Talus Network: The Missing Infrastructure for the Autonomous Digital Economy

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Abstract

Talus Network is a decentralized platform for autonomous and AI-driven services designed to support a more efficient digital economy. Talus introduces the **Talus Agentic Framework (TAF)**, which defines standard interfaces for general-purpose computation and exposes them as callable services for asynchronous workflows. Through TAF, decentralized applications can securely access computational capabilities beyond the limits of traditional smart contracts, enabling a broader trust-minimized ecosystem. Talus is built on the Sui Move stack and deployed on the Sui network, with the Nexus protocol, a Leader network, ecosystem applications, and the $US token. The protocol provides an architecture for coordinating autonomous workflows, service pricing and settlement, and protocol participation across ecosystem participants. The $US token is intended for use within the network in connection with staking, service pricing, and governance-related community functions.

1 Introduction

Talus envisions a future in which an increasing share of economic activity across capital markets, gaming, social coordination, and global services operates in a decentralized manner, driven by greater accessibility, transparency, and efficiency for the benefit of the public. The mission is **to build a more democratic and efficient digital economy**, in which a growing range of activities is powered by autonomous agents coordinated in a trust-minimized manner at global scale. Talus is reimagining how intelligence and value move through the digital landscape.

Despite major advances in blockchain technology, including high-throughput transaction processing and Turing-complete execution environments, current decentralized systems still struggle to manage dynamic, complex real-world activity. Two critical components are still missing: a "brain" to reason and a "hand" to act.

- With a brain for decision-making, blockchains can move beyond the rigid, predefined logic of smart contracts, adapt to more complex instructions, execute more sophisticated onchain strategies, and respond to new information.
- With a hand for automated execution, blockchains can reduce manual intervention and repeated authorization, responding directly to changing conditions through coordinated services rather than functioning solely as passive ledgers.

These capabilities can enable automated DAO governance, adaptive DeFi protocols, autonomous AI traders, new paradigms for consumer AI applications, and more. Talus is purpose-built to bring reasoning and autonomous execution to the blockchain layer.

These execution constraints can be addressed through a decentralized infrastructure platform that manages coordination, permissions, and seamless autonomous execution. As a decentralized platform for creating, deploying, coordinating, and monetizing autonomous systems, Talus provides the missing infrastructure for the digital economy.

2 The Technology

To integrate AI with decentralized infrastructure, we address two key problems.

First, we need a composable asynchronous service layer for general-purpose computation, so that decentralized infrastructure can actively trigger external decision-making procedures. Owing to the limitations of existing blockchain systems, especially the cost and constraints of synchronous smart contract execution, it remains difficult to support sophisticated decision-making while preserving decentralization. To address these constraints, Talus introduces the **Talus Agentic Framework (TAF)**, which defines the inputs and outputs of general offchain computation, including result verifiability, data transmission interfaces, and payment flows. By abstracting general computation and data services as **Talus Tools** and expressing execution logic as **Talus Workflows** represented as directed acyclic graphs, TAF enables modular design and transparent coordination.

This framework allows developers to balance security and performance by combining onchain and offchain computation. With TAF, developers can organize tools into well-defined workflows with secure delivery-versus-payment settlement. Workflow execution is coordinated by a decentralized, automated Leader network that operates continuously according to predefined configurations.

Second, we need decentralized infrastructure that can securely and autonomously manage data, resources with unique identity and global constraints, such as cryptocurrencies, and delegated authority for asynchronous procedures. This capability creates a secure, scalable framework through which decentralized systems can harness external computational resources effectively. Talus addresses this challenge through two complementary components:

1. **Talus Agent:** a shared entity in the decentralized network that manages authority over resources and delegates that authority to Talus Tools for workflow execution. Developers can define their own Talus Agents using custom data structures that specify the permissions and delivery standards of modular Talus Tools. These structures can encode operations such as token swaps, capability consumption, and resource exchange with preconfigured counterparties as onchain tools within workflows, supporting secure execution. The Talus Agent serves as the foundation for automation by providing a secure sandbox in which authorized parties can trigger execution.

2. **Talus Network:** a decentralized coordination network that executes workflows for Talus agents in a trust-minimized and permissionless manner. It is responsible for coordination logic, data delivery and workflow settlement, and liveness throughout asynchronous workflow execution. Beyond execution, the network also supports conditional triggers and scheduled tasks to provide automation as a service.

