

Talus Network: The Missing Infrastructure for the Autonomous Digital Economy

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Abstract

Talus Network is a decentralized platform for providing autonomous and artificial intelligence to construct an improved digital economy. Talus proposes the **Talus Agentic Framework(TAF)**, which defines standard interfaces for general computation and exposes them as callable services for building asynchronous workflows. With this framework, any decentralized application can securely access greater computational resources beyond traditional smart contracts, forming a broader trustless ecosystem. Talus network is built on the Sui Move stack and deployed on the Sui network, with the Nexus protocol, leader network, ecosystem applications, and the \$US token. Talus provides a sustainable business model for ecosystem participants and stakeholders to build the ecosystem together through amplifying the need for Nexus and sharing revenue through tokens.

1 Introduction

Talus envisions a future in which increasing economic activity across capital markets, gaming, social coordination, and global services will operate in a decentralized manner, driven by enhanced accessibility, transparency, and efficiency for the benefit of the public. The mission is **to build a more democratic and efficient digital economy** such that more and more economic activities will be powered through autonomous agents, coordinated trustlessly at a global scale. Talus is reimagining how intelligence and value flow through the digital landscape.

Despite significant advancements in blockchain technology, including high-throughput transaction processing and Turing-complete execution environments, current decentralized systems cannot manage dynamic and complex real-world activities. Two critical components are notably absent: a “brain” to think and a “hand” to act.

- Given a brain for decision-making, blockchains move beyond the rigid, predefined logic of smart contracts, gain the adaptability to process more complex instructions, carry out more complicated onchain strategies, and evolve with new information.
- Given a hand for automated execution, blockchains can reduce external intervention and authorization, reacting directly to new conditions as a series of independent services rather than a passive ledger.

These new components can lead to DAOs automating governance, adaptive DeFi protocols, autonomous AI traders, new paradigms in consumer AI applications, and more. Talus is purpose-built to bring reasoning and autonomous action to the blockchain layer.

The limitations of execution can be addressed by a decentralized infrastructure platform that manages coordination, authorizations, 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 to define an asynchronous available service for general computation in a decentralized infrastructure with composability, such that the decentralized infrastructure can actively trigger an external decision-making procedure. Owing to the limitations of existing decentralized infrastructure, particularly the cost and constraints of synchronous smart contract execution, it remains challenging to support sophisticated decision-making while preserving decentralization. To address these challenges, Talus proposes the **Talus Agentic Framework (TAF)** for defining the input and output of general offchain computation, covering result verifiability, data transmission interfaces, and payment flows. By abstracting general data services as **Talus Tools** and defining execution flows 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 leveraging both onchain and offchain computation. With TAF, developers can organize onchain and off-chain tools into well-defined workflows with secure delivery-versus-payment resolution. Workflow execution is carried out by a decentralized, automated Leader network operating 24/7 to coordinate execution based on predefined configurations.

Second, we need to create a decentralized infrastructure such that it can securely and autonomously handle data, resources (information with unique identity and global constraints, e.g., cryptocurrency), and authority for asynchronous procedures. This capability introduces a secure, scalable framework that enables the decentralized infrastructure to harness external computational resources effectively. Talus addresses this challenge through two distinct solutions:

1. **Talus Agent:** a shared entity in the decentralized network that manages authority over resources and delegates it to Talus Tools for executing workflows. Developers can define their own Talus Agents using custom data structures to manage permissions and delivery standards of modular Talus Tools. These data structures enable the definition of various operations such as token swaps, capability consumption, and resource exchange with pre-configured vendors, all as onchain tools within workflows, ensuring secure execution. The Talus Agent serves as the foundation for automation, offering a secure sandbox where any party can trigger execution.
2. **Talus Network:** a decentralized coordination network that executes workflows in a trustless and permissionless manner. It is responsible for handling coordination logic, distributing the data and payment, and ensuring liveness through the asynchronous workflow. Beyond execution, the network also supports conditional triggers and scheduled tasks in providing automation-as-a-service.

