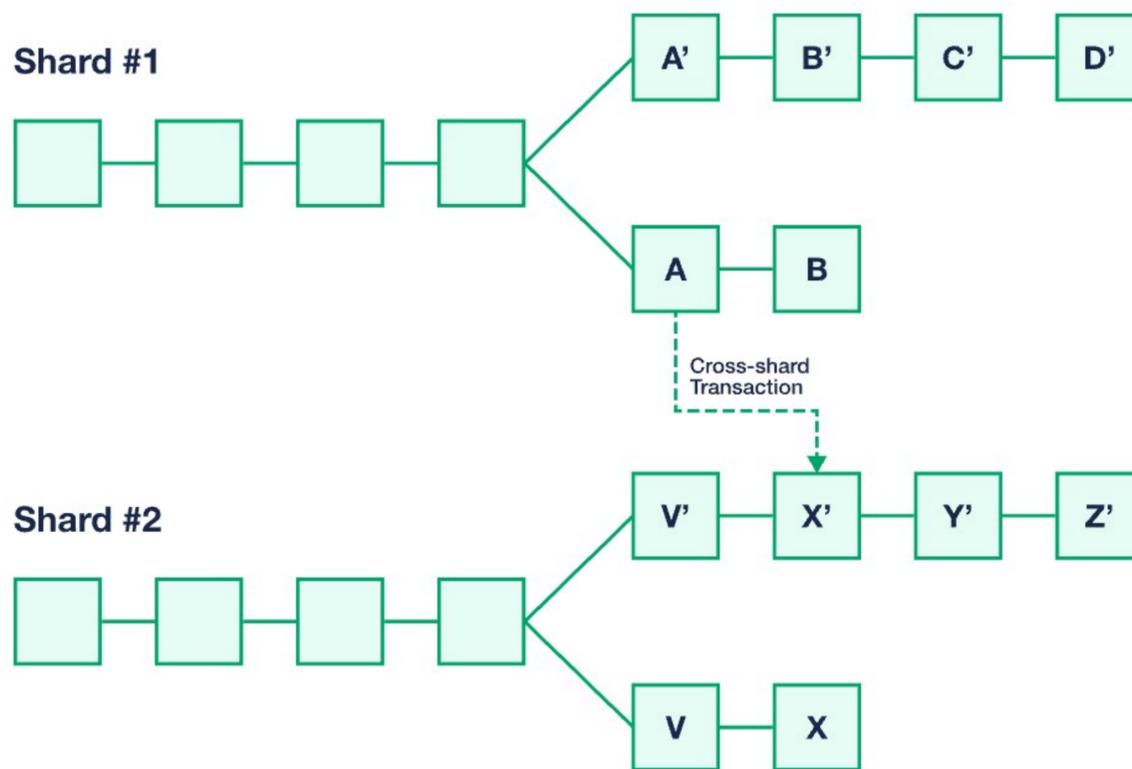
Blockchain for AI

NEAR's core protocol strengths deserve emphasis, as they serve as the backbone for all the above features. Chain abstraction is not a single feature, but rather the combined effect of NEAR's sharded design, account model, and technologies such as FastAuth (email/social login) and meta-transactions.

Utilizing chain abstraction, fast block times, cheap gas fees, and scalability via sharding, the underlying blockchain is (nearly) invisible to end-users (or to AI agents acting on their behalf). NEAR's account abstraction means a user has one unified account that can represent them on any chain (via chain signatures). Users do not need to switch networks or juggle multiple wallets. For example, a NEAR user can use a dApp that pulls liquidity from Ethereum and trades on Solana, without ever leaving the NEAR interface or being aware that those transactions occur across chains. It feels like one platform, just as it's supposed to.

NEAR's ~0.6-second block times and ~1.2s finality further ensure that interactions with AI agents are real-time and smooth. There is no long waiting period, as in many L1s (for instance, Ethereum's ~12-second block time or Bitcoin's minutes). In practical terms, an AI trading algorithm can react to market data and execute across chains within a second. NEAR achieves this speed through its Nightshade sharding and consensus (Doomslug BFT), which maximizes throughput and minimizes latency.