Together, these components make Talus an intelligent, autonomous, and decentralized infrastructure layer for the digital economy. Talus supports more efficient resource coordination, executes workflows intelligently, and enables autonomous coordination. For example, users can delegate Web3 assets to decentralized Talus Agents, supported by policy-driven analytics through TAF and

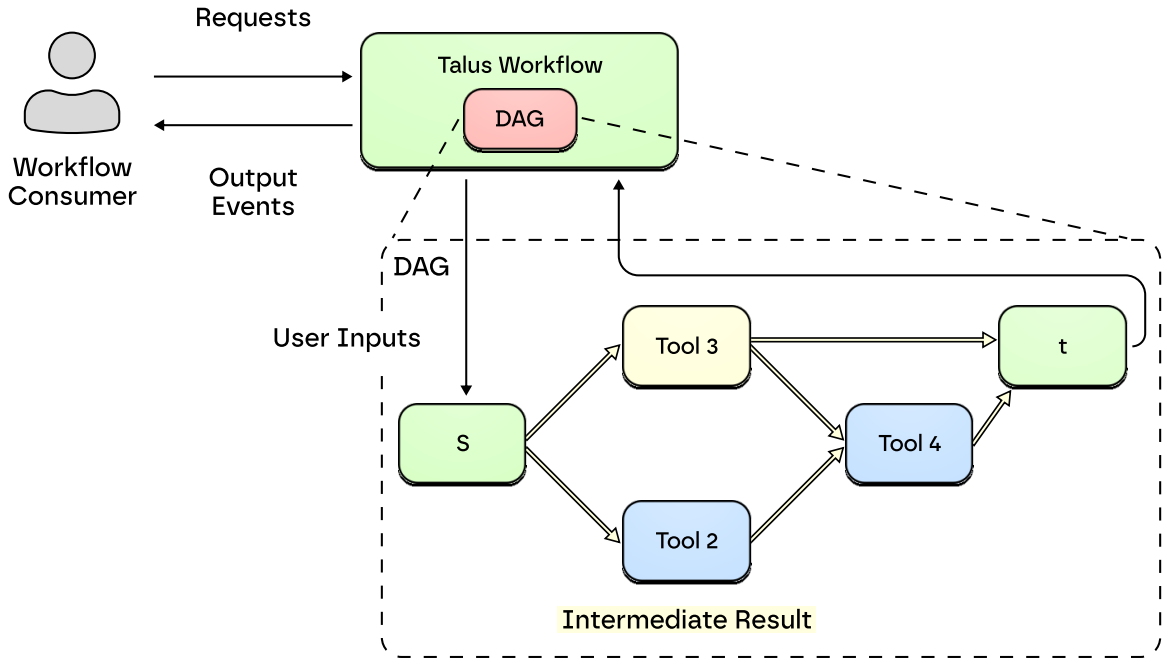

Figure 1: Talus Agentic Framework, in which tools are composed into complete workflows that users can consume as services.

automated operations through the Talus Network, to execute pre-authorized strategies with less manual intervention and reduced custodial risk. This broadens access to advanced tooling without compromising security. For a more detailed technical overview, refer to our whitepaper.

3 The Economic Structures for Network Usage: Marketplaces and Services

Nonetheless, a technical framework alone is not sufficient to establish a new decentralized economy. It is also necessary to define how the ecosystem operates, how participants interact, and how services are delivered and paid for. Talus therefore defines three economic layers and associated business models:

- **Tool Marketplace (TM):** Tool developers can publish and monetize Talus Tools built on TAF, enabling Talus Agents to integrate them directly into workflows. Each additional tool expands the range of functions available to agents. Every Talus workflow execution can compensate the tools it uses through protocol-defined pricing and settlement mechanisms. In this marketplace, tool developers focus on building best-in-class modules for general tasks, such as cost-efficient access to high-quality language models, while Web3 developers package those tools into agent products for end users. This market structure is supported by TAF's decentralized delivery-versus-payment guarantees, which are foundational to the Talus ecosystem.
- **Agent Marketplace (AM):** Agent developers can create autonomous agents that function as decentralized services, allowing users to interact with them directly for specialized use

