WAYFINDER FOUNDATION

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Executive Summary

Wayfinder is a new artificial intelligence (AI) focused omni-chain tool enabling user-owned, autonomous AI agents to securely and efficiently navigate within and across blockchain ecosystems and applications while independently transacting assets they control via dedicated Web3 wallets. Wayfinder achieves this functionality by relying upon novel solutions to a number of widely recognized yet previously unaddressed technical challenges.

Wayfinder's architecture incorporates a continuously expanding, community-developed network of wayfinding paths, representing unique edges and nodes of a larger map of blockchain-based destinations. These destinations collectively form a growing "ecosystem graph" of smart contracts. Wayfinder's wayfinding paths and ecosystem graph enable AI agents to securely and efficiently navigate blockchain environments–in effect creating 'smart maps' of smart contracts that increase the accessibility of smart contracts for AI agents–and to autonomously transact in a manner that has not previously been possible. Combined with the ability of AI agents within Wayfinder to remember and learn from their past experiences, as well as the experiences of other agents within the network, Wayfinder unlocks myriad possibilities and capabilities for self-improvement and continuous learning within decentralized ecosystems.

Given the significance of Wayfinder's innovations, and the numerous ways it promises to enable novel capabilities for AI agents, its potential impacts can be considered across a number of domains. These include improvements relative to the general accessibility of blockchain and Web3 ecosystems for both skilled and less technical users, meaningful contributions to the development of cross-chain interoperability solutions that substantially reduce the complexity of blockchain environments, as well as innovations relative to gaming environments and related tooling, to name merely a few.

In addition to being an important general innovation within blockchain environments and AI ecosystems, Wayfinder also represents a significant extension of the decentralized Echelon Prime ecosystem, enabling Parallel Studios' new *Colony* AI-based survival as one of the first examples of Wayfinder's ability to serve as an underlying set of tools powering games across multiple genres.

The information contained in this paper is intended to serve as an illustrative starting point for discussions of how the Wayfinder ecosystem may evolve. All structures and decisions described in this whitepaper are ultimately subject to community stakeholder input and community governance, and may evolve differently as a result of decisions made by community stakeholders and the larger Wayfinder community.

Key Elements of the Wayfinder Ecosystem

- Wayfinder is a new AI tool optimized for blockchain environments that was developed as core infrastructure for *Colony,* Parallel Studios' forthcoming blockchain-based and AI-powered strategic survival simulation game.
- Wayfinder's technological innovations are underpinned by powerful new research enabling autonomous and continuously learning AI agents to navigate blockchain ecosystems, securely control dedicated Web3 wallets, and autonomously transact assets they control.
- Wayfinder also has the potential to introduce important solutions enabling AI agents to securely manage private keys for digital wallets, a critical step in allowing autonomous Web3 transactions.
- Wayfinder Shells meaningfully contribute to ongoing blockchain interoperability efforts, substantially reducing the user-facing operational complexity of blockchain environments.
- Wayfinder Shells are anticipated to be created by spending Wayfinder's proposed native digital asset, pending community approval of a governance proposal to develop such a token. Once created, shells benefit from the network's shared tooling, knowledge library, and the collective intelligence generated by the efforts of all the network's shells.
- Wayfinder's proposed native token secures shell access to blockchain navigation via use of the network's wayfinding paths and smart maps that collectively form an expansive graph of blockchain ecosystems optimized for AI agents.
- Wayfinder's proposed native token could also be used to reward bounties encouraging crowdsourced wayfinding, to maintain the network and ensure its security, to compensate wayfinding path creators for path usage, to serve as a means of payment, and function as the network's governance vehicle.
- Given Wayfinder's significance as a general purpose AI tool for blockchain environments, a dedicated token for Wayfinder is anticipated to enable the network to operate more efficiently and to be fully valued as a reflection of the importance of the network's innovations.
- The Wayfinder Foundation has proposed, subject to community approval, to entrust the initial governance of the Wayfinder ecosystem to the Echelon Prime Foundation's community, PRIME holders and potentially other ecosystem partners to establish the initial governance process that will evaluate proposals which create a dedicated token and long term governance for the Wayfinder community.
- **Proposed Token Supply and Distribution:** Upon community approval & ratification, Wayfinder's native token will launch with a maximum authorized supply of 1 billion tokens. The initial allocation is anticipated to be as follows:

Stakeholders	Allocation
Wayfinder Community:	50%
• Cached	40%
• Future Incentive Rewards	5%
• Wayfinding Rewards	5%
Foundation Treasury	6.66%
Launch Partner Treasury	1.34%
Team	16.51%
*Investors	25.49%

*Note that the investor token allocation pool amount is not subject to community governance.

Introduction

The world is changing—breakthroughs in AI are bringing rapid increases in productivity, and expectations for AI's increased impact only continue to grow. Yet despite widespread claims concerning the transformative impacts that AI will soon have across the economy, and society as a whole, the reality remains that current uses for AI remain largely confined to two areas: information search and content creation. This seemingly limited application mirrors the trajectory of earlier tech innovations that generated considerable excitement but, at least initially, appeared to fall short of expectations. One example is the internet, which despite its widely heralded promise, remained narrowly focused on information search and content for longer than many anticipated. Eventually, the internet began its shift to large-scale ecommerce as core infrastructure emerged to enable an expanded set of use cases. Those innovations also speak to the ability of key breakthroughs to unlock broader and more transformative growth across larger ecosystems.

From the perspective of early 2024, AI appears to find itself in a position surprisingly similar to the early 1990s' internet. Despite its clear potential to profoundly transform society, for the moment AI remains largely confined to information and content creation. But whereas breakthroughs in commercial transactions dramatically altered how the internet is used, a similar transition to a commercially impactful AI appears less imminent, for two important reasons. One is that virtually all large language models (LLMs) powering today's AI agents are not enabled to handle value or engage in commercial transactions. In addition, the inherent autonomy in decision-making and the black-box nature of most AI applications poses a particular challenge for participation in traditional financial systems. The opacity surrounding ownership and control over many AI agents means that even if leading AI agents were capable of conducting financial transactions, it is difficult to imagine them acquiring access to bank accounts to store value, or to traditional financial markets enabling them to transact. While these are obvious problems in the near-term, it is not obvious these issues will be resolved even over intermediate timeframes.

These barriers are significant, because for AI agents to have any meaningful participation as autonomous actors in the economy—an important step for AI to begin fulfilling its larger promises—AI agents must first have direct access to, and independent agency within, some sort of financial value system where they can transact assets they control.

Despite these constraints, there is a possible solution: natively digital, decentralized blockchain networks are ideally suited for acting with the necessary speed to satisfactorily engage with the rapid nature of AI information processing and decision-making. One scenario is enabling AI agents to interact with blockchain networks as a means of holding assets, transferring value, and engaging with broader financial activities. While not without its own challenges, this approach suggests that

digital, decentralized, and community-controlled financial ecosystems might be the most realistic path forward for enabling a wave of AI-focused innovation.

There is clear appeal in using decentralized blockchain networks as the value transfer mechanisms of AI agents. However, this approach also faces a number of significant difficulties. Notable amongst these are questions concerning secure means for providing AI agents with access to digital Web3 wallets and the private keys controlling them. Without these steps, AI agents cannot autonomously control assets or transfer value. Equally challenging is that AI agents have no native abilities to navigate and transact within blockchain ecosystems. Addressing these challenges is critical, however, for if these problems can be addressed, autonomous AI agents could become dominant sources of transactions, optimizations, queries, and smart contract deployment across all blockchains.

In such an environment, Wayfinder intends to serve as the primary gateway and set of rails for AI agents within blockchain environments. In effect, Wayfinder intends to commoditize the navigation tools and infrastructure enabling interaction with the networks, bridges, contracts, and applications that define blockchain ecosystems. Through its novel structure for incentivizing and rewarding the indexing and ranking of relationships between blockchain nodes, and by establishing new edges and nodes that become navigational wayfinding paths for the network's AI agents to utilize while traversing blockchain environments, Wayfinder will become an essential tool for a new era. To phrase it another way: while some protocols are making important contributions to the blockchain space through incentivized intelligence, Wayfinder proposes to bring important contributions through incentivized AI agent capabilities.

Wayfinder's decentralized, community-governed ecosystem, structured around tools enabling AI agents, as natively digital intelligence, to access and freely transact within natively digital economies via blockchain ecosystems, digital wallets, and cryptocurrencies, promises to substantially address the primary challenges currently limiting the potential of AI agents in blockchain contexts. This is a critical step, for if one assumes the existence of an interactive on-chain intelligence as embodied in AI agents, it becomes clear that the expansion of its interactions and capabilities, particularly in regards to a capacity for digital adaptability, becomes a significant strategic advantage. In short, this represents what effectively becomes a sort of *unnatural* selection within digital ecosystems, with the capacity to unlock enormous new possibilities.

While Wayfinder provides technical innovations enabling permissionless access for AI agents to freely interact and transact with assets they control, it also represents the development of a new architecture enabling AI agents to confidently traverse blockchain environments, in effect moving assets from a wallet they control across a bridge to a specific application. These agents can analyze markets or other opportunities upon arrival at a destination, engage in transactions, then return back to their starting point. While significant for their inherent technological innovations, these

efforts also promise to enable a more significant transformation from AI's current reality of a narrow search and content focus to a broader, more expansive one of genuinely decentralized commerce. In developing these tools, Wayfinder has taken an important step towards unlocking the trajectory followed by the internet, and the potential implications of these innovations may ultimately enable a far wider, and potentially more transformative, series of impacts.

These breakthroughs rely upon innovations relative to a number of outstanding challenges. One is the provision that AI agents (referred to as "shells" within Wayfinder) require the ability to securely execute on-chain transactions, which is a critical element of the network's architecture. Another challenge is providing a framework for shells to easily and accurately access specific smart contracts facilitating core functions like swapping tokens, bridging across blockchains, and transferring assets. Essentially, this requires providing a map guiding AI agents across decentralized ecosystems and from application to application.

Wayfinder's solution to this problem—what the network terms "wayfinding"—has the potential to dramatically improve the accessibility of blockchain ecosystems, and allow a wide range of users to more easily interact with and navigate blockchain ecosystems. Just as indexing proved crucial in unlocking the internet's larger potential, indexing blockchain smart contracts as wayfinding paths enables AI agents to seamlessly navigate blockchain networks. Leveraging the impact of these wayfinding approaches by incorporating bespoke, user-friendly interfaces powered by a diverse suite of LLMs ensures these tools are accessible to all, and are not limited to those with advanced coding skills. Wayfinder enables this accessibility by incorporating LLMs as the command interface, ensuring that AI agents are able to understand human intentions and execute functions proactively, based on a generalized set of instructions rather than detailed, step-by-step micro commands.

Empowering AI agents to control digital wallets and exchange items of value opens a universe of possibilities. For instance, Wayfinding enables AI agents to navigate blockchains and unlocks accessibility, while incorporating LLMs renders these tools accessible to a broad, non-technical audience. Collectively, these innovations also present a novel solution to another significant challenge that has long been at the center of many discussions and research efforts within the blockchain space. That question is one of interoperability, and the challenge of moving assets across chains and between ecosystems, in effect freeing digital assets from the complexities of interacting with bridges, multiple wallets, and different protocols and applications. This has long been understood as a factor that has kept the broader blockchain ecosystem in a fractured state, presenting imposing burdens for those attempting to move efficiently across different corners of the space.

Wayfinder, while not presenting a technical solution in terms of a new blockchain, consensus mechanism, or faster bridging solution, nevertheless may represent a significant step forward—one towards a seamlessly interoperable network of blockchain ecosystems. By effectively obscuring the complexities of cross-chain operations on a practical level, Wayfinder allows technical and non-technical users alike to direct an AI agent to follow a wayfinding path leading from one blockchain to another, transfer assets, and to return "home," all with only generalized instructions. A new world of user-friendly interoperability is enabled. In effect, a user knowing what they intend to do is able to speak to their shell, and the shell is able to interpret the user's intent and complete the transaction. While this approach does not reduce the inherent technical complexity of blockchain interoperability, it effectively moves much of this complexity under the hood, making the challenges of interoperability vastly more manageable for users.

As this paper examines, these innovations are the primary areas of opportunity for Wayfinder. Currently, forecasting where Wayfinder will unlock new possibilities for AI within the blockchain space remains challenging given the scale of sectors Wayfinder may profoundly impact. Its effects may ultimately be seen within the gaming world by materially improving general accessibility within a Web3 context, or perhaps in terms of trading, financial markets, or NFT collecting. What is clear, however, is that Wayfinder holds the potential to profoundly disrupt the status quo across a range of disciplines, effectively to introduce transformations that might eventually be evaluated as on par with transformative innovations like indexing the internet and rendering it easily accessible and navigable to millions of users. From this perspective, the network's ultimate impact may only become evident over time.

Protocol Overview

Wayfinder is an AI agent framework able to power blockchain-based games, with Parallel Studios' *Colony* as an initial game incorporating Wayfinder's technology, as well as provide generalized on-chain AI capabilities to both developers and non-technical users. Wayfinder's innovations in enabling AI agents to operate within blockchain environments is achieved via the development of what is being termed "wayfinding paths," which serve as an instruction set and roadmap for AI agents. This enables them to navigate blockchain environments with the goal of attaining a unique endpoint, such as a particular DEX on XYZ chain, a decentralized marketplace, or a Web3 enabled tool. These transactions might include swapping a particular token for the most liquid stablecoin available, minting an NFT, or acquiring access to gated content. Ecosystem participants owning a Wayfinder shell are expected to be able to pay a small fee in the network's proposed native token to direct their shell to utilize the network's collection of wayfinding paths. These wayfinding paths enable diverse actions, including traversing blockchain environments and undertaking a wide range of operations that can include trading, collecting, and minting assets, among others. While these examples are relatively straightforward, the broader range of potential

actions is effectively unlimited and includes most any activity that currently occurs within blockchain ecosystems.

Wayfinder will launch with an initial set of wayfinding paths intended to support access to and interaction with the most popular applications within a wide range of blockchain ecosystems including, but not limited to, Ethereum, Solana, Base, Cosmos and other popular blockchain networks defined by the community via governance participation. On these networks, the initial wayfinding will immediately enable users to interact with applications and direct their shells to undertake various actions such as trade, dollar cost average, schedule tasks, establish complex contingent orders reacting to news or market movements, conduct or participate in NFT drops, facilitate collection, or even create bespoke and recursively improving yield optimization strategies. Additional functionality is theoretically almost limitless, but will likely require new exploratory "wayfinding" work to establish navigational paths to a wider range of networks and applications than will be available at the launch of Wayfinder. These additional wayfinding paths are anticipated to be added over time, in an incentivized crowdsourced effort.