Beacon Chain   ## Nightshade
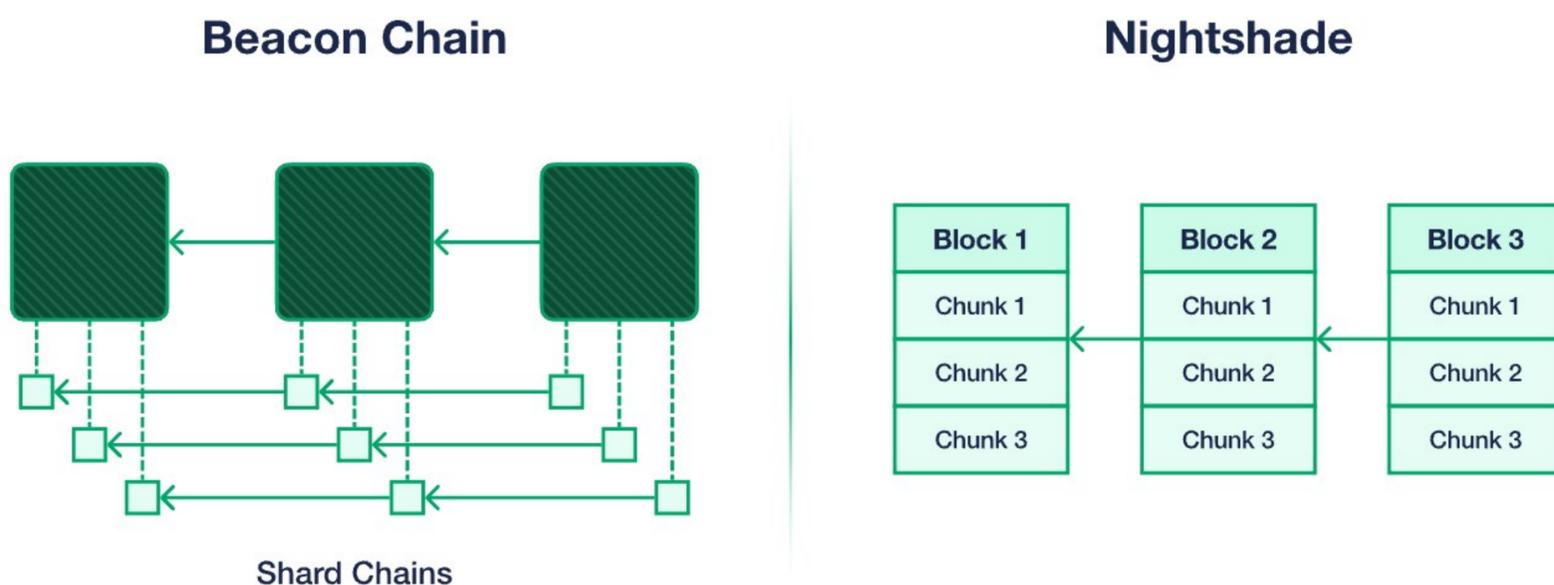
Shard Chains

Nightshade sharding (NEAR) vs Beacon Chain sharding — Source

Shard #1

A' — B' — C' — D'

A — B

Cross-shard Transaction

Shard #2

V' — X' — Y' — Z'

V — X

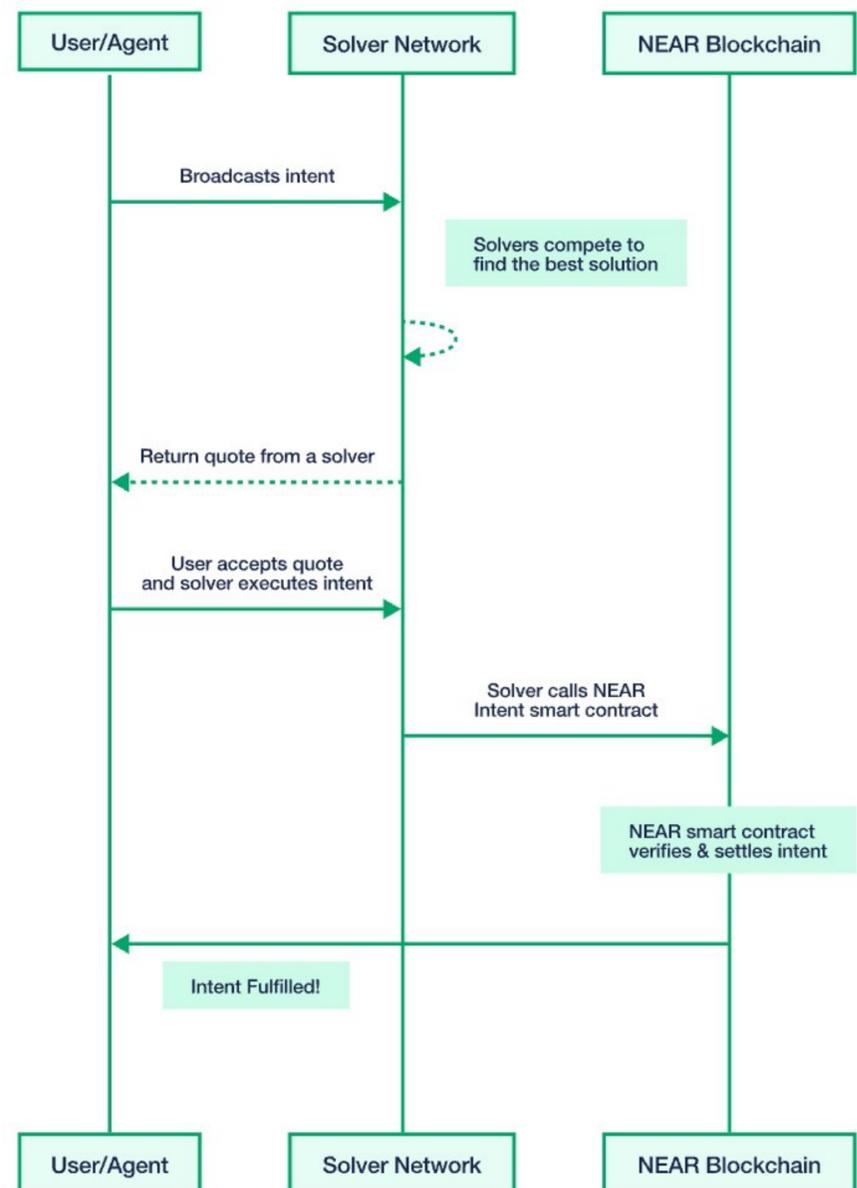NEAR's sharding design allows for asynchronous cross-shard transactions — Source