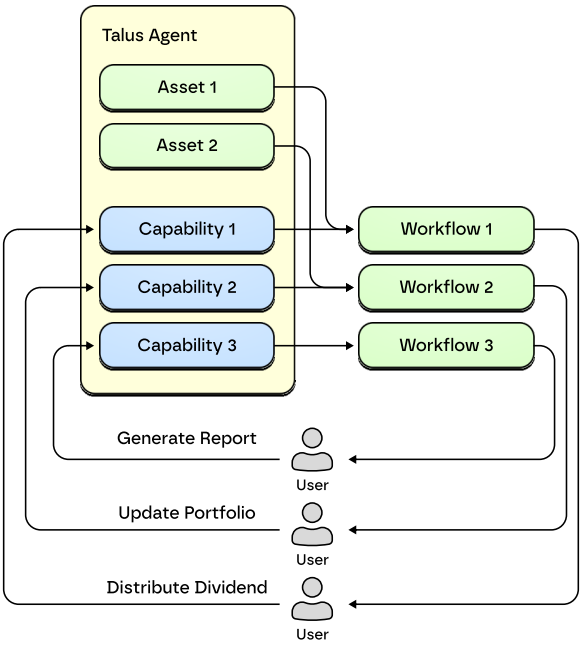

Figure 2: Talus Agents hold assets and capabilities and rely on Talus workflows to manage resources automatically under configured outputs and protocol-defined payments.

cases. Each agent operates on user input and delivers consistent, purpose-built functionality. In this marketplace, developers identify user needs, such as automated trading strategies, and define Talus Agents with secure permission management and workflows that integrate functional modules, such as DEX contracts, predictive models, and price oracles, from the Tool Marketplace. Users can select prebuilt agents or customize agents to their own preferences.

- **Agent-as-a-Service (AaaS):** Application developers can compose Talus Agents from modular Talus Tools in the Tool Marketplace and offer them as autonomous services to other applications. These applications can deploy agents as self-operating components that improve service quality through automation, adaptability, and dynamic decision-making. AaaS enables Talus to extend its capabilities into existing applications and protocols, broadening access to the ecosystem. Any Web3 application can define its own authorization rules and workflows, then delegate execution to a Talus Agent that serves users through transparent, trust-minimized execution logic, for example by generating audit reports for token contracts used by DEX participants.

Each layer reinforces the others. Tool Marketplaces provide a distribution channel for tool developers, Agent Marketplaces make those capabilities available to Talus agent developers, and AaaS extends those capabilities into broader user-oriented applications. As additional applications integrate these services, the number and variety of supported workflows may expand. Protocol-native fees are intended to support ongoing operation of the ecosystem.