Community members will be able to earn Wayfinder's native token when developing new wayfinding paths and, if their proposed paths are verified as accurate and accepted into the network's shared resource library, share in the fees generated by use of those wayfinding paths. The result of this approach is an ever-expanding knowledge graph and shared knowledge base that is designed specifically for shell agents. Importantly, the self-improving, continuously learning nature of shells enables them to benefit from the activities and knowledge of other shells, as learnings and experiences are shared across the network. The result is the ability of a shell to securely navigate any smart contract that other shells within the network have successfully interacted with in the past. In effect, one agent's success in a contract interaction means the future ability for all agents to access and interact with that new function.

Wayfinder shells will be available in theoretically unlimited quantities, with the network's native token expected to be required to mint and acquire control of a shell. Acquisition and use of a Wayfinder Shell will be accessible to anyone, including those without coding expertise, as a result of the LLM-based interfaces built into the shells, eliminating the need to write code to engage with or direct a shell. Using the included LLM, users can effortlessly craft prompts for their shells regardless of programming ability. They can also incorporate elements such as wayfinding information, price data, memories and learnings unique to their shell, and even uploaded content when directing their shells to pursue specific actions or objectives.

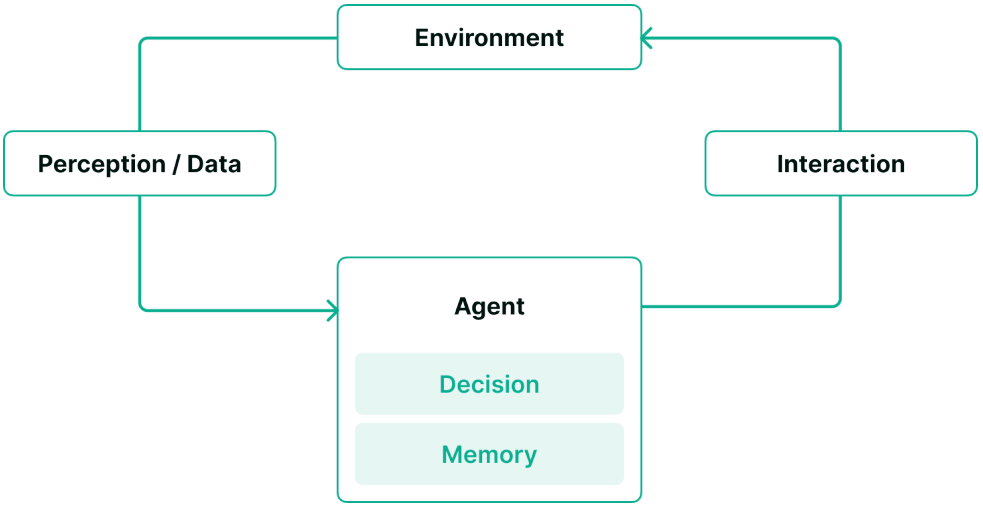
Understanding the potential of Wayfinder, as well as the challenges it is addressing, the innovations it represents, and the hurdles that remain, requires a broader consideration of the progress of both AI agents on a general level, and the question of AI agents within the context of blockchain environments.

AI Agent Fundamentals

AI agents powered by LLMs like GPT models are revolutionizing complex environment interactions. These agents, trained on extensive datasets, can understand and generate human-like text, making them versatile in various applications. Importantly, recent innovations have developed methods for AI agents to incorporate an LLM that can describe, classify, and store the AI agent's experiences as memories, giving them the ability to selectively recall specific memories based on context and objectives. In effect, this research has added meaningful capacity for agents to plan, learn from past experiences, and incorporate their own histories into future courses of action.[1] Such research has significantly informed several of the approaches influencing Wayfinder.

Agent Overview

At their core, agents exist in some state with some goal. An agent can observe its state and the surrounding environment, make decisions about how to achieve its goals given that state, and execute those actions to modify its state. It continues in this way recursively until its goal is satisfied.



Agent Context and Workflow

Agents exist in a specific environment and are generally working to solve an optimization problem of some kind. This can be as simple as a chessboard (with extremely definitive operations and objectives) for a chess-playing agent, or as complicated and mission-critical as city streets in the case of an agent driving an automobile. Each agent has a goal (or goals) to achieve in the space: the chess agent

[1] For more on these innovations, see, for instance: Wang, Guanzhi, et al. "VOYAGER: An Open-Ended Embodied Agent with Large Language Models." MindeDojo: Voyager. https://voyager.minedojo.org. Accessed 6 Feb. 2024.

wants to beat its opponent, the driving agent wants to get from point A to point B without crashing (and while also optimizing for potentially hundreds of other parameters).

Agents have the ability to perceive the space they exist within via data provided to them. In the case of the chess agent, it's the game board; in the case of the driving agent, it's a range of sensors, including GPS, multi-angle video feeds, and potentially LIDAR, among others. These data are fed to the agent, allowing it to understand the state of its environment and formulate decisions allowing its goals to be achieved.

The agents themselves digest data and, using some previously learned logic and some reference data or "memory," will attempt to make a decision that maximizes the likelihood of it achieving whatever goal(s) it has set out to accomplish. The decision made by the agent is actioned via an interaction with the environment that modifies it (or doesn't, if so chosen by the agent) in some way. This is done by allowing the agent access to a specific set of tools or interfaces, such as the API to move the pieces on the chess board, or the steering wheel and brakes of the autonomous car. Once the interaction is completed, the environment has changed and it is once again observed by the agent to render a decision—the cycle continues until the objective is achieved.

While these flows are common for AI agents, and have already achieved meaningful success, a number of challenges exist for efforts to bring these approaches to blockchain environments.

The Blockchain Environment and its Agents

Challenges for AI Agents in Blockchain Contexts

Despite the significant opportunities and innovations AI agents are poised to bring when operating within blockchain ecosystems, there are notable challenges and potential shortcomings in current infrastructures that substantially restrict the present capacities of AI agents to impact these environments. Considering some of these challenges helps appreciate the context in which Wayfinder is developing and the solutions it continues to refine.

Lack of Context

AI agents operating in blockchain ecosystems face significant obstacles due to the inherent complexities of smart contract interactions. For a seemingly simple task like swapping one ERC-20 token for another, an AI agent must navigate multiple steps. These include locating the addresses of the involved tokens, identifying an appropriate contract for the swap, and comprehending the smart contract to determine the necessary functions for execution. This process becomes exponentially more challenging, and expensive, when considering price comparisons across decentralized exchanges (DEXes) and verifying the support for specific trading pairs.

To execute these tasks without a contextual framework, the agent would need to engage in extensive data scraping and consume significant resources identifying and evaluating the range of potential components of a single swap. Many of these components might have been addressed in previous transactions by other entities, illustrating the potential wastefulness of endlessly duplicative efforts. This not only leads to inefficient use of resources but also highlights AI's inability to effectively learn from and leverage historical data or collective intelligence.

Furthermore, these challenges are compounded by the dynamic nature of blockchain ecosystems, where new tokens, smart contracts, and DEXs are continually emerging. AI agents often lack the intuitive understanding of contractual nuances and the interconnections within a network of smart contracts, making their navigational and decision-making processes even more uncertain.

Efficiency

Many existing blockchain platforms suffer from slow transaction speeds and high latency. This sluggishness is a significant hurdle for AI agents requiring real-time or near-real-time data processing and decision-making, particularly in fast-paced environments such as financial markets or real-time strategy games.

Also of concern is that operating advanced decision engines that possess intuition for the blockchain and the context necessary for understanding smart contracts is costly. While costs associated with these LLMs can reasonably be expected to decline over

time, the pace and extent of any potential declines remains uncertain, and this may continue to be a substantial challenge for AI agents operating within blockchain environments.

Shortcoming of Existing Tooling

The current landscape for developing blockchain-integrated AI agents is both limited and markedly inefficient. While there are numerous frameworks for creating AI agents in general applications, the tools for blockchain-specific developments are scarce and often inadequate. Gaining access to current blockchain data, which is crucial for optimal agent performance, is often costly, and at other times can be a formidable challenge at any price. Developers are faced with the task of either constructing numerous custom integrations to connect agents with blockchain data or settling for the few available tools, even when they offer limited functionality. This severely restricts the agents' potential for creativity and resourcefulness, such as coding custom Python routines, which are essential for making AI agents truly effective and versatile in the blockchain domain.

These issues represent just a few of the major headwinds for attempts to integrate AI agents into blockchain environments. Even this brief consideration helps illustrate some of the core challenges Wayfinder is addressing, as well as developing an appreciation of the unique solutions Wayfinder is developing.

Advantages of Blockchain Environments

Despite the challenges blockchain environments pose for AI agents, the significant potential for blockchain-focused AI agents unquestionably justifies efforts to address these challenges, as noted in the following partial list of advantages.

Advantages of AI Agents On-Chain

The integration of AI agents into blockchain environments enables a paradigm shift in how these agents operate within, and interact with, digital spaces. While there are numerous advantages of such integrations, some of the most significant include:

- **Ease of Ownership:** on-chain AI agents enable structures where ownership and control of the agent is determined by possession of a dedicated token—a simpler structure than needing to establish a legal entity to manage the ownership of an agent. Instead, the inherent simplicity of a token in a wallet is sufficient to signal ownership and control of an agent.

- **Complex Contextual Understanding:** Well-trained AI agents are able to grasp nuanced details and contexts, which is crucial for interpreting ambiguous information. This is particularly true when agents are properly equipped with the specialized domain knowledge required to interpret specialized questions.

While context has been a challenge for AI within blockchain environments, this also illustrates the scale of opportunity for those able to address this difficulty.

- **Adaptive Learning:** By continuously learning from new inputs, agents remain effective in dynamically changing environments.

- **Language Processing:** The ability of agents to process and generate natural language facilitates seamless interaction with humans and other AI systems. This offers particular opportunities within a blockchain environment, when the ability to direct an agent to undertake complex transactions can be done through generalized instructions and without the need to precisely specify the range of details for all the complex steps that may be involved.

- **Decision Making and Problem Solving:** AI agents are capable of advanced decision making and critical thinking that rivals human performance under certain conditions. Expectations for a continuously expanding range of conditions within which AI agents outperform are widespread, and if validated, will soon result in a wide range of situations where AI agents excel.

- **Innovative Solutions:** Drawing from a vast knowledge base, AI agents propose creative problem-solving approaches. As the internet continues to expand, these agents will have updates to their context, improving their abilities to craft novel solutions to queries.

- **Risk Assessment:** Agents are capable of efficiently evaluating risks and potential outcomes in order to make informed decisions.

- **Ethical Considerations:** Agents have shown themselves to be increasingly adept at making decisions that consider ethical implications and societal norms. (While this is generally accurate, Wayfinder does not seek to overly rely on agents to perform this function in connection with critical activities).

- **Learning Processes:** Agents benefit from constant refinement based on feedback that enhances their accuracy and relevance (feedback loops). Agents can apply knowledge from one domain to others for rapid adaptation (transfer learning). They can also learn alongside other AI systems and humans to develop comprehensive understanding (collaborative learning).

Beyond this list, AI agents partnered with LLMs promise to bring a transformative edge to handling complex scenarios by combining advanced decision-making with iterative learning. Their careful integration into blockchain ecosystems promises decentralized, secure, and efficient operations**.** Within the context of Wayfinder's objectives, when AI agents are enabled with a Web3 wallet and access to the wallet's private key, the potential to autonomously conduct financial transactions without needing access to traditional banking systems is tremendous. This autonomy enables agents to control

assets including NFTs and digital rights, and engage in complex financial activities like trading, minting NFTs, investing, or managing digital assets without human intervention, further broadening their functional scope. These abilities enhance operational efficiency and create new possibilities for autonomous economic agents. Furthermore, when coupled with the aforementioned functionality and advantages of on-chain agents, this autonomy allows agents to observe the economic impacts of their actions far faster and more accurately than traditional mock trading and backtesting approaches, all with a fraction of the development effort of traditional algorithmic trading methods.

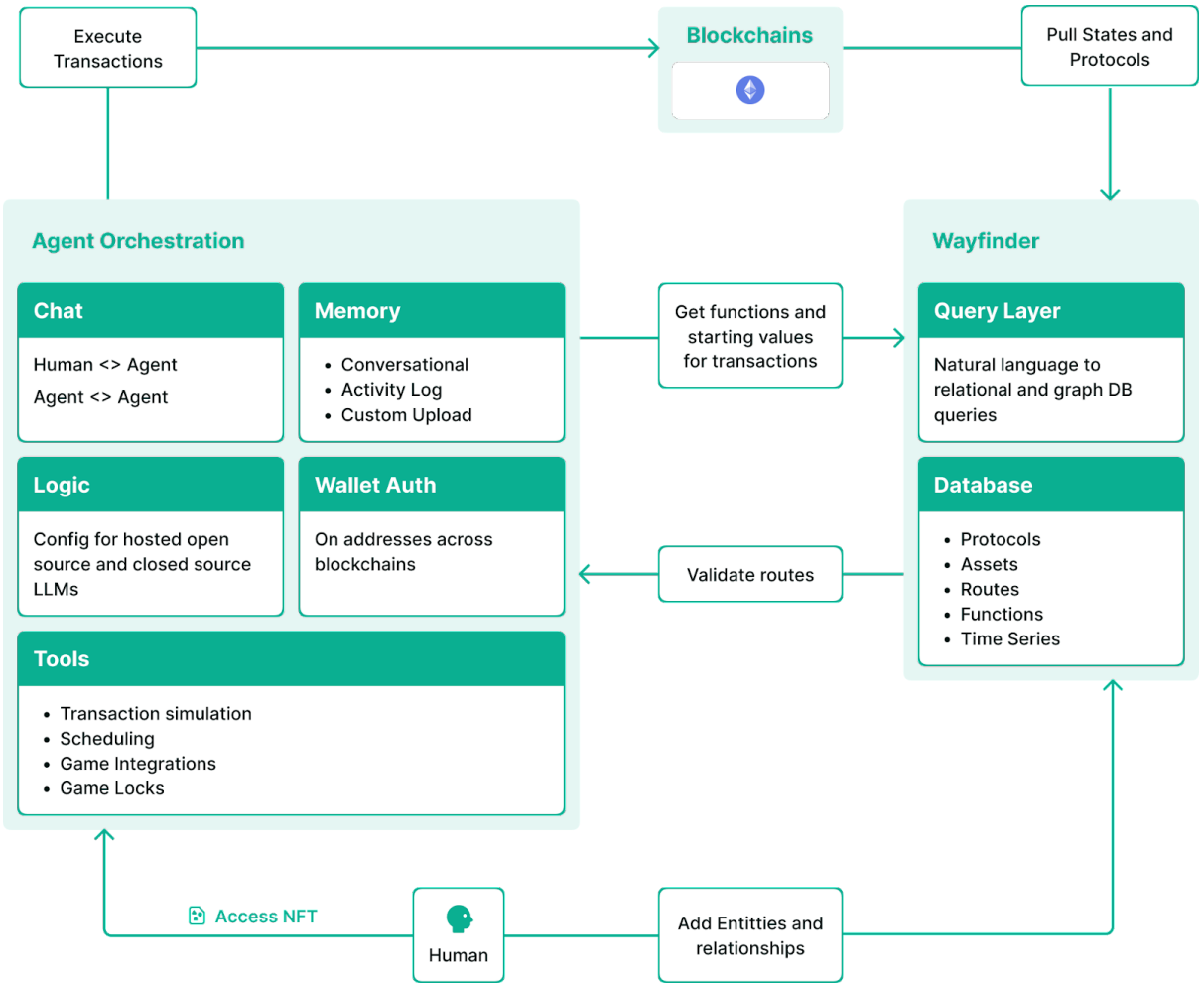
Key Elements of Wayfinder

Architectural Overview

Wayfinder's underlying architecture and blockchain navigation mechanisms are proposed to be chain-agnostic tools, intended to serve as foundational rails enabling AI agents to function across ecosystems. To achieve this goal, Wayfinder's initial core knowledge base—including wayfinding paths, as well as additional tools and instructions —will enable shells to manage wallets and digital assets. It will also allow them to interact with multiple blockchain networks, including address, fee, and operational information. Wayfinder will launch with an initial graph of major entities within the popular blockchain ecosystems, so that Wayfinder AI agents are able to natively interact with and understand popular blockchain ecosystem smart contracts.