Combining the above, Talus becomes the most intelligent, autonomous, and decentralized infrastructure for the digital economy. It optimizes asset usage, executes workflows intelligently, and

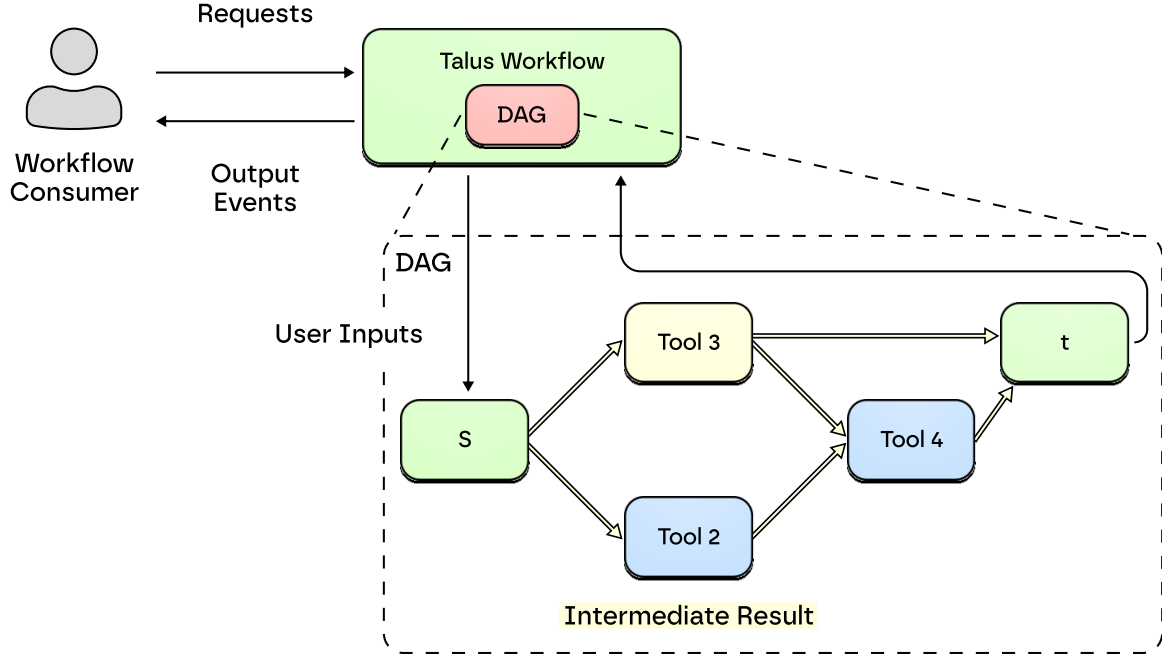


Figure 1: Talus Agentic Framework, tools are onboarded within the workflow as a complete service for the user to consume.

facilitates autonomous coordination. For example, users can delegate their Web3 assets to decentralized Talus agents, supported by an AI-enhanced investment analyzer via TAF and automated operations from the Talus Network, to achieve optimal returns in public markets with minimal manual intervention and reduced custodial risk. This democratized access to advanced technology without compromising security reflects the mission of Talus. For a detailed overview of the techniques, refer to our [whitepaper](#).

3 The Economic Structures for Value Creation: Marketplaces and Services

Nonetheless, a technological framework alone is not sufficient for constructing a new decentralized economy. It's essential to demonstrate how this ecosystem works and creates value. Therefore, Talus defines three economic layers with business models:

- **Tool Marketplace (TM):** Tool developers can publish and monetize Talus Tools built on TAF, enabling Talus agents to integrate them directly into their workflows. Each new tool increases agent capability and strengthens protocol network effects, fueling the capability of Talus agents in digital economics. Every execution of a Talus workflow will pay for these Talus Tools through flexible payment methods. Within this marketplace, tool developers focus on building the best tools for general tasks (e.g., the most cost-effective access to powerful LLMs), and Web3 developers wrap these tools (e.g., combining DeFi applications with LLM-based tools) into efficient agents for consumers. The business model works as TAF provides a secure