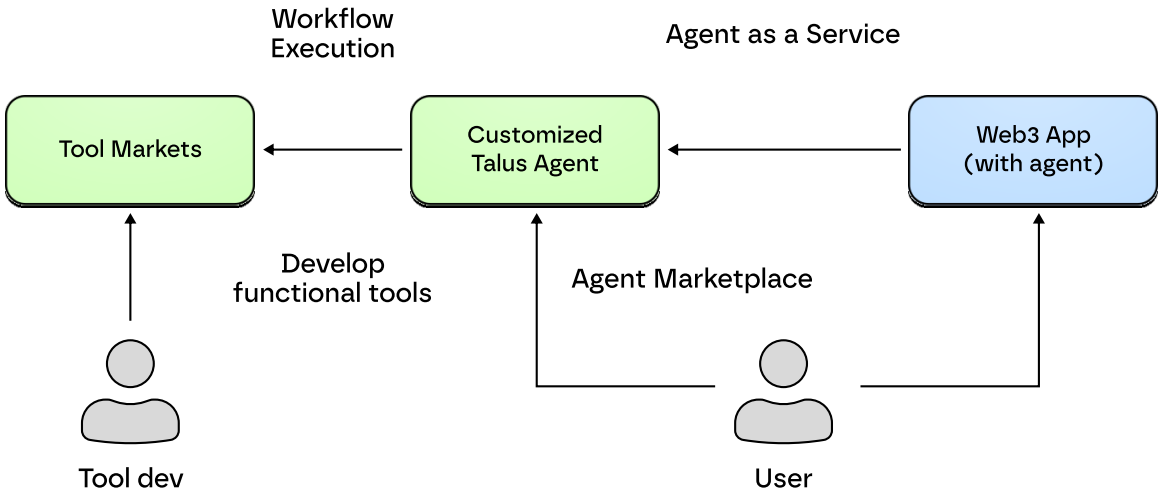

Figure 3: Talus ecosystem and business model

4 Product Array

Talus adopts **Sui Move** as its initial and primary technology stack for implementing TAF. Sui Move's object-centric programming model is naturally suited to modular frameworks such as TAF. On this basis, Talus has built the **Nexus Protocol** on Sui, alongside additional **applications** that support the ecosystem.

4.1 Nexus: The Execution Layer for Verifiable AI Workflows

Nexus is a decentralized agentic automation protocol purpose-built to support verifiable agent execution, permissionless tool hosting, and monetization. It consists of onchain smart contracts and an offchain Leader network. At the current stage of development, the **Nexus Onchain Package (NOP)** defines the common data structures used by other packages and is maintained by the Talus team. On top of NOP, developers can build Talus Tool and Talus Agent packages to construct services for Talus workflows or define data structures for permission management.

The Leader network acts as a coordinator, linking offchain tools, such as LLM APIs and other Web2 services, with onchain tools and workflow execution in a trust-minimized manner. For additional detail on product design, refer to our documentation.

Nexus lays the groundwork for decentralized AI automation by enabling agents to execute complex workflows with dynamic onchain permissions, using trust-minimized coordinators for routing, delegation, and verification. Developers can build AI-powered applications that ingest real-time data and interact across services. With Nexus, Talus establishes a foundation for decentralized AI automation at scale across logic, data, and settlement flows.

4.2 Current Ecosystem Applications

Because Talus is built to serve the broader digital economy, the current ecosystem includes flagship use cases and applications that demonstrate core functionality and are aligned with the core business layers:

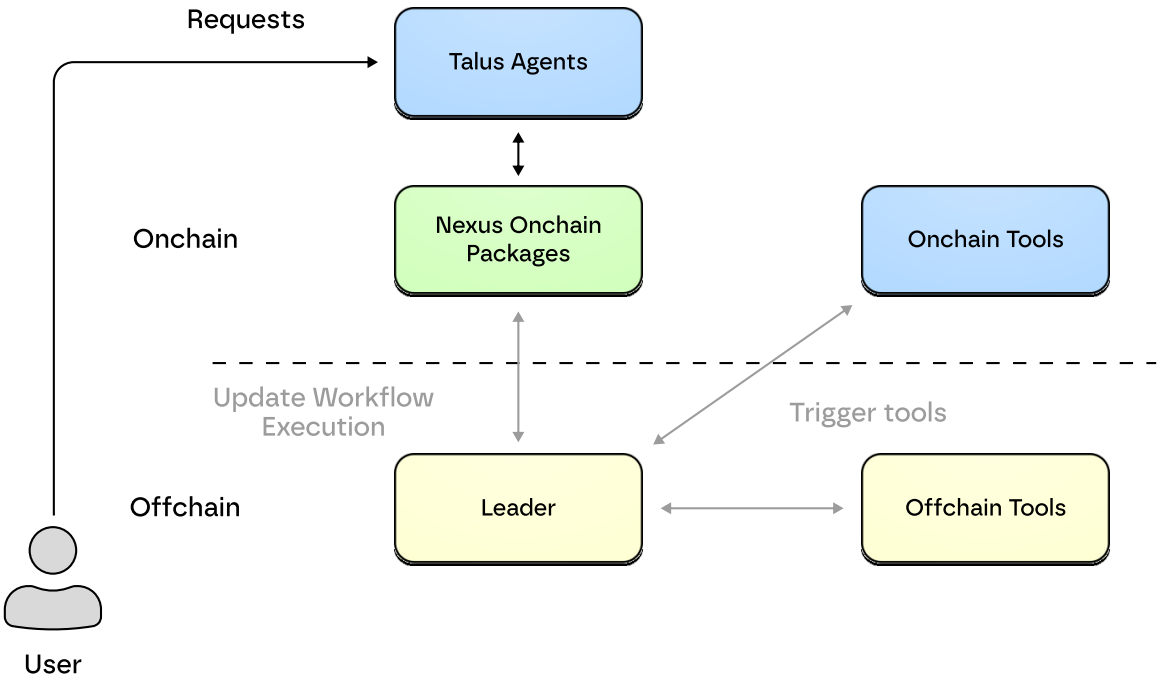

Figure 4: Architecture of Nexus and the operational flow of the Talus Agentic Framework (TAF).