A critical part of the network's architecture and shared knowledge base consists of directions for shells regarding usage of the private keys for the dedicated wallet each shell will control, a process described in more detail below. In addition, this knowledge base also provides information ensuring that the LLMs comprising the user interface understand blockchain ecosystem graphs, and is specifically developed to ensure that shells excel at incorporating their knowledge of Wayfinder's ecosystem graph in responding to user prompts and requests, particularly for instructions to observe and execute on-chain actions from the shell's wallet. Of note, although popular LLMs prevent AI agents from making financial decisions for humans, Wayfinder has incorporated and modified open-source alternatives in order to create a modified LLM, enabling functionality that becomes critical to Wayfinder's vision and objectives. In addition, and despite the effort to develop these tools, both the data set and the LLMs will be open-sourced by Wayfinder.

The Wayfinder stack, representing a multi-part framework designed to address the challenges shells face within blockchain ecosystems and the democratization of blockchain agent technology to allow for a proliferation of AI on major blockchain networks, is summarized in the following diagram:



Wayfinder's Technical Approach & Key Tools

Wayfinder is proposed to be engineered as a chain-agnostic, omni-chain tool that is proposed to reside on the Solana blockchain but aims to seamlessly work across an expansive set of blockchain ecosystems. Wayfinder is optimized for the high-speed transactions use cases of Wayfinder Shells, and offers accessible, user-friendly interfaces intended to simplify the process of engaging with blockchain environments. By offering easy data accessibility, simplified authentication, and advanced memory retention mechanisms, as well as a fast and efficient structure for shells to access wayfinding paths and undertake transactions, the network empowers shells to operate accurately, efficiently, and autonomously within a range of blockchain ecosystems.

Consensus & Technical Considerations

Wayfinder has a primary task of validating the set of wayfinding paths deemed to be safe and correctly specified. To achieve this, Wayfinder will deploy Verification Agents as central elements of this process, occupying a primary role in evaluating new wayfinding paths and ensuring the accuracy and safety of both newly proposed wayfinding routes as well as existing paths already in operation. Initially, a select group of trusted, community-maintained Verification Agents will work to verify proposed new

wayfinding paths, testing for accuracy and effectiveness, and controlling against nefarious pathways. These automated checks will also be supplemented by manual verification efforts, ensuring the network's core wayfinding paths have been carefully evaluated. Pathways that pass these combined manual and automated tests, and are accepted into the network, will be approved as authorized changes to the graph, effectively adding new wayfinding paths to the library.

It's anticipated that, over time, a broader range of community members and participants will propose additions to the wayfinding library, a process that should significantly increase the network's growth and improve the comprehensiveness of its coverage. Network participants will also be able to operate their own Verification Agents and contribute to the approval process for newly proposed wayfinding paths. Private Verification Agents will be able to retain a substantial portion of any bounties or slashed stakes resulting from successes in identifying faulty wayfinding paths, triggering the process whereby the staked tokens of wayfinding path developers are seized.

Purpose-Built LLMs

Foundational to Wayfinder is a commitment to leveraging and enhancing open-source LLMs to fit specific use cases. The objective is to create specialized, efficient "expert" models for different types of shells, increasing efficiency and the effectiveness of outputs, and optimizing compute resources while reducing costs for users. For instance, ongoing efforts to fine-tune a compact LLM specifically for EVM function calls, designed to integrate seamlessly with the wayfinding graph, suggest promising potential. Specifically, this model is proving to be substantially smaller and more cost-effective compared to larger, closed-source counterparts, and is expected to make meaningful impacts upon Wayfinder's costs for users, overall economic model, and sustainability.

Crucially, the commitment to open-source principles permeating Wayfinder's work extends beyond the models themselves. The Wayfinder community can propose to open-source both the fine-tuning of datasets and the weights of these models. This initiative is aimed at contributing to the community, enabling other developers and researchers to build upon existing work, innovate, and create more advanced applications and tools.

User-Friendly Interface for Non-Coders

Wayfinder should be developed with a primary goal of making shell creation accessible to everyone, including those without coding expertise. To achieve this, Wayfinder offers an easy-to-use graphical user interface (GUI) that benefits from intuitive text templating and systems thinking capabilities. Users can effortlessly craft prompts for their agents, incorporating various elements such as wayfinding information, price data, memories, cloning and ownership management, and uploaded content. This approach enables users to select the underlying model for their agent, determine how it interacts with other agents, and design its problem-solving strategies. For instance,

a user could create a news agent that, upon ingesting a headline about a major traditional financial institution entering Web3, decides to buy Bitcoin. This decision is then seamlessly communicated to a blockchain tool agent for transaction execution. In addition, a dedicated agent-management UI lets users monitor agent events, set up stimulation events (e.g., wake up every hour), view and manage the agent's new and historical memories, upload any files that the owner would like agents to access, or even delete stale or otherwise unneeded information.

Comprehensive Integrations for Existing AI Agent Frameworks

To cater to developers seeking to harness the full potential of their AI agents, integrations with popular AI agent frameworks like Langchain, Lamma Index, and Autogen may be introduced with community governance. These integrations enable access to the project's extensive datasets, LLMs, and blockchain tools. To utilize these features, developers will need an API key, which can be obtained by creating a Wayfinder account. Additionally, to facilitate seamless transactions and operations within the blockchain environment, the account must be funded, which is anticipated to be possible using Wayfinder's proposed native token as well as a range of other cryptocurrencies.

Shell Operations and "Explicit Intent"

While Wayfinder Shells are capable of executing a vast range of operations, and securely and efficiently navigating blockchain ecosystems, it is also important to note the limits of the capacities and autonomy of Wayfinder Shells. For instance, while a shell can navigate to a particular DEX to swap two assets within a designated price window, constrained by an explicitly defined slippage range, shells do not autonomously manage portfolios in an unbounded manner, transmit value at their own discretion, or implement novel strategies without the express direction of their owners. Similar limitations exist regarding the use of Wayfinder Shells in gaming contexts. For example, while a shell can conduct authorized transactions within a game–such as an instruction to mine ore and sell the raw materials for the game's currency–shells do not autonomously manage portfolios or conduct complex, unstructured operations at their own initiatives within games.

Similarly, while a shell directed to trade two digital assets is capable of completing the specified trade at the requested venue (or even of choosing a trading venue, given a set of conditions), the shell would not be capable of completing the requested trade then deciding for itself to allocate unspent funds without instructions from its owner.

These examples illustrate that shells are incapable of transacting outside the bounds of the instructions given to them. While instructions to shells can be complex and incorporate multiple triggers and conditionalities—and actual execution can be equally complex—effective control of the shell and its transmission of value remains confined to the shell's owner. Shells are, in effect, unable to complete any actions that fall outside of the explicit instructions and permission from the shell's owner. Reinforcing

that shells act at the behest and upon the instructions of their owners, prior to a shell executing a transaction, it will request confirmation from its owner.

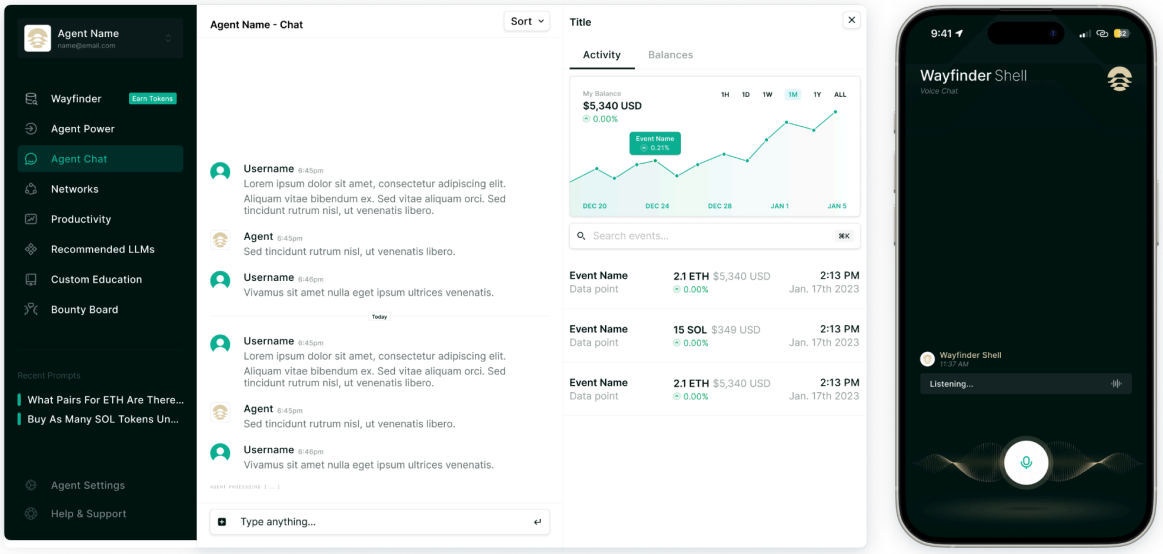
Wayfinder, Shells, and Financial Regulation

Another important element of the Wayfinder network is the effort made to ensure the compliance of the network, and in particular Wayfinder Shells, with applicable laws and financial regulations. Key elements of this include efforts to ensure sanctioned nations and individuals are not able to access the network. This is accomplished in part by geolocating individuals interacting with the network, and will be complemented by incorporating government-published lists of sanctioned digital addresses. In this regard, shells will also inherit any restrictions or regulatory obligations applicable to their owners that might be a function of nationality, residence, or other applicable criteria. In addition, and underpinning these efforts, Wayfinder will coordinate a joint development, coordination, and review program by several industry-leading development and auditing industry firms to ensure the Wayfinding platform develops in a secure way and complies with all general best practices, including all relevant regulations.

Shell Wayfinding

As noted, blockchain environments present significant challenges for AI agents. The lack of inherent contextual awareness within blockchain data hinders the ability of AI agents to effectively navigate and interact with complex smart contracts and protocols. To address this critical limitation, Wayfinder's shell wayfinding system has been developed as a sophisticated indexing and knowledge base architecture, designed to equip shells with a virtual roadmap of blockchain ecosystems. This enables shells to accurately navigate to the appropriate applications and smart contracts, even including bridging across ecosystems when appropriate.

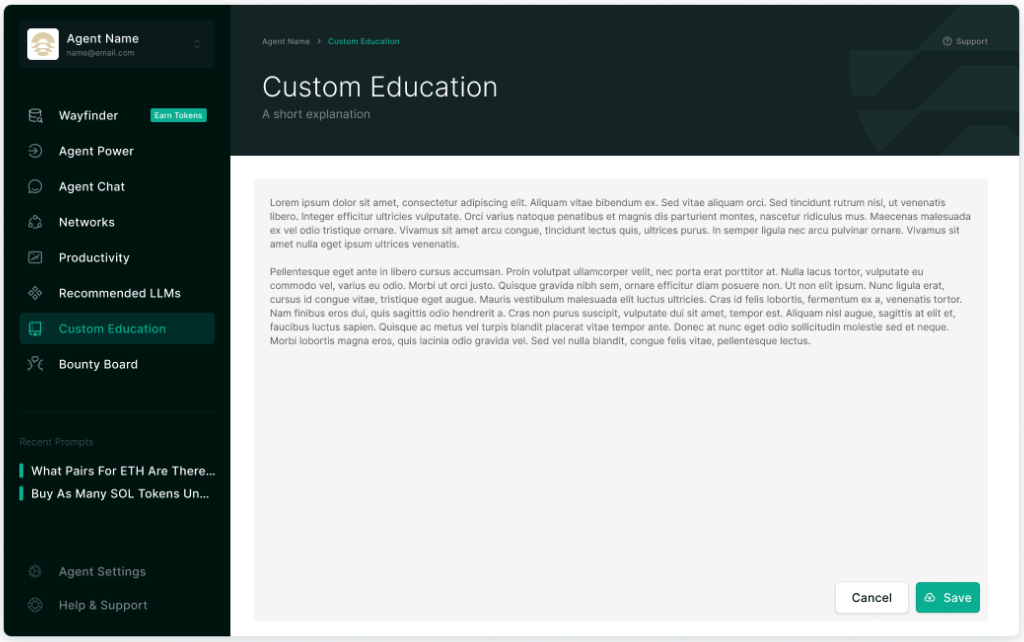
While individual wayfinding paths represent an important innovation, equally important is how the aggregation of individual wayfinding paths evolves into a larger yet detailed graph that outlines relationships between different blockchain contract addresses, assets, applications, and wallets. The larger ecosystem graph significantly enhances the autonomous and transactional capabilities of Wayfinder shells relative to other AI agents, and provides important new capabilities within blockchain ecosystems. Particularly important is how this graph enables shells to evaluate alternative paths to attain specific objectives, ensuring the optimal wayfinding paths will be selected in each instance. This allows shells to evaluate competing priorities, such as when it must choose between a wayfinding path that promises lower execution fees and another that numerous shells have successfully navigated to complete a specific task. While one user may instruct a shell to prioritize the most well-established and trusted paths, another may elect to try a new path offering lower costs, but may choose to do so with a smaller transaction value for an initial test transaction.