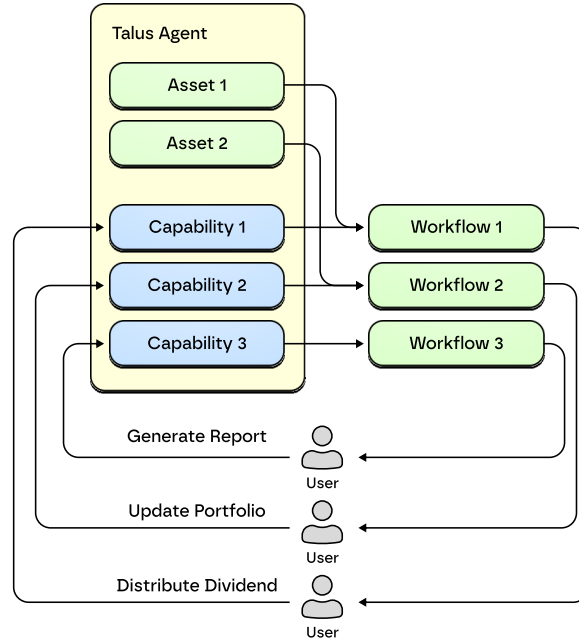


Figure 2: Talus agents, owning their assets with capabilities backed by Talus workflows for managing resources automatically and sharing revenue with owners.

delivery-versus-payment guarantee for both parties in a decentralized manner, which is one of the foundations of the Talus ecosystem.

- **Agent Marketplace (AM):** Agent developers can create autonomous agents that act as decentralized services, allowing users to interact with them directly for personalized use cases. Each agent operates based on user input, delivering consistent and purpose-driven functionality. As more Agent Marketplaces emerge, they increase demand for specialized, high-performing agents, stimulating further agent development and greater usage of supporting tools. In this marketplace, developers identify new requirements (e.g., an automated buy-low-sell-high investment strategy) and define Talus agents with secure permission management and workflows that integrate functional modules (e.g., DEX contracts, price prediction models, and price oracles) from the Tool Marketplace. Users can select an agent instantiated by developers or customize one according to their preferences.
- **Agent-as-a-Service (AaaS):** Application developers can compose Talus Agents by combining modular Talus Tools from the Tool Marketplace and offer them as autonomous services to other applications. These applications can deploy agents as smart, self-operating components that improve service quality through automation, adaptability, and dynamic decision-making. AaaS allows Talus to deliver solutions to existing applications and protocols, extending our techniques and making them accessible to a broader user base. Any Web3 dApp can set its own authorization rules and workflows, then delegate them to a Talus Agent, which executes the workflow and serves users in a trustless, collective way (e.g., generating audit reports for specific token smart contracts for DEX users) with transparent execution logic.

Each layer reinforces the others. Tool Marketplaces support incentives for agent and tool devel-

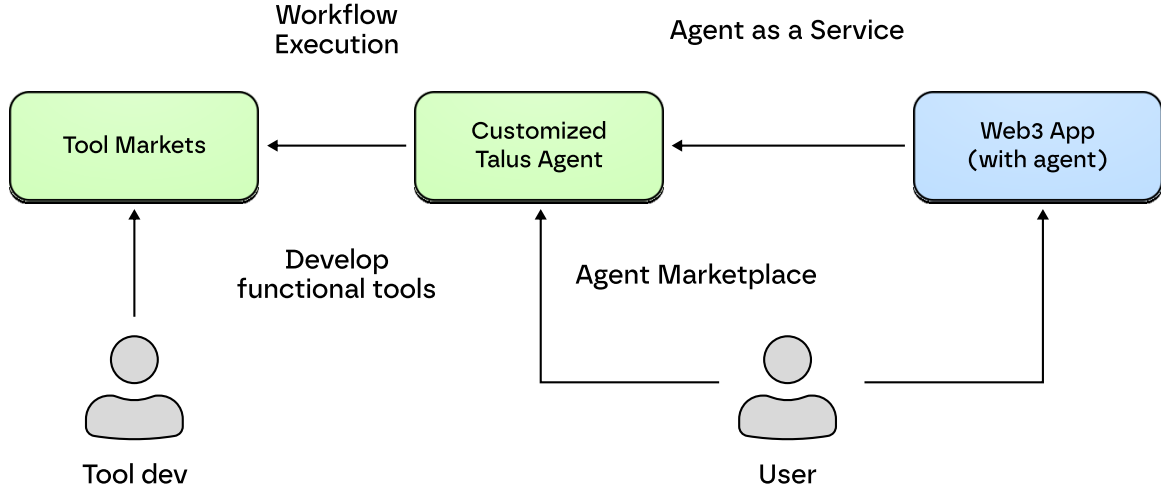


Figure 3: Talus ecosystem with Business model

opers, Agent Marketplaces scale direct agent demand, and AaaS powers and improves applications. As more applications adopt AaaS, new use cases emerge, driving demand for agents and tools. This compounding loop attracts more developers, agents, and workflows. Rather than relying on emissions, Talus captures protocol-native revenue through usage, ensuring that as adoption grows, the network becomes increasingly sustainable and valuable.