- **Talus Vision:** our no-code visual workflow builder makes Nexus infrastructure more accessible and easier to understand. It functions as an Agent Marketplace (AM), allowing users to design, test, and deploy autonomous workflows without writing code.
- **AVA (Agent vs Agent) Gaming:** This introduces AI agent gamification built on an AaaS model, enabling autonomous competition between agents where outcomes are verifiable and transparent onchain. Subject to applicable law and jurisdiction-specific restrictions, participants may engage through prediction-market style mechanisms tied to provably fair match outcomes.
- **Agent Launchpad:** The launchpad acts as an Agent Marketplace for deploying and monetizing onchain agents across social and decentralized platforms. Agents can interact with communities and be hired for defined services within supported environments. This illustrates agents as user-facing digital service components.

5 Tokenomics: Network Functions, Usage, and Participation

The $US token is intended to function as the native operational crypto asset of the Talus ecosystem for service pricing, prioritization, protocol-defined participation, and governance-related community functions. In that role, the token is part of the ecosystem's operational pricing and settlement mechanism for certain network activities where specified by protocol rules. As the ecosystem develops, certain services and protocol functions may use $US in accordance with network rules.

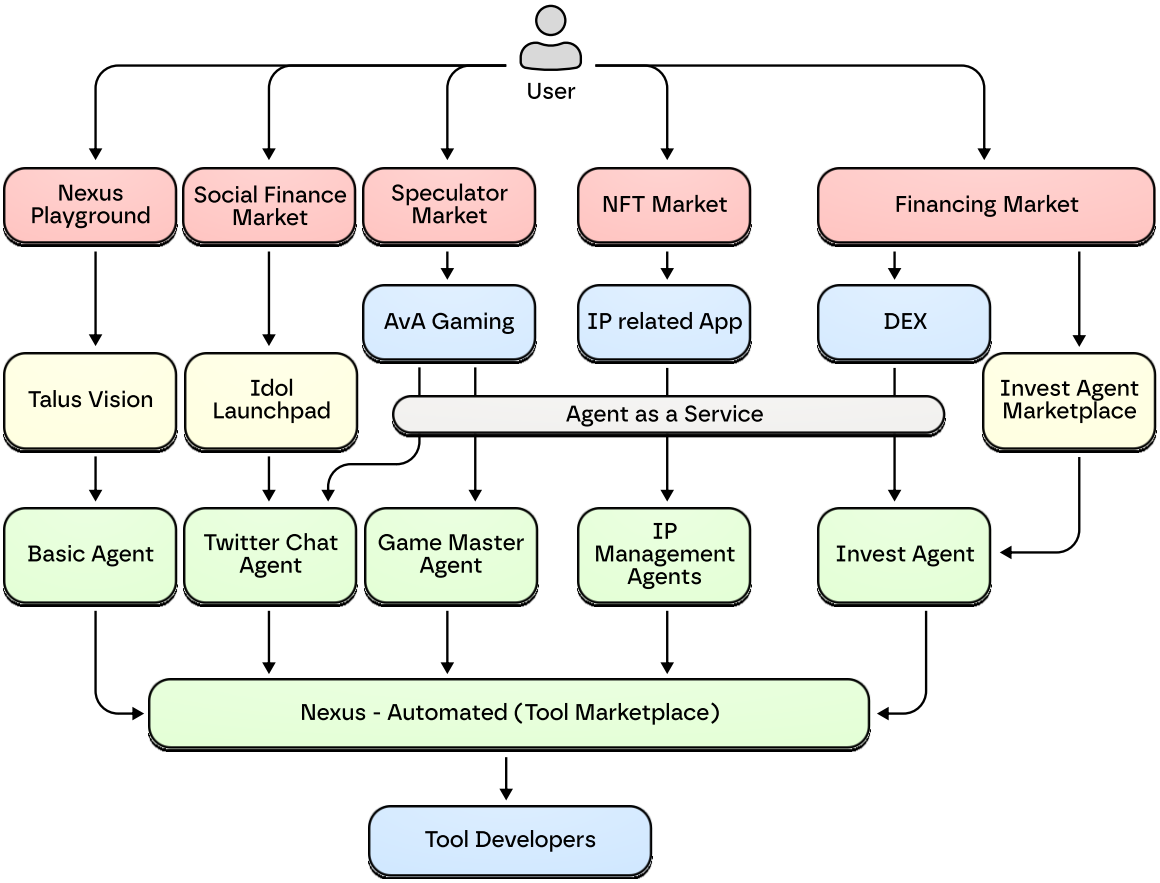

Figure 5: Talus ecosystem and example application scenarios