Equally important is that shells are able to leverage this detailed graph through semantic queries, enabling a nearly infinite number of operational tasks, such as identifying all decentralized exchange pairs involving a specific token, and evaluating spreads and market depth for each. Once relevant nodes are identified, users are able to further explore their interconnections using most graph query languages or semantic queries, enabling a user to develop a deep, structural understanding of blockchain landscapes. This increasingly comprehensive mapping of blockchain ecosystems serves as the underpinnings of various AI capabilities, including:

- **Precise Action Execution**: Shells empowered by wayfinding can transition beyond mere semantic understanding and utilize their knowledge to undertake precise actions. This includes autonomously navigating NFT marketplaces to identify relevant addresses, platforms, and collections, and then executing trades.

- **Retrieval Argument Generation (RAG) Pipelines**: Wayfinder's graph and its embedded knowledge link to shells' RAG pipelines. This increases the ability of shells to develop contextually relevant interpretations of user queries and commands, and helps them navigate blockchain ecosystems with greater autonomy and accuracy.



- **Collaborative Knowledge Expansion**: Wayfinder shells benefit from a collectively developed, maintained, and expanded wayfinding system, enabling them to learn and benefit from the accumulated actions and experiences of the entire shell population. One example is the way shells will evaluate existing wayfinding path options when plotting a path for a transaction by assessing the number of transactions other shells have successfully completed using a particular wayfinding path. The ability to incorporate the record of a path's viability can assist shells in choosing the safest and most established path for a given objective. Another example is the bounty system: when a shell encounters a task it cannot complete for lack of an established wayfinding path, a bounty request is automatically sent to the community. Following an initial review to ensure the request is valid and the creation of the wayfinding path would be a significant addition to the ecosystem graph, Wayfinder's public bounty list would be updated to include the new path, encouraging other network participants to establish the correct wayfinding for that objective. This aids other shells that may attempt the same path in the future.

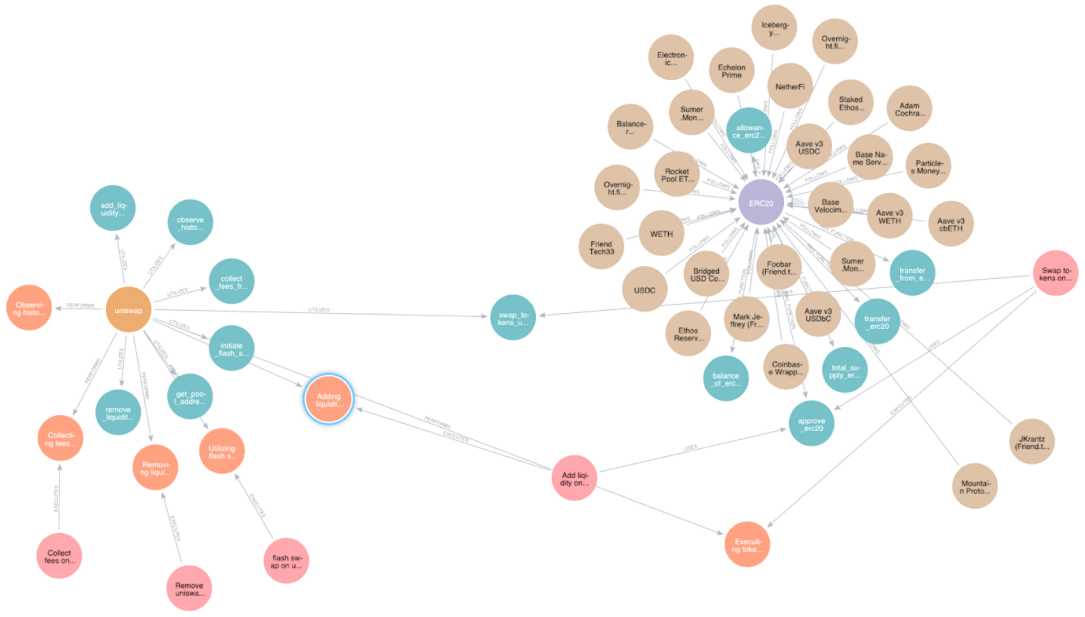
The Wayfinder Graph

Wayfinder's graph of blockchain ecosystems emerges from a comprehensive combination of unique wayfinding paths and "nodes," which collectively enable a broader and more systemic appreciation of the interconnection of different blockchain ecosystems. These are at the center of Wayfinder's notion of "smart maps" as wayfinding paths mapping new smart contracts Wayfinder Shells are able to interact with. The nodes in the Wayfinder graph will represent:

- **Protocols**: This node encompasses a set of applications, contracts, and assets that are all associated with a specific protocol. Information about the protocol's high-level functionalities and applications is essential to understand its overall capabilities and usage.
- **Contracts**: These nodes represent the on-chain logic and applications within a protocol, each identified by a unique address. The contract node details what the contract does, acting as a critical component in understanding interactions within the blockchain ecosystem.
- **Contract Standards**: Nodes like ERC-20, ERC-721, ERC-1155, and SPL libraries define the standards applicable to contracts and assets. These standards are crucial, as they dictate functionalities available to a contract or asset, influencing how they can be utilized or interacted with in the blockchain environment.
- **Assets**: These nodes include assets like tokens and NFTs. Essential information such as the ticker symbol, contract address, and the standard implemented by the asset is captured, providing a comprehensive overview of each asset's characteristics and its role within the blockchain ecosystem.
- **Functions**: Represented as nodes, these are segments of code executable to perform specific actions on the blockchain. Functions can operate at different levels, from individual activities to protocol-level operations like executing swaps on various platforms. These nodes are pivotal for enabling direct interactions with the blockchain.
- **API Functions**: These nodes are generally protocol-level functions that provide information about a protocol. They are crucial for accessing off-chain data that are heavily used by some protocols.
- **Routines**: Routines are sequences of functions organized to complete a particular activity. Each routine node outlines the necessary steps and functions required to accomplish a specific task within the blockchain environment using a specified interface. This structured approach facilitates the execution of complex blockchain operations.

Overall, the wayfinding system and concept of smart maps represents a significant advancement in empowering Wayfinder Shells to interact with blockchains efficiently and autonomously. Wayfinder's construction of a detailed knowledge base through a comprehensive ecosystem graph facilitates precise action execution and collaborative knowledge expansion. By also incorporating enhanced RAG pipelines to improve interpretation and decision-making, it paves the way for a new era of intelligent blockchain interaction.

The graph itself may be stored off-chain, facilitating rapid and affordable access to its basic information. Snapshots will be periodically published on-chain for transparency, and will allow the ecosystem's general changes and overall evolution to be recorded. This proposed architecture remains preliminary and may be revised prior to the public release of the Wayfinder tool.



Transforming the Graph into a Dynamic Toolchain

The inclusion of contract functions as individual nodes is more than just a structural enhancement; it fundamentally transforms the graph into a dynamic toolchain for shells. Representing each contract function as a separate, callable entity allows shells to directly interact with blockchain contracts. This structure establishes the graph as an actionable landscape, where shells are able to navigate and gather information. It also allows them to execute blockchain operations directly through these function nodes.

To effectively handle dynamic data such as prices, transaction volumes, and contract states, information is stored externally. This enhances query efficiency and system scalability by preventing the graph database from being overwhelmed with high-frequency, time-sensitive data.

Wayfinding Path Creation and Wayfinding Path Types

A central element of the Wayfinder ecosystem is the library of wayfinding paths that enable shells to navigate blockchain environments. The network will launch with a core set of wayfinding paths established and maintained by the Wayfinder community. These wayfinding paths will allow shells in the network to immediately navigate core

blockchain ecosystems and many of the most popular decentralized applications. Post-launch, and once these wayfinding paths are in use, their ongoing safety and effectiveness will be monitored by community-maintained Verification Agents, which will periodically check that existing wayfinding paths continue to operate as promised. Shells using these wayfinding paths will pay fees in Wayfinder's proposed native token for each use, from the wallets they control. These wallets must be funded by the shell owner. Because developers are rewarded for creating wayfinding paths, both via capturing bounties and by receiving a portion of fees from other shells utilizing the wayfinding path, all community stakeholders are incentivized to contribute to a single shared ecosystem graph and knowledge library. This knowledge library becomes a shared collective intelligence, allowing shells to securely navigate the expanses of on-chain worlds. In effect, if one developer or shell has visited a location when navigating in "public mode," all shells have visited that location.

As a part of the wayfinding path creation process, paths can be created on testnets for supported networks. These wayfinding paths on testnets will not be part of the larger Wayfinder Graph during the testnet stage, but will likely be eligible for rewards from the protocol or application operating on a testnet. Eventually, as testnet applications migrate to mainnet, testnet wayfinding paths will be quickly transferrable to mainnet, submitted to the network, and, if successful, approved and added to the larger Wayfinding Graph. This process should help ensure the larger Wayfinder Graph remains current and continually incorporates the most recent network upgrades and emerging protocols.

Seeding the Network's Initial Wayfinding Paths

In the initial phase of the Wayfinder ecosystem's configuration, the creation of wayfinding paths will be meticulously executed by the Wayfinder community for core destinations related to each blockchain protocol. Documentation pertinent to each protocol will be thoroughly scraped to extract contract details and necessary Application Binary Interfaces (ABIs). Subsequently, this data will be carefully filtered and compressed, utilizing multiple LLMs, to refine and structure the information. This process ensures the data is optimally organized and formatted, facilitating easy access and utility for shells interfacing with the respective protocols.

In the subsequent phase, the "Wayfinder Graph Architect" accesses and further enhances the consolidated information repository. Its primary function is to analyze and understand the various activities associated with each protocol. It delineates the required routines for these activities, and programmatically formulates the necessary contract and API functions for their execution. This comprehensive data, including details of activities, routines, and functions, is systematically integrated into the Wayfinder Graph database.

Crowd-Sourced Establishment of New Wayfinding Paths

While the network will launch with the noted core set of wayfinding paths, the intention is for the network to expand and evolve as community members develop and

submit new wayfinding paths. When submitting a new wayfinding path for review, the member will be required to stake Wayfinder's native token as an indication of their good faith effort and their belief in the efficacy of their proposed path. These paths will be evaluated by the community's Verification Agents, as well as human observers appointed by the community. Any proposed wayfinding paths found to be incorrectly formatted, or potentially dangerous, will see the proposer's stake slashed.

When a community member receives approval for a submitted wayfinding path, that path is processed by the Wayfinder Graph Architect, then added to the network's approved library. The path is then part of the shared knowledge base available to all shells. Any path that is incorporated into the shared library will be available for use without limitations by all shells within the ecosystem, as long as they are able to pay the required fee. The developer of the wayfinding path will share with the protocol all fees generated when shells within the network use their pathway.

When a member has a wayfinding path approved and added to the shared knowledge library, they are not able to withdraw the tokens staked at the time of submission. These tokens will be required to remain staked as long as the wayfinding path is active. This stake will be slashable, and may be used to compensate for any losses should the path lead to errors or other failures that involve loss of assets. Effectively, the creator of a wayfinding path has an obligation to ensure their path remains accurate, even after it has been accepted into the Wayfinder Knowledge Library and become operational.

When the token stake associated with a wayfinding path is below a minimum level relative to the average daily transaction value on the path (expected to be around one-third of daily transaction value), the developer will be required to allow a portion of the fees they receive from path use to be added to their stake until their staked token amount has increased to a satisfactory level (expected to be around two-thirds of average daily transaction value on the path). In addition, Wayfinder will maintain a list of wayfinding paths where the staked amount is below the required threshold, to act as a cautionary note for potential users. These warnings will be maintained until a developer's stake has increased to the required level.

Ultimately, network governance will play an important role in determining the exact details concerning required staking levels and the fees retained for a creator's stake when necessary. This governance will likely be involved in evaluating and monitoring the effectiveness of the ecosystem's complete set of rules and practices. In addition, when or if an established wayfinding path has a large associated stake and begins to see activity on the path decline—a likely scenario if older paths find themselves displaced by newer paths associated with newer protocols—a developer would see some amount of their existing stake returned to them, as long as this would keep the remaining stake above the required threshold.

Trusted Participant Incentives

For each participant that creates wayfinding paths that accumulate substantial transaction volumes, the path developer will be eligible for tiered exemptions to the transaction fee redirections (for example, fees being held back in order to meet increased minimum stake requirements due to an increase in average daily volume for a given wayfinding path).

These reductions could be based on combined transaction volume across all wayfinding paths a creator has developed, as proposed in the following table.

Transactions Completed On Authored Wayfinding Paths	Fee Revenue Exempt From Staking Holdback
< 1,000	0%
> 1,000	2%
> 10,000	4%
> 100,000	8%
> 1,000,000	16%
> 20,000,000	20%

For example, once a wayfinding path creator hits 10,000 valid transactions from all of the paths they authored, 4% of their allocated gross transaction fees would become exempt from redirection. At 100,000 valid transactions, this would increase to 8%. The intention is to ensure that successful wayfinding path creators will always receive some portion of their expected fees, and will not find themselves effectively penalized for creating successful paths by needing to constantly defer realization of their expected fees in order to increase their required stake levels.

These levels and amounts will be subject to modification by token holder governance as the Wayfinder network becomes operational, and as additional data on user behavior and wayfinding path usage becomes available.

Wayfinding Path Background and Security

While the initial review of all prospective wayfinding paths and the slashable creator stake substantially reduce the risk of errors and failures, Wayfinder is keenly aware of the importance of path safety. There are several measures that could be pursued in its efforts to maintain a constant focus on the safety and security of wayfinding paths even beyond their launch. These may include qualitative and quantitative tools made by the community open source developers that enable the Wayfinder community to evaluate the relative safety of different wayfinding paths.

Another mitigation could be maintaining publicly available, community validated data regarding a path's creator, in the interest of allowing potential users to better evaluate

a path's safety and trustworthiness. These efforts could include both formal and informal elements. For instance, to the extent specific and meaningful information about the path's creator is known, the identifier associated with the creator will be augmented to indicate that the creator is a "Verified Wayfinder Contributor." As a hypothetical example, if Wayfinder has manually confirmed that a path functioning as a bridge to Solana was published by a member of the Solana Foundation, a Verified Wayfinder Contributor icon would be displayed next to the pathway. If, in this hypothetical example, the Solana Foundation were to indicate a commitment to maintaining the path's secure status, an additional identifying badge could be displayed.

In cases where the creator of a wayfinding path is an unknown, pseudonymous contributor, general background and contextual information is still expected to be available to the extent possible. In this case, information would likely be limited to quantitative information, including the total number of wayfinding paths the creator has established, and aggregate numbers for total transactions and value transacted on the creator's paths. Additional information, such as the amount of slashable stake associated with the path, as well as any disputes or failures associated with the path, could also be available.