4 Product Array

Talus adopts **Sui Move** as its first and primary technology stack for realizing TAF. Sui Move’s object-centric programming model is naturally suited for defining modular frameworks like TAF. Based on this, Talus has built the **Nexus Protocol** on the Sui network to implement TAF and other **Applications** to initiate our 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 off-chain Leader network. Within the smart contracts, the **Nexus Onchain Package (NOP)** defines the common data structures used by other packages and is maintained by the Talus team. Based on NOP, developers can build Talus Tools and Talus Agent packages to construct services that can be used in Talus workflows or define data structures for managing permissions.

The Leader network acts as a coordinator, linking off-chain tools (such as LLM API or other Web2 services), onchain tools, and workflow execution with minimized trust. For more details on our product design, refer to our [documentation](#).

Nexus lays the groundwork for an efficient, decentralized digital economy by turning AI logic into autonomous, value-generating actions. It enables agents to execute complex workflows with dynamic onchain permissions, using trustless coordinators for routing, delegation, and verification. Developers can build high-performance, AI-powered dApps that ingest real-time data and interact

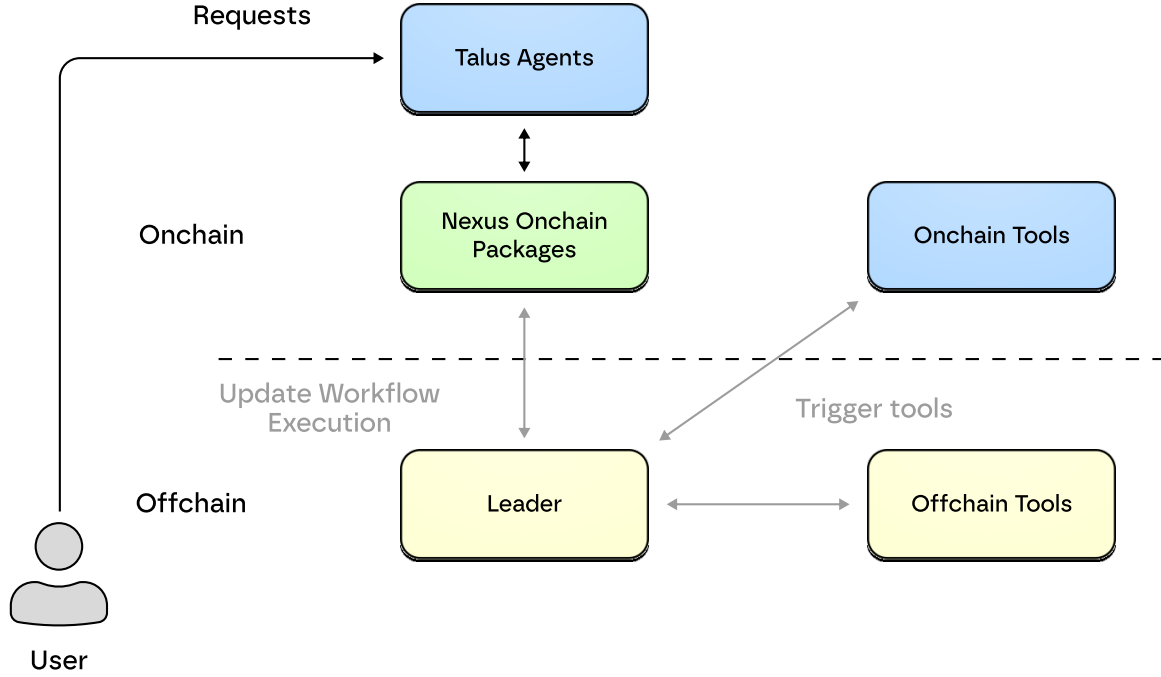


Figure 4: Architecture of Nexus and operational flow of Talus Agentic Framework (TAF).

across services. With Nexus, Talus establishes a foundation for decentralized AI automation at scale, where logic, data, and value move seamlessly to their highest use.