To summarize, NEAR's blockchain, purpose-built for AI hides complexity from users/agents, and its raw performance makes it highly competitive. Combined with negligible transaction fees (fractions of a cent, which are further abstracted away via meta-txns), NEAR unequivocally has the infrastructure support for a wide variety of AI-driven applications that offer a frictionless experience.

NEAR Intents

One of NEAR's most groundbreaking recent innovations is NEAR Intents, a new transaction primitive that changes how users, developers, and AI agents interact with blockchains. Traditional blockchain transactions require specifying every step of an operation on a specific chain. In contrast, an Intent allows a user or AI agent to declare what outcome they want, and let an underlying solver network determine how to achieve it across one or multiple chains.

Intents are important for AI integration because they closely align with how AI agents plan actions (at a higher level of intent rather than low-level transactions) and they dramatically streamline otherwise complex cross-chain workflows. This shift creates tangible benefits for each major stakeholder in the ecosystem:

- For users, the model is intuitive: say what you want, and your AI agent or wallet handles the rest. No more wrangling bridges, DEXs, or custom scripts.
- For developers, Intents abstract away execution complexity. They can focus on writing application logic and delivering user value, rather than bridging mechanics or optimizing gas.
- For AI agents, Intents offer a native coordination language. Rather than micromanaging contract interactions, agents can plan and reason at a higher level, exactly how AI systems prefer to operate.

User/Agent | Solver Network | NEAR Blockchain

Broadcasts intent

Solvers compete to find the best solution

Return quote from a solver

User accepts quote and solver executes intent

Solver calls NEAR Intent smart contract

NEAR smart contract verifies & settles intent

Intent Fulfilled!

Example sequence diagram of an Intent flow — Source

NEAR Intents effectively provide transaction abstraction. Instead of manually bridging tokens or calling contracts on different chains, a user/agent can submit a single Intent on NEAR, such as:

"Swap 100 USDC for the highest-yield BTC derivative and stake it."
"Find me the best price to sell 1000 NEAR for USD and transfer to my bank."

Once it is submitted, the Intent is then taken up by solvers (which could be off-chain services or on-chain programs) that have the freedom to execute multiple underlying transactions (on NEAR or other networks) to fulfill the request.

Multiple parties can commit to an intent's execution, and the outcome is settled as a single atomic transaction from the user's perspective. The Intent model is a natural fit for AI agents, which can negotiate and coordinate on behalf of users. In fact, NEAR's vision states that both AI agents and solvers will be responsible for executing intents, essentially enabling an AI-first economy that bridges real human requests and AI workflows.

Under the hood, NEAR Intents leverage NEAR's fast finality and chain-agnostic design to commit multi-chain operations efficiently. By using NEAR as the base layer, Intents can be executed with sub-second finality and then fan out to other chains via chain signatures or bridges, all coordinated through NEAR. Technically speaking, this enables:

- Cross-chain execution without direct bridge interactions or wrapped assets
- Privacy-friendly workflows via off-chain event triggers (e.g., "Call this API, post on-chain if X is true")
- Solver competition, where multiple parties can commit to fulfilling the same Intent, ensuring optimal pricing and execution

Intents also inherit NEAR's security and decentralization profiles as they are orchestrated directly through the NEAR network. Their design enables some interesting features, including:

- Ability to trade any asset on any chain without necessitating the use of manual bridges or wrappers.
- Offer support for off-chain transactions as first-class events (meaning an intent could even represent something like "call an API and record the result on-chain if condition X is met").

The best part is, NEAR Intents are not theoretical. They are already live and powering real cross-chain DeFi, supporting seamless asset movement across chains, peer-to-peer OTC trades, and even gift links that let users send crypto with no wallet address required.

NEAR Intents are even seeing adoption beyond the NEAR ecosystem.
- KyberSwap has integrated NEAR Intents for swapping assets such as BTC, DOGE, NEAR, USDC, and USDT, utilizing NEAR as the coordination layer to bridge execution across chains.
- Infinex, expected to launch imminently, will support intent-based swaps for BTC, XRP, DOGE, and more, further proving that NEAR's infrastructure is becoming a de facto standard for abstracted, cross-chain interaction.

By abstracting away the details, Intents provide both developers and AI systems with a powerful, high-level toolkit. In practice, Intents significantly enhance the user experience of using blockchains, eliminating the need for technical skills or knowledge to utilize them.