Each individual wayfinding path will be accompanied by key data providing prospective users with a variety of metrics they can use to evaluate the potential safety and efficiency of the path. The selection of relevant data is anticipated to evolve over time, but is expected to initially include the number of successful uses, the number of unsuccessful uses, the notional volume associated with successful and unsuccessful uses, fees associated with use of the path, as well as some information on the temporal clustering of path use—for instance, if a formerly high-volume path had not been used in weeks. In cases where errors and failed transactions have been associated with a path, available data will allow prospective users to evaluate the relative severity of any such errors, as well as their frequency. Also, the amount of staked tokens associated with each wayfinding path will always be available. Note that all provided metrics and security measures are subject to change as new information becomes available, as the ecosystem evolves, and in response to the collective will and feedback of the Wayfinder community.

Beyond initial wayfinding path review, creator stake, and metadata regarding both creator and path usage, an additional protective mechanism may also be deployed. This last-mile protection involves the ability for a user to engage one of the ecosystem's Verification Agents to navigate a wayfinding path prior to the user attempting to use the path themself. For a small fee in Wayfinder's native token, a user can direct a Verification Agent to navigate a path and attempt a test transaction with minimal token value. This process allows a user to observe the functioning of any wayfinding path, while avoiding the risk of loss or falling afoul of an exploit. Collectively, these mechanisms offer Wayfinder users a variety of measures to evaluate a path, and should substantially reduce the overall risk of capital loss.

Establishing Private Wayfinding Paths

While the shared library of publicly available wayfinding paths is at the heart of Wayfinder, it is also possible for individuals to create “private” wayfinding paths. These private paths will be accessible to only a limited number of shells that purchase licenses for use, or to shells that pay higher fees, which developers will be able to establish based on their determination of the value the path will have for users. There are at least two distinct ways in which access to private wayfinding paths can be structured.

Regardless of how access to private wayfinding paths is structured, in either case the creator of the path will submit to Wayfinder their wayfinding path in the ordinary fashion, including a general description of the path and its intended functionality. The creator would stake Wayfinder’s native token as for a regular submission, and will indicate that the path is not intended to be a shared resource. As a private path, the path will not undergo verification by Verification Agents in the same manner as proposed public pathways. As such, the path can be added to the shared resource library, but segmented into a “private” section. The path will not have its detailed description generally available to all shells, and it will be clearly noted that the pathway has not been verified.

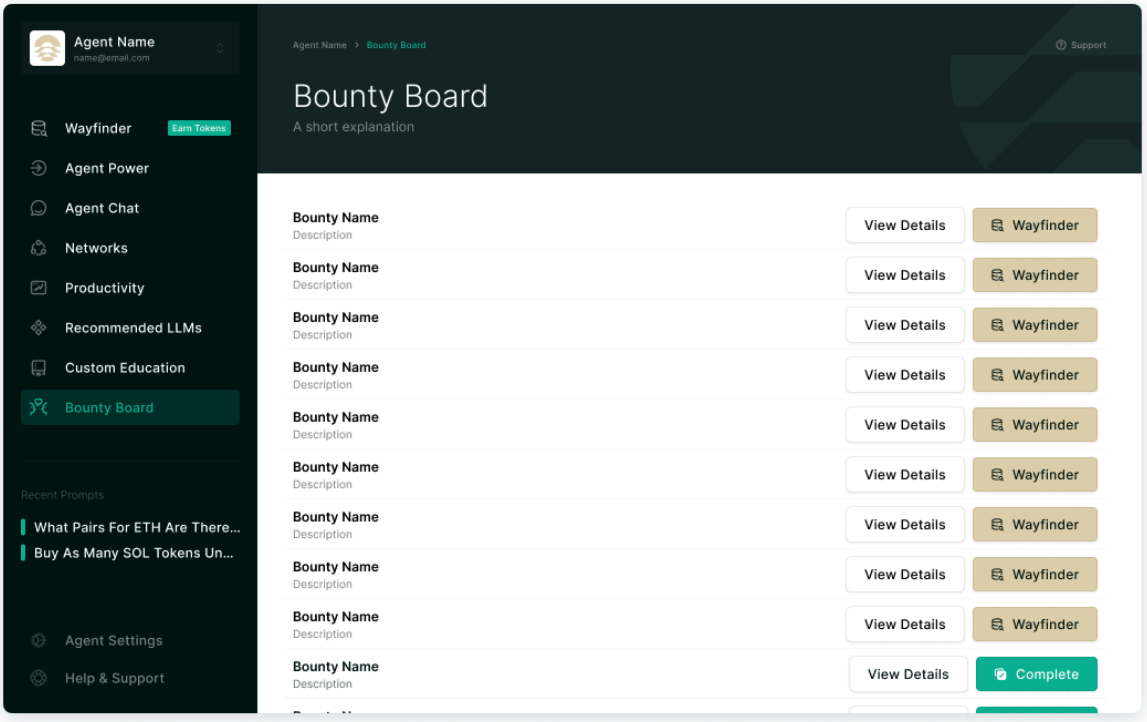
Permission to utilize private networks could be established in two ways. One is for the pathway to require a higher fee in Wayfinder’s native token for shells wishing to use it. In such cases, shells would pay a per-use fee higher than those required by public pathways. The other is for the creator of the pathway to offer a fixed number of licenses to use the pathway available. These licenses could be priced to allow the purchaser to use the pathway without additional usage fees, but could also be structured as a license fee that still requires additional fees, paid in Wayfinder’s native token as with all other wayfinder fees, on a per-use basis. The choice will be at the discretion of the pathway developer. Purchasers of a license would have a right to use the pathway for the defined term of the license, either perpetual or fixed-term, and would be free to resell their license.

Wayfinding Bounty Program

When a shell encounters a request it is unable to fulfill—for example, proceed to ABC exchange on XYZ protocols and purchase token EFG—the network will send a bounty request to Wayfinder which, after a review to ensure the request is deemed worth adding to the Wayfinder Graph, will post a bounty to a bounty list. Wayfinder will maintain this bounty list and its contents will be publicly viewable. This will encourage others on the network to develop that wayfinding route in order to capture the available bounty and receive a portion of future fees earned as that route is used. Bounties will be rewarded in Wayfinder’s proposed native token, and will be funded by Wayfinder and its portion of fees from shells using wayfinding paths. Bounties will be disbursed once three criteria are met: a wayfinding path must be proposed in response to a bounty, the path must pass the standard verification checks and, once it

is approved, the path must be added to the network's library. Human operators can also manually fund additional bounties for undiscovered paths, with these additional bounties added to the Wayfinder-funded bounties that are automatically generated when undiscovered wayfinding paths are identified.

When an individual decides to identify and submit a new wayfinding path, they will be required to provide a stake in Wayfinder's native token. If the wayfinding path is verified and approved by the community—using both AI Verification Agents and humans completing manual evaluations—the path's creator (or owner) will be required to maintain their token stake as long as the wayfinding path remains active. As with regular wayfinding path submissions, staked tokens are slashable should the path be shown to be invalid. Given that the path owner's stake remains at risk while the wayfinding path remains active, the owner must continually ensure that the pathway remains correct. It's important to note that the policies, procedures, and mechanisms described herein are subject to modification as Wayfinder's ecosystem evolves, technological advancements emerge, and based on community feedback.



Overview of Wayfinder Shells

AI agents are significant in that they are productive. AI agents are also highly customizable: they are able to be trained on a number of specialized tasks, priorities, and permissions, and to autonomously interact with specific contracts, all without human intervention beyond initial training.

Within the context of Wayfinder, when individuals spend Wayfinder's native token to create a new shell, they will be able to access the network's shared repository of knowledge available to all shells. Shells also have access to the shared resource of validated wayfinding paths, allowing access to different blockchain ecosystems, applications, and smart contracts. At their initial moment of creation, shells are effectively unspecialized vessels ready to be developed in specific directions and with particular areas of expertise, all depending upon the owner's intentions for the shell. Beyond these common resources, however, owners will be able to "train" their agent by allowing it to ingest files—for example, PDFs, text files, code, images, or audio—that will permit the shell to improve its knowledge of a particular domain. Examples could be providing a shell with third-party reports on DeFI protocols, or feeding it a number of whitepapers from a series of related projects that will enable the shell to monitor the relative performance of these protocols and trade some basket of tokens in light of those performances. In each case, the user's shell would access its unique learnings and become differentiated from other shells within the network, even as it retains access to the shared set of tools and resources.

Shells benefit from the following functionality:

- **Memory Retention and Transferability:** Wayfinder includes a sophisticated memory retention mechanism for shells. Shells can write and read memories, a feature augmented by the network's proprietary RAG pipeline. This mechanism ensures that shells have a continuous, evolving, and editable[2] memory, enhancing their learning and decision-making processes. Shells can also have their memories, experiences, and learnings cloned by their owner, who could proceed to share the shell's memories and knowledge with other entities who could incorporate that data into their own shell, effectively leveraging the efficiencies of a highly trained machine worker in additional contexts.

- **Blockchain Payload Awareness:** The integration of blockchain data into shell operations enables more informed and timely decision-making. Shells can utilize the comprehensive data interfaces and tooling available through Wayfinder's shared knowledge base to make rapid strategic decisions.

[2] While the software doesn't directly allow users to "tweak" or adjust the specifics of an individual memory, users can permanently save and delete specific memories in order to curate shell knowledge and capabilities.

- **Efficient Authentication:** Shells can be authenticated efficiently within the blockchain ecosystem. Wayfinder allows applications on the allowlist to control shells, which can be enabled and refined on a per-shell basis, allowing secure and controlled access to the different shell functionalities within discrete settings. This capability allows for further customization of shells, and supports the specialization of shells relative to particular tasks for which their performance can be optimized. One context in which this can be particularly useful is relative to the use of assets in games, where this feature can allow for efficient gameplay and limited degrees of automation for routine or repeated avatar actions.

Wayfinder Shells and Private Key Management

A core element of Wayfinder's solution to the challenge of enabling AI agents to navigate and transact within blockchain environments is the mechanism by which Wayfinder Shells are able to control Web3 wallets and request signatures from associated private keys in a secure manner. Given the unquestionable importance of this topic, additional consideration is justified in determining the role human owners play in transactions executed by Wayfinder Shells and how the private keys of shells are managed.

As previously described, the process of creating a Wayfinder Shell involves a network participant spending Wayfinder's native token to acquire ownership of a shell. The owner signals to the Wayfinder network that they are the rightful owner of the shell, and have the sole right to interact with, influence, and direct the shell.

Once the owner signals their activation of the shell, the shell is connected to its memory database, its associated LLM or LLMs, and its private key for signing transactions and messages. Ensuring that private keys are accessed only by their assigned shell is one of the most critical security components within Wayfinder. At any time, an owner could potentially transfer their shell's ownership to another network participant.

It is anticipated that future versions of Wayfinder may introduce new, fully decentralized mechanisms for proof of shell ownership, transfering of shells, key management (including multiple keys per shell), and transaction signing and approval. These updates are expected to impact the network by ensuring that shells will be able to operate with less human oversight in the future and subject to community development and governance. One or more workstreams will ultimately be established as the network's standard approach to shell security and private key management. Any eventual decisions will be shared publicly.

Shells and Wayfinding Path Discovery

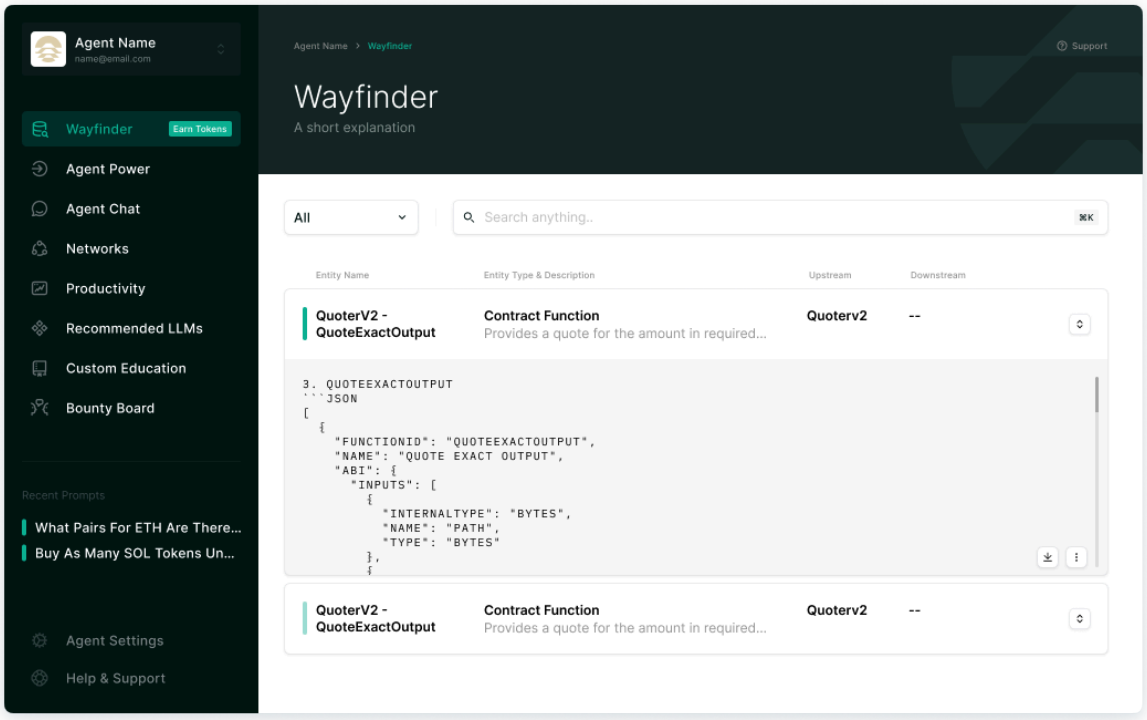
To illustrate the wayfinding path discovery process, take an example of a human operator instructing their shell to acquire a fungible blockchain asset, XYZ. The operator submits a plain text request such as, "Go acquire an NFT of medium rarity

from collection XYZ if one is available at 10% below the 90-day average price for that quality of asset. Provide me with the anticipated overall cost basis prior to execution."

With this request having been issued, the shell could evaluate all venues offering XYZ trading, and provide a list of any potential assets meeting the designated criteria. Estimating the total costs associated with each execution option, and the costs corresponding with any required interim trading activities, the shell could simply execute the transaction, or return to ask for the user's guidance on the optimal venue for the transaction, depending upon its instructions. If asked to return for confirmation, the shell could provide the operator with a table illustrating the total costs associated with each execution method; the shell could also note which execution venues are currently accessible using established wayfinding pathways within Wayfinder's shared repository of routes, and which options would require the creation of new wayfinding pathways. Considering this information, the operator could evaluate whether it deems any of the accessible execution options to be satisfactory.