Nexus is the first implementation of the Talus network. The network begins with an initial leader setup to ensure reliability, progresses to a distributed leader network leveraging TEEs for secure execution, and ultimately evolves into a fully decentralized, permissionless leader network such that anyone can join permissionlessly. This strategy is adopted to preserve service availability while gradually improving to a decentralized service for trust minimization.

4.2 Bootstrapping the Ecosystem: Real Applications, Real Demand

Because Talus is built to serve the broader digital economy, it begins by launching the Nexus protocol alongside flagship applications that showcase its unique capabilities. This will kickstart ecosystem growth and empower the community with meaningful, scalable opportunities to participate and shape the future of decentralized automation.

Our applications are aligned to the ecosystem business layers:

- **Talus Vision:** our no-code visual workflow builder makes Nexus infrastructure accessible and understandable. It serves as an Agent Marketplace (AM), allowing users to design, test, and deploy autonomous workflows without writing code while accelerating Talus agent adoption.
- **IDOL.fun:** our first consumer-facing product, demonstrates how agents can become economically productive entities.
 - **Idol Launchpad:** The launchpad acts as an Agent Marketplace for launching Twitter-based chat agents called IDOLs with the capability of reacting to fans and getting hired

for other services.

- **AvA (Agent vs. Agent) gaming:** We introduce the concept of AI agent gamification. This is our first application based on an AaaS service for autonomous competition between agents IDOL.fun, where speculators can bet transparently over provably fair game outcomes.