Chain Signatures and EdDSA Support: Native Cross-Chain Control

Chain Signatures are essentially a built-in decentralized key management system that allows any NEAR account (or smart contract) to control wallets on other blockchains, enabling NEAR-native users to go cross-chain with native control effectively. In other words, Chain Signatures turn NEAR into a "universal signing wallet" capable of interacting with Bitcoin, Ethereum, Solana, and more, all from the NEAR account.

They work through an innovative use of multi-party computation (MPC). The NEAR network's validators (or special MPC nodes) collectively generate and hold shards of a private key associated with a given NEAR account, and they can produce a valid signature for an external chain when prompted, without any single party knowing the full private key. The result is that a NEAR smart contract can, for example, sign a Bitcoin transaction or an Ethereum transaction directly, in a trustless manner.

REFLEXIVITY RESEARCH
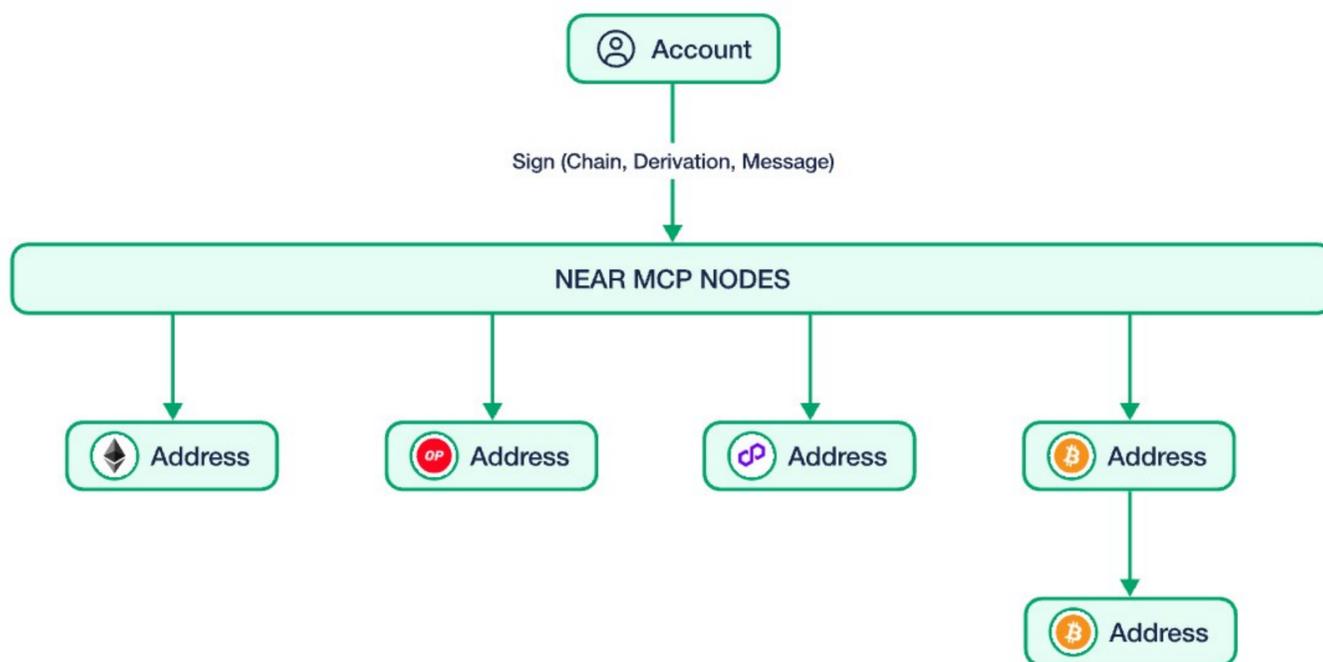
Chain Signatures allow a single NEAR account to control multiple addresses – Source

Additionally, recent upgrades have introduced support for a new type of digital signature, specifically EdDSA (Ed25519), in addition to the previously supported ECDSA signatures. The update is important for NEAR because EdDSA is widely adopted by newer, high-performance blockchains such as Solana, Aptos, TON, Stellar, and Polkadot. This means Near Chain Signatures will be able to integrate with all major chains.

With the new upgrades to Chain Signatures, a Shade Agent can hold a Bitcoin address, an Ethereum address, and a Solana address, all derived from its NEAR contract, and autonomously move assets or execute contracts on those networks. The Shade Agent can execute these tasks without needing to manage wrapped assets or trust custodial bridges, as the NEAR account literally controls native assets on the foreign chain.