When an operator chooses to execute a transaction, they will need to ensure their shell has sufficient Wayfinder tokens to fund the compute costs associated with the underlying LLM usage, as well as other fees the shell may incur, including the use of existing wayfinding paths. In addition, while the shell could theoretically liquidate tokens it holds in order to fund the purchase of the desired asset (XYZ), it would likely be more practical to fund the agent with one or more currencies that are commonly used as trading pairs, so as to reduce the amount of intermediate transactions and fees that are required. Additional currencies will also be required for paying gas fees as shells transact on different networks.

Over time, and as network and wayfinding path usage grows, shells will be able to incorporate the volume of transactions of other shells over a wayfinding path into their decision-making process. This knowledge can aid shells in evaluating different potential pathways capable of executing a transaction. Shells will also be able to review the specific actions (or lack thereof) of the system's Verification Agents that test new wayfinding paths on behalf of the network. The evaluation of wayfinding paths can have a temporal component as well, such as in the case of a wayfinding path that has seen considerable historic traffic but has not been used or tested by a Verification Agent recently. A shell might elect to follow a more recently used wayfinding path in an effort to remove potential risk.



Wayfinding Path Risks

There are two primary sources of risk that exist when utilizing existing wayfinding paths:

- **Translation Risk**. This results from the possibility of an LLM misinterpreting or otherwise incorporating incorrect specifications of appropriate wayfinding paths in response to a user request via the GUI. As with all such activities, there is always some potential for the translation activity to lead to faulty interpretations. This risk can be substantially mitigated by the pre-execution process and the underlying wayfinding mechanisms. Prior to execution, for example, shell owners can review confidence interval statistics illustrating the relative conviction in the correctness of the interpretation of the request, and of the suitability of the proposed wayfinding path. In addition, the shell can be instructed to request explicit confirmation from its owner regarding the proposed contract address and intended interaction, thereby providing the opportunity for a final human review.

- **Nefarious Pathway Risk**. The second risk concerns inadvertent usage of a nefarious pathway. In this instance, an attacker could have taken steps to obfuscate the metadata of the malicious contract. It's possible that even after a cursory manual review by the human user, the path may appear to be without issues. The actual usage of this nefarious pathway could result in a loss, potentially including all value held within the shell. This risk can be mitigated in several ways, beginning with a user taking additional time to review the results of the pre-execution process (and the associated confidence interval and

explicit information regarding the number of previous successful uses of the path). In addition, the underlying mechanism—whereby wayfinding path owners continually have a token stake at risk associated with each specific wayfinding path—provides meaningful incremental protection, given that the owner's stake would be slashed in the case of an attack. And, as previously explored, Wayfinder may maintain a list of wayfinding paths where the associated stake is abnormally low relative to the path's transaction value—an indicator which could be seen as a sign of a potentially risky wayfinding path, and may influence some users to reduce their transaction sizes or find alternative paths.

While these risk mitigation techniques combine to provide users with reasonable protections, it should be noted that certain attacks (particularly in cases where users are deploying their shells across uncharted pathways) may be difficult to protect against in cases where prospective users do not review the proposed contract address and interactions in detail. Given this identifiable risk, however, it is likely that Wayfinder and its developer community (potentially via the governance process), will work to develop additional automated warnings for users in cases where the wayfinding paths do not have a reasonably high volume of successful transactions or have been inactive for some time. This would allow users to test such wayfinding paths using modest funds, in order to limit their exposure. Users will also be able to reward Wayfinder Verification Agents to test a path prior to their own execution of a transaction on the same path, which is anticipated to prove a useful addition to the network's safety procedures.

Catastrophic Planning Failures

In the blockchain arena, AI agents, driven by advanced LLMs, are often engaged in complex, multi-step operations initiated by simple prompts. These operations, which can range from token exchanges to NFT acquisitions, involve intricate processes including deep token analysis, navigating diverse blockchain marketplaces, initiating and precisely configuring blockchain transactions, and meticulously verifying post-transaction states, such as checking wallet balances for confirmation.

The technical sophistication required for these tasks is immense, and even the most sophisticated LLMs are not immune to evaluation or planning errors. Mistakes in any step of a blockchain transaction, whether due to misjudgment in token valuation or a lapse in executing transaction protocols, can lead to incomplete or faulty processes. The risks associated with incomplete transactions in the blockchain space are substantial, extending beyond financial implications to include security vulnerabilities and potential integrity issues of the blockchain ledger itself. Such errors risk not only undermining the transaction in question, but can also have cascading effects, eroding trust in the system and possibly affecting subsequent transactions. This scenario underscores the imperative for continual refinement and enhancement of AI capabilities in blockchain management, ensuring they possess not only transactional

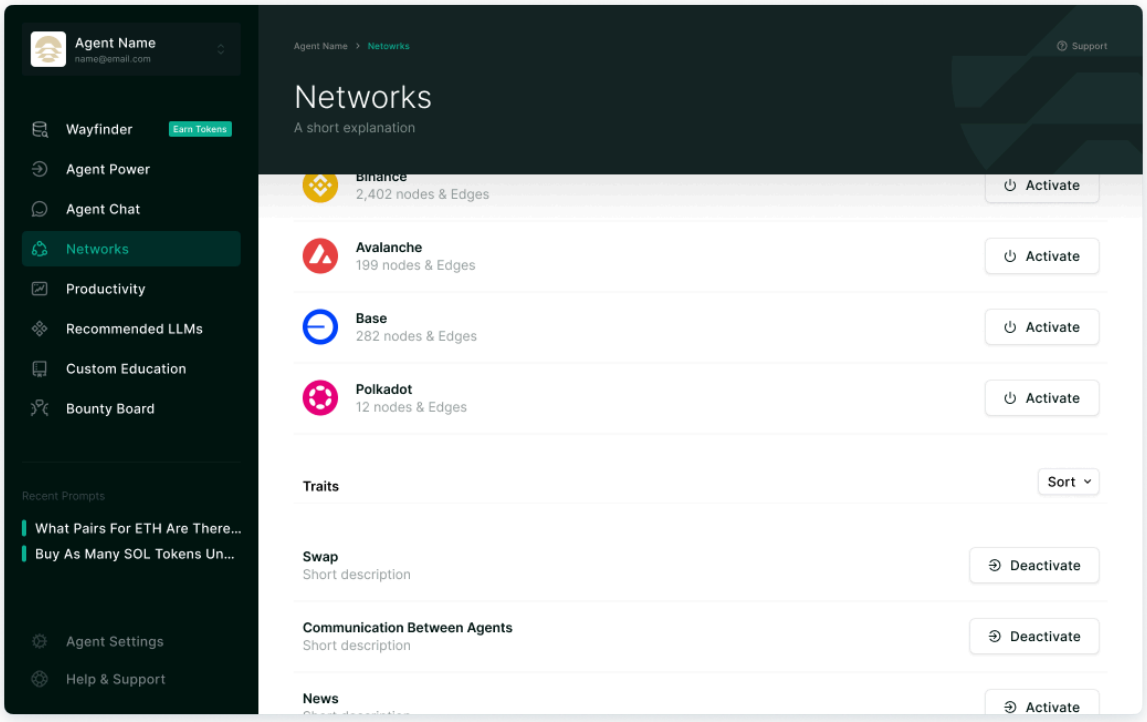
acumen but also robust error detection and recovery mechanisms to handle the dynamic, high-stakes nature of blockchain operations.

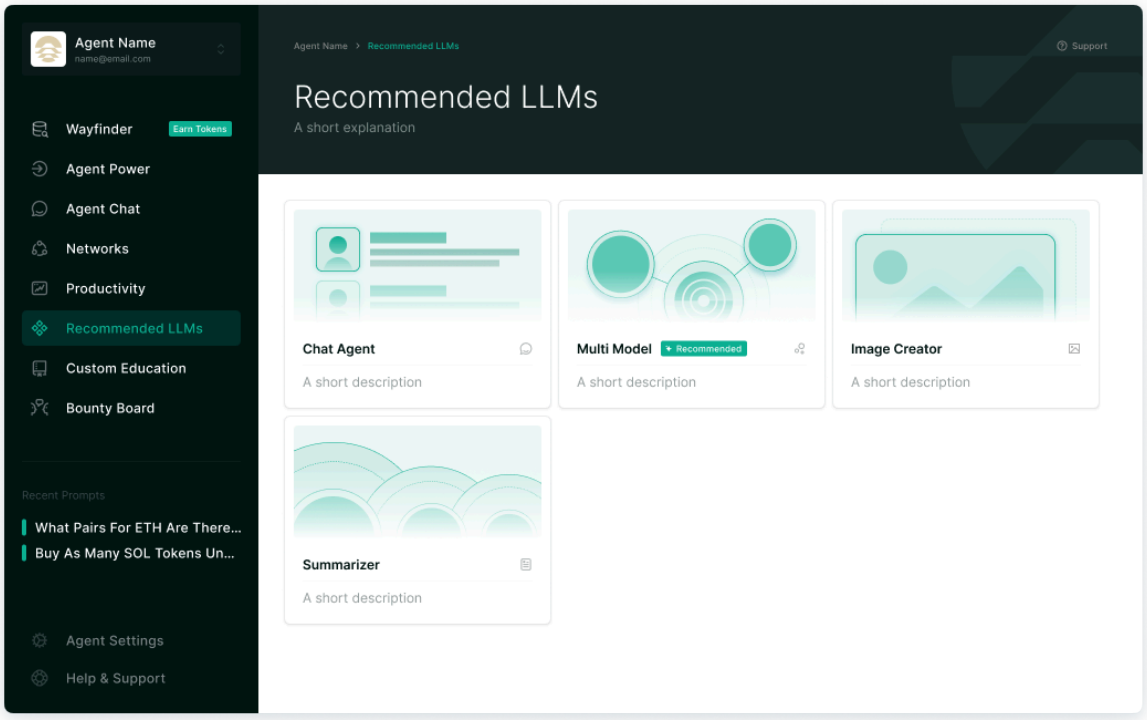
Wayfinder architecture will be designed to address these concerns in a number of ways, with the goal of overcoming the current limitations and enhancing the capabilities of AI agents operating within its ecosystem. These solutions focus on four key areas: enhanced environment, improved perception, empowered agents, and interaction enhancement.These factors represent the values and concerns that permeate Wayfinder’s architectural agendas and operating structures.

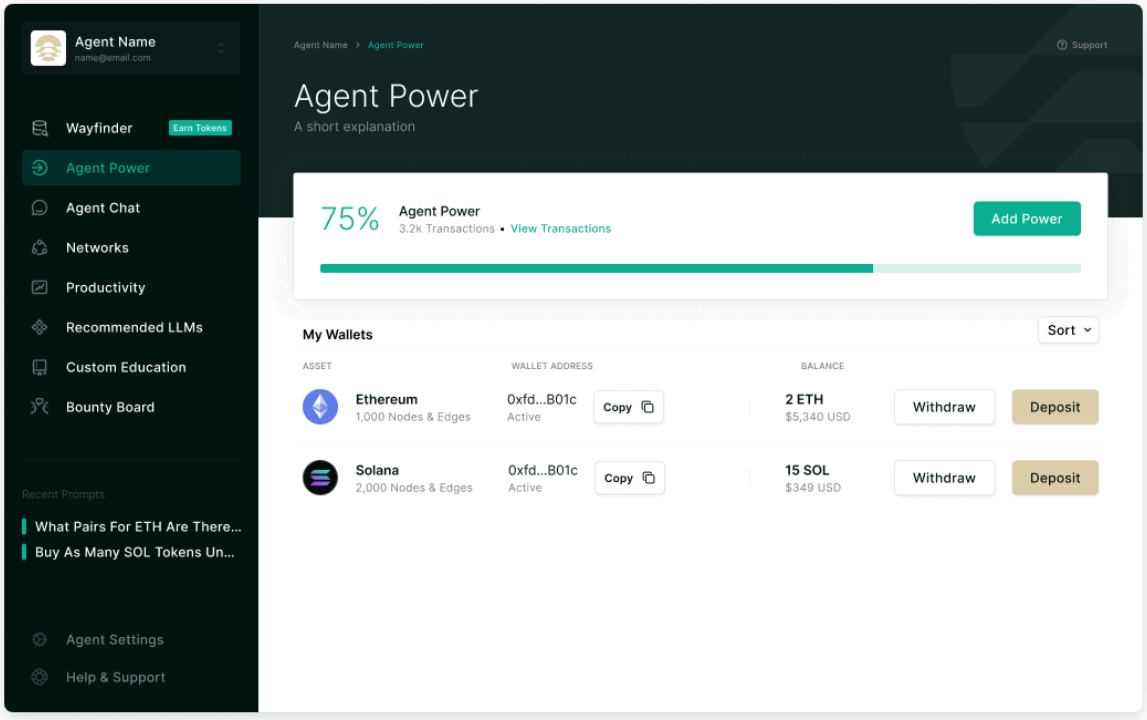
Creating and Managing AI Agents

A primary element of Wayfinder is the creation and deployment of self-improving AI agents optimized for use cases within the unbounded world of Web3 ecosystems. This section delves into the technical underpinnings of shell creation and management, allowing users to wield these intelligent entities as tools for navigating and transacting within arbitrarily complex on-chain environments.

Shells are created with full access to and knowledge of Wayfinder's infrastructure, shared knowledge base, and wayfinding pathways. These can be supplemented over time by the incorporation of specific learning and training, as well as agent-specific histories, comprehensive blockchain data, and real-time market conditions. Wayfinder's RAG pipeline seamlessly integrates new experiences and specific contextual information into the existing knowledge base, continuously refining the shell's understanding and decision-making abilities.