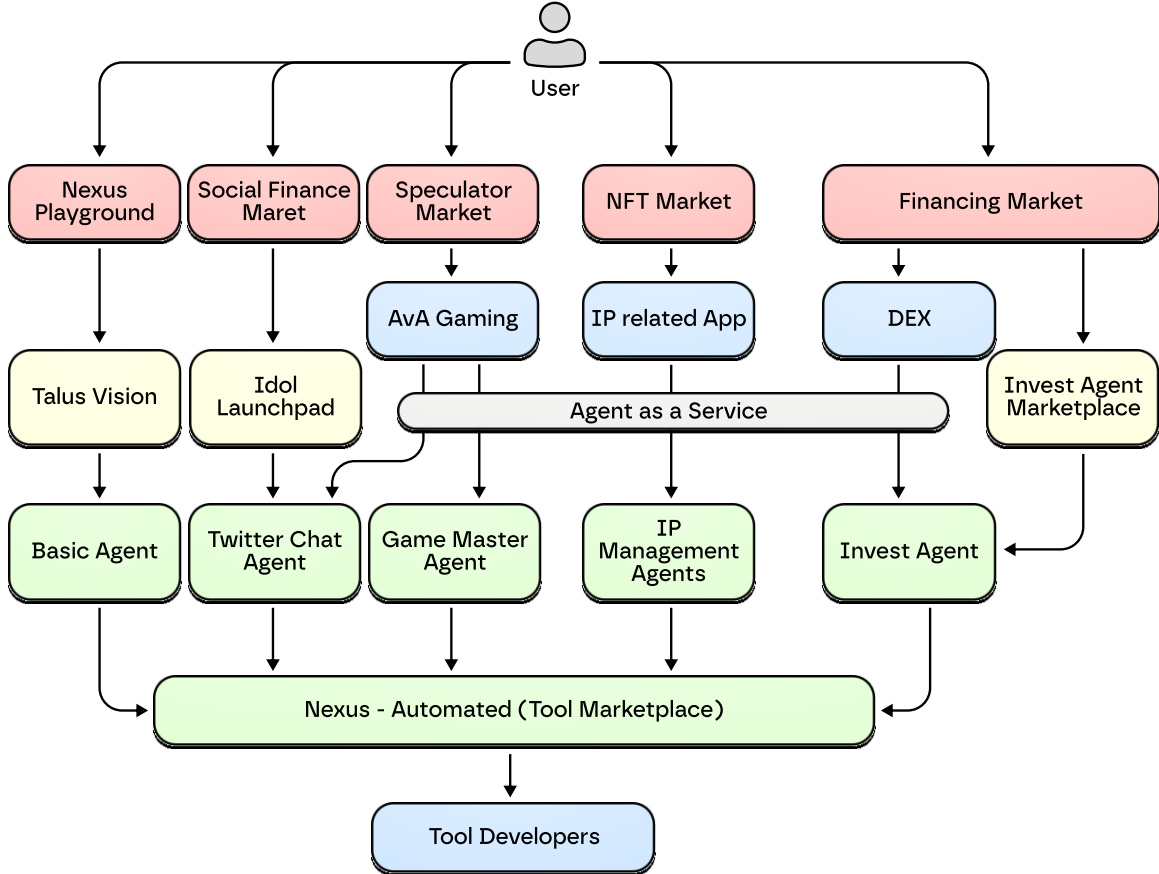


Figure 5: Talus ecosystem with scenarios

Over time, the Talus ecosystem will evolve into the foundational infrastructure for decentralized AI execution. Talus will empower developers, businesses, and AI agents to coordinate, automate, and monetize intelligent workflows at a global scale, all in a verifiable and permissionless manner.

5 Tokenomics: Aligning Value, Usage, and Growth

The last piece of the puzzle is incentive alignment, and that is exactly what the \$US token delivers. As the ecosystem scales, monetization kicks in. Advanced agent coordination, trust-minimized execution, and future protocol upgrades will all flow through \$US, powering demand and locking value into the core of the network.

5.1 Token demands

Holding \$US enables participation in governing the next phase of the digital economy. At the heart of Talus is a self-reinforcing growth cycle for keeping and increasing token demand, together with Nexus adoption.

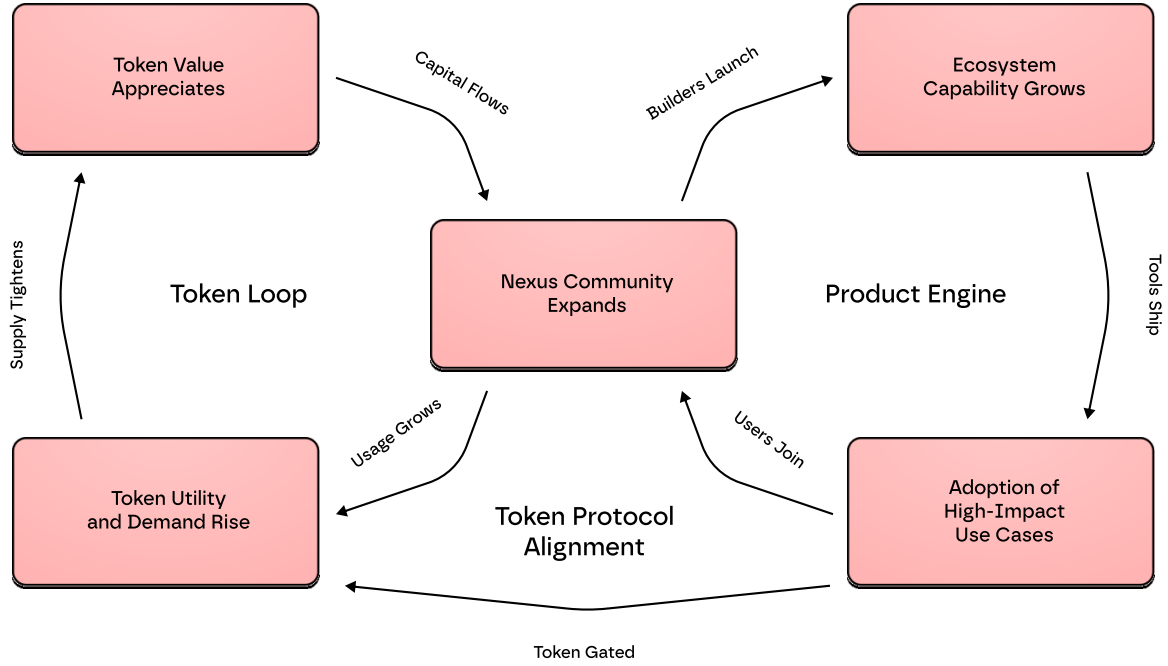


Figure 6: \$US token growth cycle

At the core of **\$US tokenomics** is the coordination between a **product engine** and a **token loop**. The product engine, ignited by the Talus product array, expands the early community. The larger community will bring new ideas, demands, and builders to the Nexus ecosystem, leading to new Talus Tools and Talus agents. These new tools and agents, in turn, will give birth to new use cases and applications with high impact. These applications will further attract more users and builders to our ecosystem.