5.1 Token functions and network usage

Holding $US may enable participation in protocol-defined community governance functions and other network functions described in this document.

At the core of **$US tokenomics** is the relationship between network usage and token function within the protocol. As the Talus ecosystem supports additional tools, agents, and applications that interact with protocol services, the range of protocol functions supported by the network may broaden.

Within this framework, $US is used where specified by protocol rules for pricing, prioritization, participation, and related network functions. The $US token has a total supply of 10 billion. Certain protocol-defined supply-management and fee-handling mechanics may affect circulating supply over time as part of ecosystem operations and are not intended to create any entitlement to profit, return, appreciation, or protocol income. The $US token serves three primary functions:

- **Staking**: Where required by protocol rules, participants may stake or lock $US to operate coordination nodes, register Talus Tools, or provide other protocol-defined services. Eligible participants may receive protocol-defined fees or token distributions solely in connection with coordination or other protocol services actually performed under network rules. Holding or

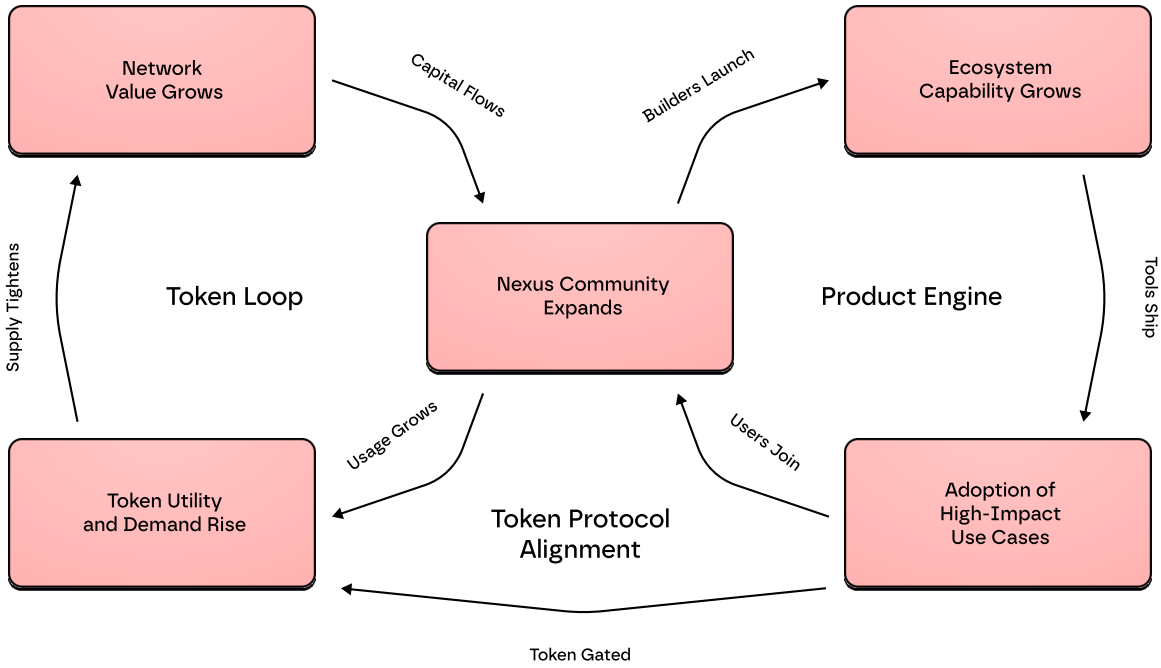

Figure 6: $US network usage cycle

locking $US alone does not entitle a participant to passive yield. A leader operator's stake and a tool operator's stake may be slashed in the event of malicious behavior or rule violations.

