

HyperLoop

A highly-fortified token bridge to unite fragmented liquidity across Web3 networks

IN A NUTSHELL

Supra's bonded, cross-chain bridge designed to prevent double-spending by using sliding windows with time-based volume limits for spending, an insurance protocol pegged to these limits, whistleblower nodes to track attempted misbehavior, and the open-participation AuditDAO to settle disputes. It is the first protocol to consider real-world rational behavior of bridge nodes.

USE CASES

Money Markets

Deposit tokens from one chain and borrow tokens on another chain to take advantage of arbitrage trades or investment opportunities.

Liquidity Provision

Engage in yield farming or liquidity mining across multiple ecosystems.

Efficient Resource Outlays

Offloading transactions to chains with lower fees and faster confirmation times can reduce overhead, making a remarkable difference at scale.

KEY BENEFITS

Bonded Staking

Users must first stake assets on HyperLoop's liquidity network before utilizing bridge services to align themselves within the network's incentives and security structure.

Sliding Window Circuit Breakers

Time-based transfer limits are set for cross-chain token swaps in sliding windows, imposing "speed limits" to mitigate double-spending risks and buttress against dynamic adversaries.

PROBLEM IT SOLVES

Unite Fragmented Liquidity

Users choose where to hold and deploy their assets, offering a streamlined and more user-centric experience.

Fortify Historical Vulnerabilities

Eliminate barriers for power users and developers wanting to participate in different ecosystems, but are limited by the arduous and often risky process of bridging assets in the status quo.

Reduce Needless Overhead

Leveraging crypto assets across various blockchains increases the overall efficiency and utility of the DeFi ecosystem and benefits stakeholders of all kinds.

AuditDAO

Open participation allows for whistleblowers to identify and halt misbehavior before trouble can manifest, and an elegant incentive structure to reward their efforts.

Enshrined Insurance Protocol

Funds are pegged to sliding windows volume limits, meaning that losses are minuscule and fully backed even in the case of a Black Swan event.

VISION

Empower Users

Users own and control their assets and identities, giving rise to a new age of personal sovereignty, financial inclusion, peer-to-peer commerce.

Facilitate Interoperability

As the swapping process is consolidated, interoperability and composable dApps are better able to flourish.

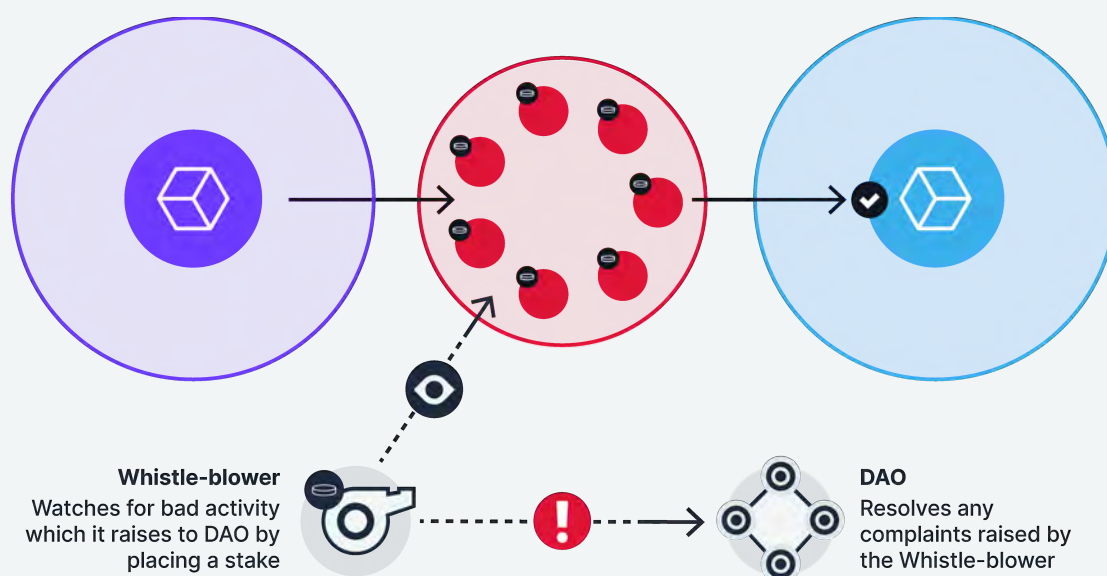
Supercharge Adoption

The aims and incentives of all blockchains become more aligned as stakeholders and end users enjoy cross-chain liquidity as opposed to the walled gardens of the status quo.

HOW IT WORKS

Similar to HyperNova in that it facilitates cross-chain liquidity, Hyperloop is a pairwise bridge protocol that connects two blockchains, enabling information and asset transfers between them. There are three main actors in – a network of bridge nodes to form consensus on new blocks, a set of whistle-blower nodes to oversee operations, and AuditDAO for settling disputes.

HyperLoop's bridge nodes run clients of both the source and destination chains to follow the events on them. The whistle-blower nodes also run both clients and constantly monitor the actions of the bridge nodes to detect anomalies.



These whistleblower nodes raise objections upon the detection of double-spending or Byzantine behavior and report them to AuditDAO. Of course, bridge nodes are required to stake a predetermined amount of tokens, and whistleblower nodes are also required to stake assets in escrow when raising objections. This prevents spamming of the network or malicious use of the whistleblower functionality.

Upon having an objection successfully rendered legitimate, the staked assets of the Byzantine bridge nodes would be slashed, and a portion would be paid as a reward to the corresponding whistle-blower nodes, another portion to AuditDAO, and the protocol's insurance fund. Whistle-blower nodes are also rewarded for their efforts as an oversight committee. In contrast, the bond posted by objecting whistleblowers would be withheld if they were determined to have falsely reported an event.

WHO IS IT FOR

DeFi Developers

Enrich the user experience of decentralized money markets, NFT marketplaces, governance platforms, and beyond.

Yield Farmers

By consolidating the process, traders can better leverage opportunities across different smart contract ecosystems.

Liquidity Providers

For LPs operating in different ecosystems looking to consolidate their on-chain activity and minimize risks during portfolio rebalancing.

**ADDITIONAL NOTES
& RESOURCES**

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