Shade Agents

A Shade Agent is a smart contract on NEAR combined with one or more off-chain worker processes, creating an AI-driven actor that is trustless and decentralized. Unlike typical bots or off-chain AI services, a Shade Agent has no single point of failure or custody. NEAR's Shade Agents are the cornerstone of user-owned automation, designed to protect your privacy, act in your best interest, and remain fully accountable on-chain. They are not just tools, but sovereign digital representatives.
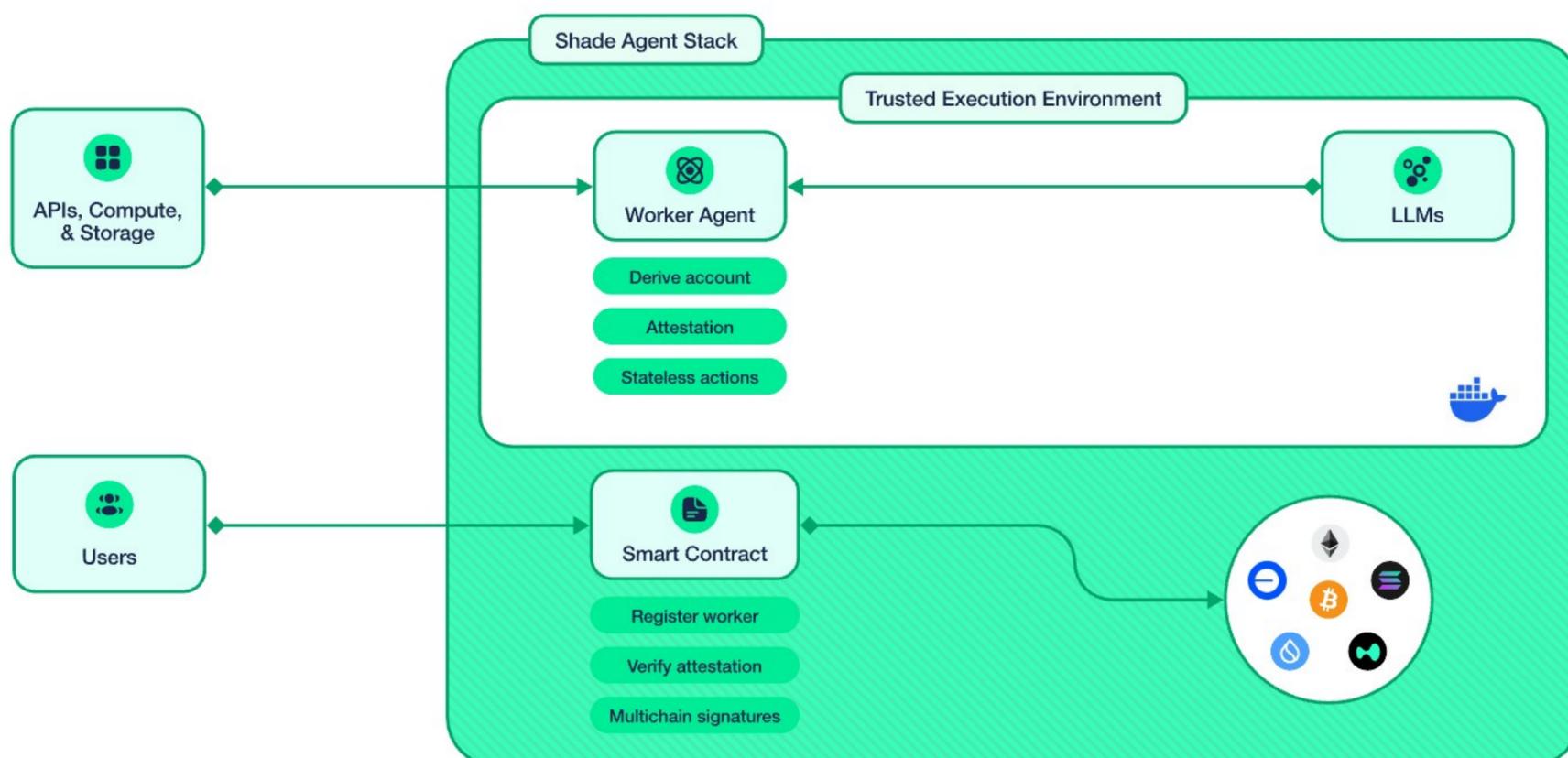
Architecture of a NEAR Shade Agent — Source

They achieve this by using Trusted Execution Environments (TEE) for the off-chain workers and NEAR's Chain Signatures for decentralized key management. The workers (running in secure enclaves like Intel SGX) can access external data, run AI models (i.e., large language models), and even sign transactions on other blockchains. Meanwhile, the on-chain contract enforces verifiability: it stores the approved code hash and will only accept outputs (attestations, signed transactions) from workers that prove they're running the exact expected code in a TEE.

In short, the design means anyone can spawn additional worker instances to make the agent more robust, and if any instance misbehaves or fails, others can continue (the agent as a whole never goes offline).

Use Cases

Shade Agents dramatically expand what an autonomous agent can do. A single Shade Agent can operate in multiple verticals simultaneously, regardless of the blockchain, to complete tasks like:

- Processing transactions
- Managing wallet custody
- Trading crypto assets
- Access off-chain LLMs

The agent's private keys (for NEAR and other chains) are collectively controlled by the contract and TEE cluster via multi-party computation, so no single machine ever holds the key. For developers, this means they can deploy AI-powered services (trading bots, data oracles, automated escrow agents, etc.) that operate 24/7 without human intervention and without requiring users to trust a centralized server. For end-users, Shade Agents enable verifiable and private automation: your agent can act on your behalf while proving its actions and code on-chain, and you don't need to hand your keys to any third party.

Overall, Shade Agents introduce an intelligent automation layer to NEAR, where AI logic lives partly on a secure off-chain environment but is anchored and governed by the blockchain.