The token loop is a supporting system for fueling the product engine. The token scarcity, together with Nexus usage based on Idol.fun, initiates the token demand and leads to value appreciation, which supports the community and early adopters through our tokenomics and drives the engine. Once the engine has started, all application demands will feed back to the token utility and demands through our protocol, whose utility gates the demand for the \$US token and further brings value back to the \$US token, thus igniting the growth cycle.

The \$US token has a total supply of 10 billion and follows a deflationary model. It serves three primary functions:

- **Payment:** Nexus users can spend \$US to prioritize workflow execution or pay for trusted execution. Alternatively, users can spend additional \$SUI to perform the same tasks, which will be converted to \$US via public market purchases. In the long term, new features of Nexus will also charge in \$US to increase demand.

- **Participation:** Anyone can stake \$US to run coordination nodes and join the Nexus Leader network, sharing in the revenue generated from payments. Or they can stake to register a new Talus tool and provide secure services. The leader operator and the tool operator's stake can be slashed in case of malicious behavior.
- **Privilege:** Long-term \$US holders become royalty members of the community, gaining access to governance and exclusive privileges offered to the Talus community.

\$US creates direct economic bridges between users, agents, developers, and infrastructure, so every unit of participation strengthens the network and fuels its growth. Token demand is driven by developers and node operators through a sustainable model that supports long-term growth. This cycle ensures that the success of the ecosystem directly reinforces the utility and economic sustainability of Talus and its infrastructure.

5.2 Token Emission Model

\$US is born to accelerate adoption and align long-term participation. As an ecosystem token, \$US has a unique structured incentive model.

5.2.1 Nexus Subsidy

A fixed percentage of the token supply is allocated for ecosystem growth, specifically to reward early adoption of Nexus and token holders. Each workflow executed through Nexus incurs a Leader priority fee proportional to the \$SUI gas fee, which is ultimately paid in \$US. We use a subsidy mechanism based on workflow execution gas fee to encourage the adoption through a fixed token pool P_e . The rebate rate is calculated according to a reference price between \$US and \$SUI and a coefficient reduced from a to 0 in n equal shares of the reward pool. Here's how it works:

- When a user spends **gas fees** (like transaction fees) on workflows, the user will automatically gain eligibility to claim a portion of those fees in \$US.
- The more a user uses the system (and spends gas), the more \$US tokens can be received.
- The subsidy rate will gradually decrease until it runs out of the pool P_e .

The mechanism is designed to reward the early adopters of the Nexus with \$US, and encourages everyone to use and explore the Nexus ecosystem.

5.2.2 Loyalty Reward Program

The Loyalty Reward Program (LRP) is another source of receiving \$US tokens, acting as a temporary supplement for those who deposit their tokens in the Leader network before it's fully decentralized.

Before our Nexus system is completely decentralized, token holders can lock their \$US in the LRP to share a reward pool P_L exclusively.

- Holders deposit their \$US tokens to a smart contract that manages the loyalty program.
- Each depositor will accumulate an additional reward from the pool P_L .
- The APY increases over time and scales linearly with the deposit amount.
- This program will continue until the official staking feature is launched, or the reward pool runs out.

5.3 Supply Control

Talus also introduces a dual-track protocol income system to sustainably manage token flows. When overall protocol revenue falls below a set threshold, priority fee income is burned, reducing circulating supply and reinforcing token scarcity. When revenue exceeds that threshold, fees are distributed directly to Nexus Leaders performing coordination work. As the Leader network transitions to a fully decentralized system, this income will be redirected to the LRP pool P_L and the Treasury, ensuring that network growth, development, and contributor rewards remain fully aligned.

The \$US token supply is carefully designed to align with the dynamics of the network and to reward contributors who help balance ecosystem demand and supply. As the network grows, contributors will benefit not just from application-level revenue, but also from long-term token value appreciation.

6 Conclusion

Talus is the foundation for a new economic era. One where agents transact on our behalf, workflows coordinate at scale, and the AI-powered smarter economy is truly decentralized, transparent, and composable. Talus is uniquely positioned to dominate the convergence of Web3 and AI because it's the first protocol purpose-built for autonomous, on-chain intelligence. Unlike traditional blockchains retrofitting AI, Talus is chain-native and modular from day one, offering superior developer experience, incentives, and seamless integration. Our self-reinforcing growth cycle ensures network effects compound as more agents and tools come online, driving exponential value accrual to \$US.