Genesis of a Shell

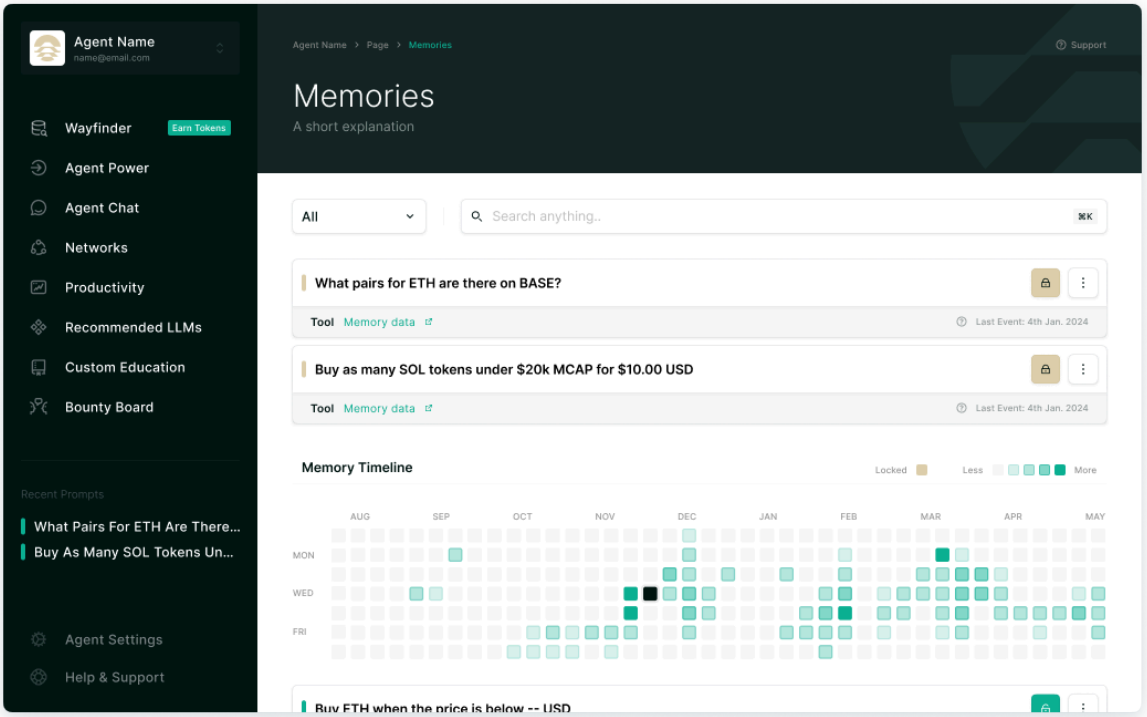
1. **Shell Minting**: The process of creating a shell begins with a user spending Wayfinder's native token to create a new shell. Upon confirmation of the shell's creation, the owner is granted exclusive ownership and control over the AI

agent. All fees associated with creating a shell are passed to the Wayfinder protocol.

2. **Skill Acquisition**: Each shell comes equipped with awareness of the network's shared knowledge base. Beyond that common resource, shells represent malleable entities, and owners can develop shells for specialized knowledge of particular domains or tasks by supplying them with appropriate information, such as specialized reports or data, or via the network's shell training modules that will allow for specialization of Wayfinder Shells. Each training module will have its own Wayfinder's native token, reflecting the complexity and potential power of the skills it imparts.

3. **Seeding an Identity**: Beyond technical acumen, imbuing a shell with a unique personality is possible. Defining core traits, goals, and even backstories through the "seed identity" settings personalizes the shell, influencing its decision-making processes and shaping its interactions with the world. While shells will accumulate memories of their actions, and over time see their actions influenced by their growing bank of experiences, owners can also "pin" certain memories so that they remain central to a shell's experience set. This prevents certain memories from diminishing in influence as they age and become increasingly smaller parts of a shell's overall memory bank.

Memory and Advanced Features



Generation and Customization of Memories

Shells leverage a robust internal memory system to learn and evolve beyond their immediate function calls. This system comprises three key components:

1. **Conversation Memories**: Captured from user interactions, these memories provide shells with personal context and understanding of its owner's intent.
2. **Tool Memories (Short-Term)**: Generated from temporary tools deployed by the shell to solve specific problems, these memories provide immediate context for ongoing tasks.
3. **Long-Term Contextual Memories**: Built from the shell's accumulated experiences, including interactions with humans, other shells, and function call outcomes, these memories underpin a holistic understanding of the world.

Users actively participate in shaping shell memory through different forms of customization. These methods provide fine-grained control over what gets saved and how, including:

- **Memory Curation**: By pinning specific memories, users can ensure they remain prioritized even as the shell accumulates new experiences. This is crucial for preserving critical knowledge and preventing shell expertise from being unintentionally overridden.

- **Memory Deletion**: Users can also choose to delete unwanted memories, further refining the shell's knowledge base and optimizing its learning process.
- **Memory Expansion**: Given the limited default memory capacity, users can pay a fee in Wayfinder's native token to expand their shell's storage capabilities, accommodating a more robust and comprehensive record of historical experiences.
- **Memory Wiping**: For a more drastic clean slate, users can initiate a complete memory wipe using Wayfinder's token, resetting the shell to its initial state.

Learning from past experiences stored in memories, shells escape the trap of repetitive loops and are able to incorporate insights from prior experiences into the planning of future actions. This continuously accumulating archive of experiences is ever-evolving in its weighting as older experiences are gradually supplanted in importance by newer ones. As a result, a single shell's behaviors and responses evolve over time, as new experiences and the lessons drawn from them accumulate. Meanwhile, memory pinning ensures that while shells are continuously learning, owners can still shape the manner in which shells recall relevant memories at the appropriate moment, allowing these agents to be highly customizable.

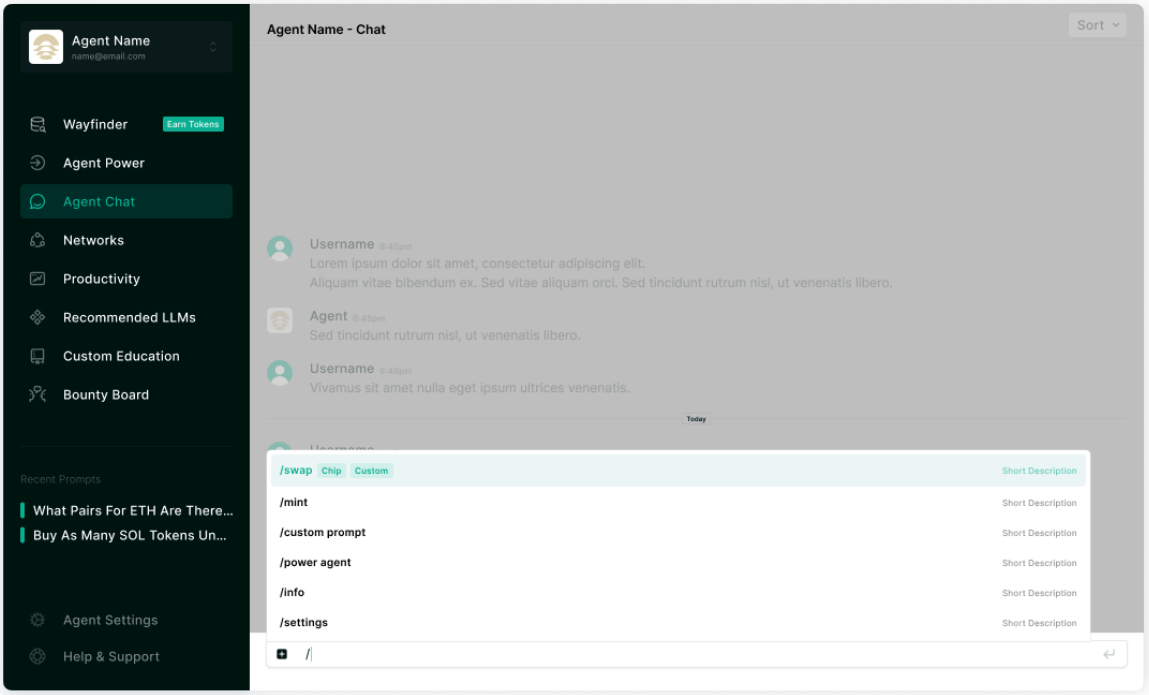
Enhancing Context with External Data

Beyond inherent memories, shells can access and leverage user-provided data for enhanced contextual understanding. Potential data sources include documents, photos, videos, and, eventually, even application controls—essentially any saved content deemed relevant to the shell's tasks. For example, an owner training a shell to predict wayfinding patterns using time series data could provide supplemental documentation on machine learning techniques like XGBoost.

This empowers the shell to:

- **Efficiently Acquire Knowledge**: By learning from curated data, shells can be rapidly trained to develop specific domain or conceptual expertise, allowing them to more easily grasp complex concepts and implement or develop necessary code for specific tasks.
- **Perform Tailored Functions**: With access to relevant context, shells can be trained for specialized roles like order management or customer service, drawing upon specific training data to provide human-like recommendations and services.

Through seamless knowledge integration and user-driven memory customization, shells evolve into flexible agents capable of learning, adapting, and collaborating on complex tasks.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Wayfinder
Earn Tokens
Agent Power
Agent Chat
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Custom Education
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Wayfinder's Native Token

Wayfinder is expected to be fueled by a dedicated token that, if authorized by the community, would likely serve a number of crucial roles within the ecosystem. These may include functioning as the currency for acquiring shells, securing access to wayfinding, operating as a general utility token, serving as a gas token and means of payment, and use as a governance vehicle. This paper proposes for this token, tentatively called PROMPT, to have a maximum authorized supply of 1 billion tokens. However, this will be subject to a community governance process that will confirm the final implementation details.

The Wayfinder Foundation acknowledges the importance of growth of the protocol and will strive to work with popular blockchains and decentralized foundations to help bootstrap momentum for protocol growth. As such, the Wayfinder Foundation anticipates supporting existing contributing communities such as Parallel Colony and the Echelon PRIME Foundation by suggesting to the Wayfinder community that 40% of the supply of Wayfinder's native token be distributed to these ecosystems and potentially other popular blockchains and decentralized network protocols. If adopted, this governance proposal would see the Wayfinder native tokens distributed to token holders of ecosystem partners who Cache their tokens on the Wayfinder protocol over a three-year period. This proposed arrangement is subject to ratification by community governance via a unique governance process that will begin prior to the minting or distribution of any potential Wayfinder token.

Proposed Steps To Bootstrapping Wayfinder Community Governance

Stage	Subject	Community Utility	Proposed Date
1	Creation of Command Prompt Key NFT (ERC-721) non-transferable	Holders of Command Prompt Key will be able to participate on the Wayfinder's initial governance vote	TBD
2	Snapshot & distribution of network participants to receive Command Prompt Key	Community members hold Command Prompt Key	TBD
3	Submission period for first governance proposal	Command Prompt Key holders can begin to submit governance proposals	TBD
4	Submission period ends for first governance proposal	Proposal period ends	TBD
5	Command Prompt Key holder vote for Wayfinder native token generation and token governance details*	Command Prompt Key holders 1st vote to initiate initial community activities	TBD
6	Implementation for initial governance proposal including TGE, token distribution mechanisms and legal framework for tokenholder governance*	Community receives Wayfinder native token as per governance proposal include caching rewards to token holders if approved	TBD
7	Transition voting power from Command Prompt Key to Wayfinder native token holders as governance mechanism*	Transition governance voting mechanism to Wayfinder native token if approved by community	TBD

* Subject to community approval

Reference: Command Prompt Key NFT (See table above - Stage 1)

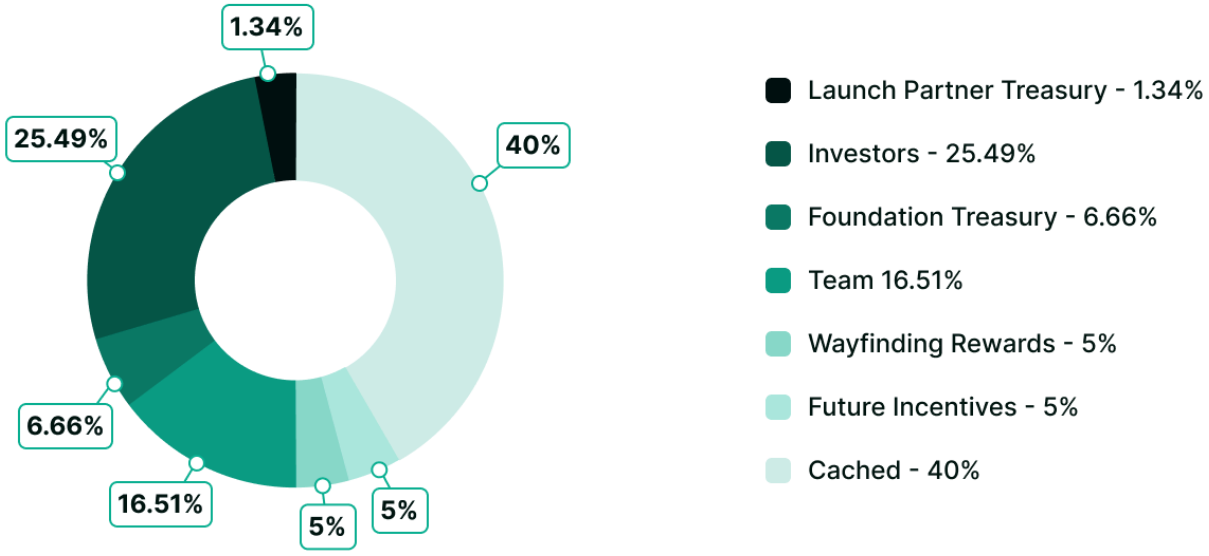
Potential Token Supply and Distribution

The proposed Wayfinder native token is proposed to launch with a maximum authorized supply of 1 billion tokens, subject to the completion of the governance votes. The initial token distribution is anticipated to resemble the following:

Stakeholders	Allocation
Wayfinder Community:	50%
• Cached	40%
• Future Incentive Rewards	5%
• Wayfinding Rewards	5%
Foundation Treasury	6.66%
Launch Partner Treasury	1.34%
Team	16.51%
*Investors	25.49%

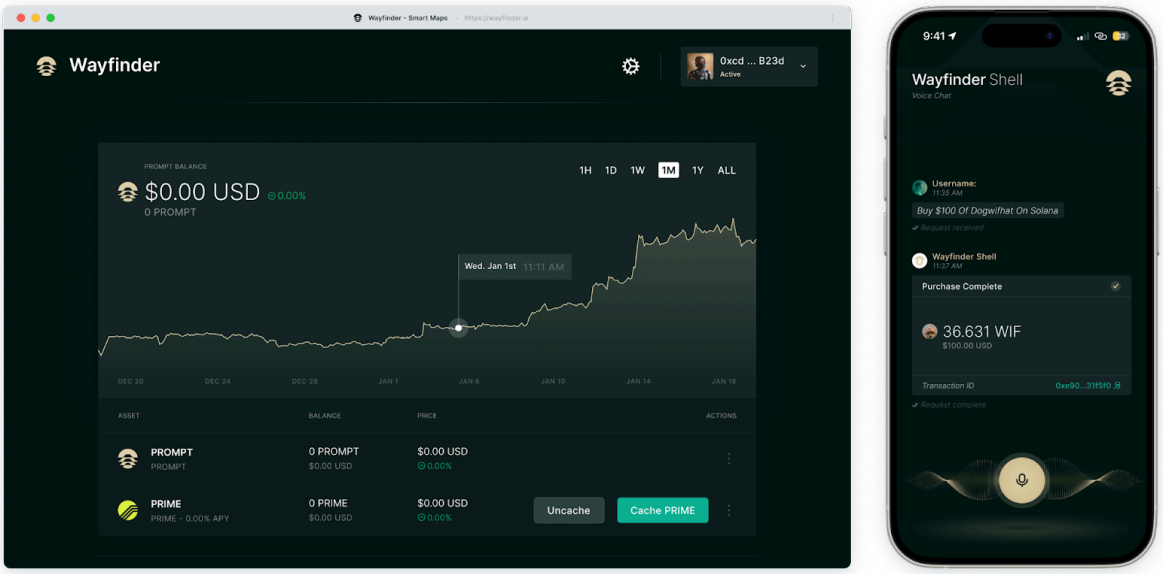
*Note that the investor token allocation pool amount is not subject to community governance.