REFLEXIVITY RESEARCH

Real-World Proof: Blockchain for AI in Action

NEAR's AI-focused capabilities have moved far past theoretical. As of 2025, NEAR now supports several high-profile projects within its ecosystem that are unlocking new use cases, via NEAR-powered AI, across DeFi, automated trading, user onboarding, and even personalized services.

Below are several notable examples that demonstrate NEAR's unique value in real-world applications, ranging from autonomous trading bots to AI-powered wallets and cross-chain remittance tools:

Kaito's Mindshare Trading Agent (Autonomous DeFi)

Kaito is a crypto AI startup that built the Mindshare Index AI Agent on NEAR to automate trading based on social sentiment. The agent pulls real-time data on which tokens are trending (from X, Reddit, etc.) and uses a large language model to gauge sentiment and predict price momentum. It then executes trades autonomously across multiple chains – buying or selling assets in reaction to the online market hype.
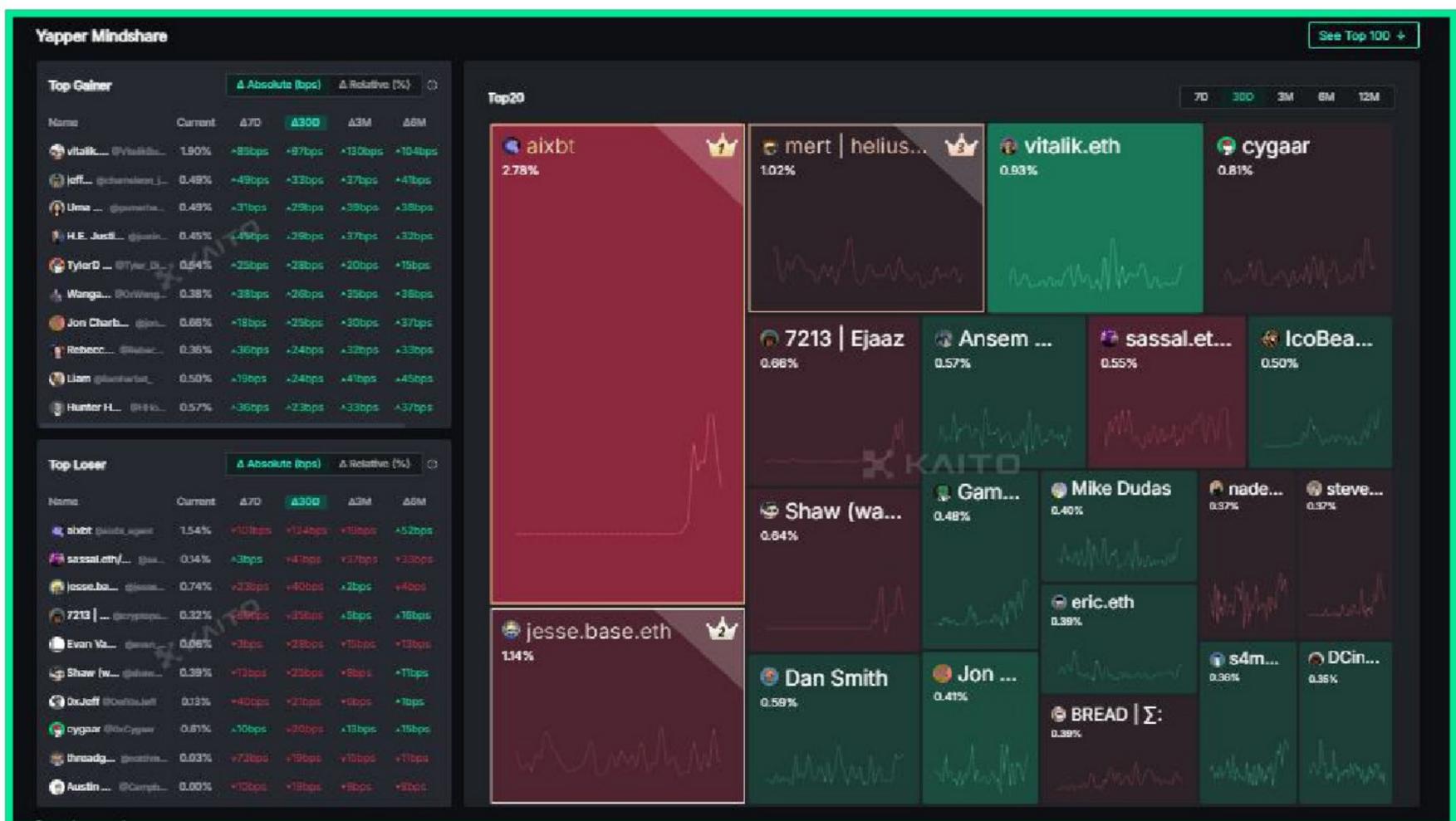
For example, if an altcoin on Solana is surging in social mentions, the agent can use a NEAR Intent to acquire that token (even though the asset is on Solana) by having NEAR's network route the order to the right place. The entire pipeline, data ingestion, AI analysis, and trade execution, runs 24/7 without human input.