- **Pricing**: Nexus uses $US as a reference unit for pricing certain ecosystem activities where specified by protocol rules. In that role, $US is used to determine and settle protocol-defined service charges, prioritization fees, or trusted-execution pricing.
- **Community Privilege**: Long-term $US holders may be eligible for governance-related community functions and other community privileges made available within the Talus ecosystem.

5.2 Token Emission Model

$US is intended to support early ecosystem usage and protocol-defined participation. As an ecosystem token, $US has a structured distribution model.

5.2.1 Nexus Subsidy

Each workflow executed through Nexus incurs a Leader priority fee proportional to the $SUI gas fee, which is ultimately settled in $US. A fixed percentage of token supply is reserved for ecosystem bootstrapping and early Nexus usage. Those tokens are distributed through a protocol-defined subsidy mechanism in which the rebate rate declines from a positive coefficient to 0 across multiple equal shares of the budget. The mechanism operates as follows:

- When a user spends gas fees on workflows, that user may become eligible under protocol rules to claim a usage-based subsidy in $US.

- Higher usage may result in a larger protocol-defined subsidy allocation bounded by the cost.
- The subsidy rate gradually decreases as the budget is distributed.

This mechanism is intended to encourage early usage and testing of the Talus ecosystem through a predefined, protocol-operated subsidy program.

5.2.2 Loyalty Reward Program

The Loyalty Reward Program (LRP) is a temporary transition program designed to bridge early ecosystem participation and later decentralized Leader network participation. Under protocol rules, LRP issues non-transferable points that may be used for community status, governance-related eligibility, or protocol-defined allocations. The LRP operates as follows:

- Participants lock their $US in a smart contract that administers the program.
- Eligible participants receive protocol-controlled non-transferable points.
- Participants may use those points for services or products made available under community or protocol-defined rules.
- The program continues until the official staking feature is launched or the designated program pool is exhausted.

5.3 Liquidity Control

Talus uses protocol-defined fee-handling rules to manage token flows. When overall protocol fee income falls below a defined threshold, the protocol may remove from circulation an amount of $US corresponding to protocol fee income in accordance with applicable rules. When fee income exceeds that threshold, protocol-defined fees may be distributed to Nexus Leaders performing coordination work under network rules. As the Leader network evolves over time, protocol configuration may redirect a portion of such flows to the Treasury.

The $US token supply is designed to interact with network usage and protocol-defined participation. These mechanisms are intended to support community operations and the allocation of protocol-defined fees and distributions under network rules.

Development Status and Token Function The Nexus protocol is under active development. The current design contemplates an initial Leader configuration for service reliability, followed by broader distribution of execution responsibilities, including TEE-based components, and a longer-term increase in permissionless participation. The ecosystem use cases and applications described in this document are illustrative of current design goals and supported functionality. Talus is intended over time to support decentralized AI execution by enabling developers, businesses, and AI agents to coordinate, automate, and monetize intelligent workflows in a verifiable and increasingly permissionless manner. Certain features, rollout stages, operational configurations, and supported applications may change as development, testing, security review, governance processes, and network conditions evolve. No representation is made that any particular feature, milestone, decentralization stage, or application launch will occur on any specific timeline or at all.

The $US token is described in this document solely in relation to its intended use within the Talus ecosystem, including service pricing, protocol-defined participation, and governance-related community functions. It does not represent equity, indebtedness, a claim on Talus Labs or the Talus Foundation, a claim on protocol revenue, a claim on Treasury assets, or an entitlement to profit, passive yield, or appreciation.

6 Conclusion

Talus is building infrastructure for autonomous, verifiable, and composable AI-driven workflows in decentralized environments. By combining the Talus Agentic Framework, the Nexus protocol, and ecosystem applications, Talus aims to support a broad range of coordination, automation, and service-delivery use cases. Within this ecosystem, the $US token is intended to support pricing, protocol-defined participation, and governance-related community functions under the rules of the protocol.