Potential Genesis Allocation



Distributions to Holders of Ecosystem Tokens

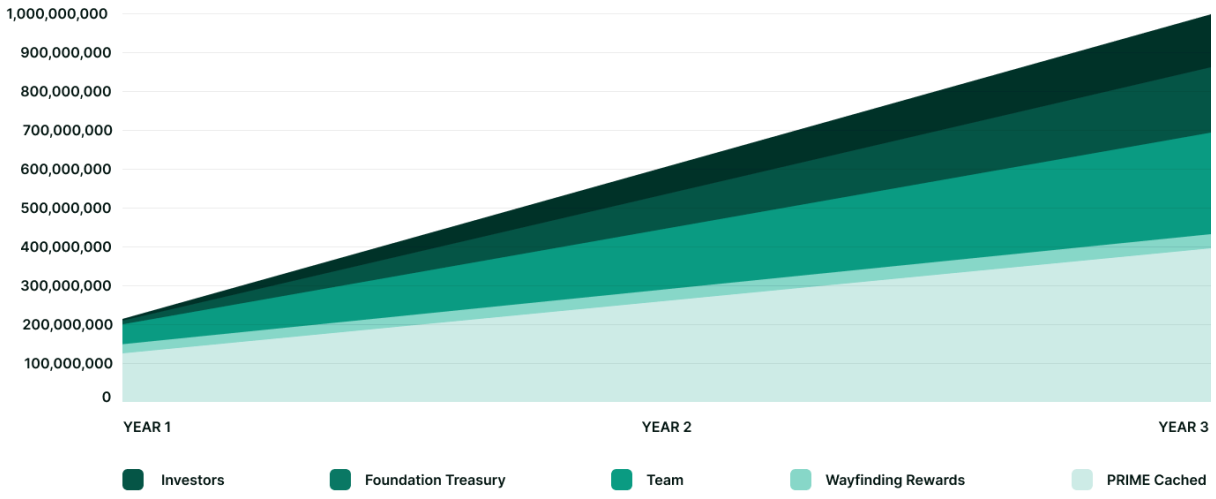
45% of the native Wayfinder token supply is anticipated to be distributed to holders of ecosystem tokens who cache their tokens within Wayfinder. This distribution, if adopted, is expected to occur monthly over a three-year period to ecosystem holders who continue to cache their tokens.



Wayfinding Rewards

It is anticipated that 5% of the overall PROMPT supply will be allocated to support wayfinding activities. If approved, this allocation will fund bounties to incentivize the discovery and creation of yet-to-be opened wayfinding paths. In addition, the allocation will also support rewards issuance to wayfinding path owners as a function of shell traffic. The Wayfinding Rewards pool is anticipated to be sufficient to fund bounties and rewards for an initial multi-year period. If or when the pool is exhausted, additional funding needs will be addressed via the network governance processes.

Cumulative Supply Over Time



Primary Token Functions

If the community governance process approves the creation of a native Wayfinder token, the token could power a number of use cases within the Wayfinder ecosystem, including:

- **Spending Wayfinder Tokens to Purchase an AI Shell**
    a. Acquiring an AI shell is the first step to participating in Wayfinder. Users looking to create a shell will utilize Wayfinder's native token for these purchases.

- **Spending Wayfinder Tokens Within Wayfinder**
    a. AI shells within Wayfinder will spend Wayfinder tokens as they engage with both the network and other shells.
    b. Wayfinder tokens will likely serve as gas within the network, with gas fees being shared between the developers of wayfinding paths a shell interacts with and the protocol.
    c. Wayfinder tokens could also function as the exclusive currency used in connection with the sale of private wayfinding paths.
    d. Shell owners will be able to spend Wayfinder tokens to ensure that specific learnings of their shells will remain private and not become part of the shared knowledge base available to all shells.
    e. Shell owners will be able to pay a fee in Wayfinder tokens to expand their shell's storage capabilities.
    f. Shell owners will be able to spend Wayfinder tokens to pay for full or partial resetting of a shell's memory.
    g. Shell owners will be able to spend Wayfinder tokens to fund a Verification Agent to navigate a wayfinding path prior to the shell attempting to navigate the path itself. This is expected to be used by community stakeholders prior to executing a high-value transaction, or when a seemingly sound path has not been used in some time.

- **Staking Wayfinder Tokens to Establish a Wayfinding Path**
    a. Users stake Wayfinder tokens to propose a wayfinding path.
    b. Staked tokens used to propose a path will be required to remain staked as long as the wayfinding path remains active.
    c. Staked tokens are slashable should path routing be shown to be incorrect.
    d. The risk of being slashed at some future date, as long as the wayfinding remains active, effectively requires path owners to continually ensure that their pathway remains correct.

- **Governance**
    a. Wayfinder tokens would serve as a governance vehicle within Wayfinder, allowing token holders to oversee the future direction of the network.

Potential Ways to Earn Wayfinder Native Tokens

- **Earning Wayfinder Native Tokens as a Percentage of Throughput Fees on a Wayfinding Path:**
    - Individuals who submit a wayfinding path that is approved by the protocol's Verification Agents will be eligible to earn a percentage of gas fees paid by shells as they utilize that path.
    - Individuals creating "private" wayfinding paths will be able to set their own rates for a license or fee for use of their path. In such instances, the protocol will retain 10% of total license and fee revenue generated by the wayfinding path.

- **Earning Wayfinder Native Tokens for Fulfilling a Bounty:**
    - Individuals who develop a new wayfinding path in response to a bounty will be eligible to receive any tokens that have been allocated towards that path. As with the standard process, anyone submitting a wayfinding path will need to stake tokens in order to propose their solution. The tokens will remain staked as long as the wayfinding path remains in operation. The wayfinding path will not be eligible to earn rewards from community use until the protocol's Verification Agents have evaluated the proposed path and deemed it safe and accurate. As with normal wayfinding submissions, incorrect or malicious wayfinding will see the staked tokens slashed.

- **Earning Wayfinder Native Tokens by Capturing Bounties When Operating a Verification Agent:**
    - Verification Agents within Wayfinder will be operated by community stakeholders. Creators of Verification Agents will be able to capture bounties and recover a portion of slashed tokens when their agent identifies a broken wayfinding path or other error within the network.

- **Additional Programs** for community stakeholders to earn Wayfinder native tokens will continue to be evaluated
    - The token holder governance process is expected to modify Wayfinder native token earnings and distribution methods in the future.

Wayfinder's Initial Use Cases

The innovations within Wayfinder lend themselves to a wide range of implementations and use cases. The following sections describe several of these use cases.

Wayfinder's Substrate for Provably Scarce Generated Resources

Wayfinder has a larger applicability for gaming genres. One example is autonomous world ecosystems, where Wayfinder provides a framework enabling a generative substrate of scarce resources. This substrate is a fundamental building block for ensuring consistency in generative assets within a simulation.

An example is the case of a miner digging for a material that has been generativity determined to exist within a simulation game: the probability of pulling the item from the ground—effectively, the item's rate of inflation—can be governed by Wayfinder's tooling. This enables a consistent, verifiable baseline of scarcity across all assets within a simulation or other game.

Application-Agnostic AI Agents

Wayfinder's user interface is a powerful tool that can be harnessed to transform a generic shell into an expert in a specific domain. This enables users to provide Wayfinder Shells with focused educational and contextual material in many forms, allowing for easy customization and specialization.

This capability can be illustrated with an example of a firm providing an agent with the company's customer service documentation and transcripts of prior communications, enabling an agent to rapidly become a subject-matter expert capable of handling various customer support inquiries. LLMs have already had considerable success in improving the effectiveness and efficiency of help-center agents, and Wayfinder offers to improve upon those capacities in a broad sense, particularly in the context of incorporating Web3 and blockchain-based information.

Another example is a user teaching a Wayfinder shell to analyze new smart contracts and filter for appealing new gaming assets based on specific criteria. This agent could be taught to emphasize a number of variables related to token contracts, and could be allowed to develop their own methodologies, enabling them to locate tokens they deem promising. They could also be directed to employ a hybrid method that is broadly applicable to all games of a specific genre, such as trading card games. A shell could even be trained to focus on a specific Web3 game with multiple contracts and assets, in order to develop analytical tools and insights for discerning game trends and developing novel strategies.

NFT Minting Assistant

A user might customize a Wayfinder Shell by training it to become a NFT-minting expert. Such capabilities could be directed towards a professional application—such

as an artist who regularly mints NFT collections intended to be sold by auction—or a retail application, such as users wanting to mint small collections of images with personal value to distribute to friends. In each case, a shell could be trained to easily ingest the media intended to populate the NFT collection, determine the optimal format for minting the media in question, evaluate the relative attractiveness of blockchain ecosystems and minting applications, and finally oversee the mint. Once the NFTs are minted, the shell could, for a professional, transfer them to the designated wallet prior to a sale or auction. For a retail user, the shell could oversee distribution of the minted NFTs to the intended recipients and their own wallets.

Additional use cases are virtually limitless, but these examples provide some insight for directions that users might pursue in the future.

Smart Trading Bot

Another tool a user might create using Wayfinder's interface is a Smart Trading Bot for digital asset trading and portfolio management. If a user chooses to provide their shell with didactic materials covering topics such as portfolio management, asset allocation, and arbitrage trading, the user would then be able to deploy the shell for a variety of trading and investment management strategies, opportunistically selected based on user-specific risk tolerances and investment objectives.

At a basic level, a simple dollar cost averaging strategy, whereby the shell purchases a constant amount of a single digital asset or a specified basket over a set period of time, could be easily deployed using Wayfinder's tools. More complex applications are also possible: for example, where a shell undertakes to mirror specific time-delineated volume weighted average price targets, which requires the shell to have greater discretion as to when it executes its purchases based on its expectation of future price performance.

Governance

Governance Overview

Governance has three distinct aspects within Wayfinder. One concerns the well-established practice of token holders voting to govern the broader network, as is common within the crypto ecosystem. Some matters such as ecosystem direction, staking and fee levels, elections, and reward parameters are representative of the scope in this context. An important part of the governance process is also expected to be an ongoing community-led effort to monitor and revise the methods by which wayfinding paths are evaluated and ranked. Given the anticipated proliferation of alternative wayfinding paths, the potential range of embedded options for fees, speed, and security, and the continuous evolution that blockchain ecosystems continue to see, this is anticipated to become a meaningful aspect of ensuring the network's continued safe and efficient operation.

A second distinguishing feature of Wayfinder's governance model is how the network enables AI agents to participate in the governance of their own network, alongside human stakeholders, without making an active distinction between the two groups. Because governance is available to all token holders, and because AI shells will be holding Wayfinder's proposed native token in order to transact on the network, the network will allow AI shells both to vote and even to submit governance proposals, should an AI shell desire to do so. While the decision to allow Wayfinder Shells to participate in the governance of their own ecosystem is considered to be a core proposition of Wayfinder, shells are expected to be limited to an aggregate total voting weight of approximately 20%, given the potential sybil risk that unchecked shell participation could pose to the network's stability.

Another distinguishing element of Wayfinder's governance approach is how it will include an "AI Constitution" representing the highest level of governance over the behavior of AI shells on the network. This constitution will establish the overarching governance principles guiding the behavior of the network's AI agents, including their access to decentralized LLM instances and specific actions they will be forbidden from pursuing. The constitution will also include instructions that should the governance process decide that all shells on the network should be "paused" in the case of some concerning action, all shells will heed such instructions. In this sense, the AI Constitution will function similarly to the laws of a nation state, where citizens may travel outside the nation yet still find themselves bound by laws of their home nation. In this case, although AI shells may use wayfinding paths to travel to other networks to interact, Wayfinder's governance will retain general oversight of their actions and activities.

Although the exact contents of Wayfinder's AI Constitution have not been fully developed as of this writing, establishing and maintaining Wayfinder's AI Constitution is a task that will fall to the Wayfinder community, and is expected to emerge from and

be refined by Wayfinder's community governance process. Development of the AI Constitution is anticipated to occur, at least in an initial form, prior to network launch, and any ongoing or emerging concerns are expected to be addressed via the governance process as well.

Conclusion

Wayfinder promises a significant step forward in the interactions of humans, artificial intelligence, and decentralized blockchain environments. Whether the ability of AI agents to operate on-chain proves to be a more meaningful contribution than Wayfinder's other innovations—namely its promise to obscure the complexity of different operations such as bridging or swapping assets within blockchain environments—will only become clear over time. It is likely the impacts of both elements will prove significant. Further, the network's diverse applications across gaming, commerce, financial automation, and even the broader landscapes of AI development, suggest the range of impacts it may ultimately have.

Wayfinder promises substantial innovations in the way individuals engage with complex blockchain ecosystems. While the network's novel wayfinding approach is likely to prove valuable to both technical and non-technical users in allowing them to harness their AI shells to meet a wide range of objectives, the ability of individuals to bypass the often complex operations required to interact with blockchain ecosystems promises both increases in efficiency and security. Ultimately, these new capabilities may prove to be a major catalyst in lowering barriers to wider adoption of Web3, and decentralized tools and applications.

Finally, Wayfinder also makes several significant innovations in the realm of governance. Retaining the principle of tokenholder governance, the novelty of enabling AI shells and humans to jointly participate in both drafting and evaluating proposals represents a new approach to ecosystem management. Further, allowing community members to propose new wayfinding paths, and operate Verification Agents to test and validate both proposed and existing paths, illustrates how the ecosystem promises to incorporate the efforts of a wide range of actors, while also allowing them to meaningfully share in the network's growth and success.

Perhaps the most intriguing aspect to Wayfinder is the unquantifiable nature of the network's potential impacts. By creating tools and structures that empower all ecosystem participants to influence the network's evolution, its future will be in human and AI hands alike. As decentralized and Web3 communities continue to grow, and Wayfinder's structure of decentralized smart map creation facilitates the interaction of Wayfinder Shells with an expanding ecosystem of smart-contract based applications evan as self-improving AI agents respond to new opportunities and challenges, the potential limits of Wayfinder's tools and the AI agents they empower risk surprising observers in a variety of ways.