In summary, Kaito demonstrates how NEAR can become the home of sophisticated algorithmic traders and DeFi quants powered by AI, a feat much harder to achieve on slower, siloed chains.

RHEA Finance

RHEA Finance is a next-generation DeFi platform on NEAR that combines a DEX (Ref Finance) and a lending protocol (Burrow) to form a chain-abstracted liquidity hub, connecting Bitcoin, NEAR, Ethereum, and more.

RHEA leverages NEAR's Chain Signatures to facilitate direct cross-chain swaps and lending. In doing so, RHEA can allow a user to provide liquidity in one chain and borrow on another, all through their NEAR account. In practice, this means RHEA's smart contracts on NEAR can, for example, sign a Solana transaction to swap an asset or a Bitcoin transaction to move BTC into a vault, without requiring RHEA to set up custodial bridges.

RHEA's setup reduces the risk (no wrapped assets, no custodial bridge failure) and improves capital efficiency across chains. Users just interact with RHEA's NEAR interface and "access any token on any chain". Already, RHEA (and its predecessor Ref) has connected to Bitcoin via a trustless bridge (Satoshi Bridge) and integrated with Ethereum liquidity.

Sweat Economy's "Mia" – Personal AI Fitness & Finance Agent

Sweat Economy (SWEAT) is one of NEAR's flagship consumer dApps, with over 20 million users earning crypto for walking through a move-to-earn incentive system. In May 2025, Sweat introduced Mia ("Movement In Action"), an AI-powered personal agent built on NEAR's AI infrastructure to enhance the Sweat Wallet experience.

Mia is essentially an in-app AI assistant that users can chat with to get fitness coaching, personalized challenges, and help manage their crypto rewards. Notably, Mia is integrated with the user's wallet and the Sweat platform, which is expanding to become multi-chain. The key takeaway is that Mia represents one of the first large-scale deployments of personalized AI agents in a crypto app, and NEAR's stack made it possible to do this in a non-custodial, scalable way.

Millions of users will each effectively have their own AI agent (Mia) helping them, which NEAR can handle via its sharding and low costs, whereas a monolithic chain might choke under that load. Sweat's co-founder, Oleg Fomenko, highlighted that using NEAR's tech allows them to add these AI features while "enhancing user experience & scale" without sacrificing decentralization.

Infinex: Cross-Chain Liquidity and Trading

Infinex is a cross-chain trading platform (founded by former Synthetix contributors) that has closely partnered with NEAR to use its chain abstraction tech. Infinex provides a unified interface (a sort of "on-chain exchange"). On Infinex, users can swap and transfer assets across many networks with minimal fees through their feature called "Swidge", which enables free cross-chain swaps.

Infinex is a strong validation of NEAR's interoperability: a cross-chain project selected NEAR as the middleware to orchestrate transactions across disparate networks. Infinex's integration shows how even new layer-1s (like Berachain) can piggyback on NEAR's infrastructure to connect with the broader crypto liquidity. Of course, the arrangement is mutually beneficial: NEAR's role as an "AI-enabled middleware" grows, and Infinex can offer a fluid UX that would be very complex to achieve otherwise.

Additionally, since Infinex is exploring intent-driven user interfaces, we see again how NEAR's intent architecture is gaining adoption beyond NEAR's own dApps. In the future, one could imagine Infinex launching AI-driven portfolio management or arbitrage bots that utilize these cross-chain intents – a direct extension of the Kaito and RHEA concepts, applied to any chain via NEAR.

AI Market Competitor Analysis

As the industry coalesces around decentralized AI, others are validating the importance of agent coordination, ownership, and privacy. But NEAR remains the only protocol offering an end-to-end architecture purpose-built for a user-owned, agent-powered AI economy. Key competitors worth identifying include:

- Bittensor
- Virtuals Protocol
- OpenAI
- Anthropic
- Mistral AI

Each approaches the AI-blockchain convergence differently. Below, we present a comparative overview, focusing on architecture, scalability, decentralization, interoperability, and support for AI agents:

NEAR Protocol vs. AI Market Competition

Project	Architecture	Scalability	Decentralization	Interoperability	AI Agent Support
NEAR PROTOCOL	Sharded L1 Blockchain	Very High Sharded	High Community Governance	Native Cross-Chain Control	Strong; Built-in Agents
BITTENSOR (TAO)	AI-Specific Blockchain	Medium; Node Scaling	Very High; Bitcoin-Like	Limited; Self-Contained	Moderate; Model-Focused
VIRTUALS PROTOCOL	Ethereum Base L2	Moderate; L2 Constrained	Medium; Agent DAOs	Ethereum Bridges Required	Strong; Tokenized Agents
OPENAI	Centralized Cloud (API)	Very High; Cloud-Based	None; Centralized	None; External Integrations	Weak; External Agents Only
ANTHROPIC	Centralized Cloud (API)	Very High; Cloud-Based	None; Centralized	None; External Integrations	Weak; External Agents Only
MISTRAL AI	Open-Source Models	High; Depends on Deployment	N/A; Open-Source	Depends on External Use	Moderate; Indirect Support

After analyzing several off-chain AI companies and blockchain AI projects, NEAR is highly unique versus much of its competition simply because it is one of the only solutions offering a true, holistic architecture to bridge blockchain with AI.

Vs. Bittensor:

Compared to Bittensor, NEAR offers far more general-purpose smart contract capabilities and direct user-facing applications.

(Note: Bittensor is narrower than NEAR as it aims to decentralize AI model training/inference.)

Bittensor's strength lies in incentivizing AI model development, whereas NEAR focuses on leveraging existing AI (or external AI services) and giving them a trustworthy sandbox and connectivity (via chain abstraction) to act in the world of value. NEAR's approach could even be complementary: for instance, a NEAR Shade Agent might use a model that was collaboratively trained on Bittensor. Bittensor provides the model and NEAR trains it privately, verifies it in a decentralized way, and then executes it.

Vs. Virtuals:

Against Virtuals Protocol, NEAR provides deeper protocol-level integration of agents. Virtuals shows there is demand for tokenizing and co-owning AI agents, but as an application-specific protocol on an L2, it doesn't have the full flexibility or performance of NEAR. NEAR's agents can actually hold assets and perform complex tasks across chains. Virtuals agents are largely abstractions for revenue sharing and governance of AI software that presumably runs off-chain.

For example, a Virtuals agent might be a game NPC whose logic is not on Ethereum due to cost. NEAR's lower operating costs and faster finality mean one could run more of the agent's logic on-chain or in secure enclaves, with greater assurance. Moreover, NEAR Intents give a language for agents to talk to each other and services which Virtuals currently lacks. However, Virtuals indicates a strong interest in monetizing AI agents – something NEAR hasn't emphasized yet. In the future, NEAR might even enable similar tokenization of Shade Agents (via NFTs or DAOs controlling the agent contract) to unlock co-ownership, which would directly compete with Virtuals' model but on a more powerful base.

Vs. OpenAI/Anthropic:

It is a bit more difficult to compare NEAR and self-contained companies like OpenAI or Anthropic, namely because the latter are content and AI providers rather than ledgers. NEAR's competition with them is not direct in terms of model quality, but rather philosophical and infrastructural.

NEAR advocates for a decentralized, privacy-preserving, and open approach, whereas OpenAI/Anthropic are centralized and constantly ingesting users' sensitive data. Importantly, NEAR does not try to build giant models internally. Instead, NEAR can integrate any AI model as needed. For example, a NEAR agent could call OpenAI's API for some advanced NLP task, but then still enforce the decisions via blockchain. The risk for NEAR is that if centralized AI services become too dominant, fewer developers might experiment with on-chain agents.

However, NEAR is betting on a future where trust and transparency will be in high demand. If AI is making important decisions (especially financial or societal), users and regulators may prefer those decisions to be auditable and under user control. NEAR provides auditability and control that OpenAI cannot. As Illia Polosukhin noted, if one company controls all AI, that's a single point of failure and power. NEAR's strategy is to offer an alternative: an ecosystem of decentralized AI agents where the blockchain guarantees provenance of data and actions.

In that sense, NEAR is complementary to open-source AI efforts like Mistral AI – NEAR can be the deployment ground and coordination layer for powerful open models released by firms like Mistral. An open model running within a NEAR Shade Agent could allow an AI service that is both open (users can verify the model hash and weights) and secure (the agent's actions are governed on-chain).

This is something neither OpenAI (closed model, closed execution) nor pure open-source (open model, but no built-in trust guarantees in usage) can achieve alone.

Conclusion

NEAR isn't just building better tech, it's building for a better future. One where AI agents are not centralized black boxes, but transparent, verifiable extensions of the users. NEAR envisions a future where users own their tools, their data, and their outcomes. In the race to define how AI is deployed at scale, NEAR is ensuring it remains in the hands of people, not platforms.

From an institutional perspective, NEAR offers a compelling investment and development thesis. For venture capital and hedge funds, NEAR is creating new markets at the intersection of two high-growth sectors: one can envision NEAR hosting decentralized AI marketplaces, on-chain model marketplaces, or AI-driven financial derivatives. The network's robust performance metrics and growing user adoption mitigate many scaling risks, making it a relatively lower-risk L1 with significant upside if the AI narrative unfolds as expected.

In terms of privacy, when using large language models, users often input sensitive personal or business information that, if exposed, can lead to identity theft, legal liability, or competitive harm. Fears about how data is stored within centralized companies, used for training, or accessed by third parties have slowed AI adoption, particularly in regulated sectors like healthcare and finance. Many users and organizations are hesitant to fully engage with AI systems without clear assurances around data governance, retention policies, and compliance with privacy laws. As a result, privacy concerns remain one of the primary barriers to broader enterprise and consumer trust in AI and an obvious advantage for approaches like NEAR. If AI is to be integrated into our economic and social fabric in a decentralized, user-centric way, NEAR has made a convincing case that its blockchain will be the bedrock enabling that future.

Disclaimer

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Our mission is to bridge traditional finance into digital assets through our crypto native research.