Introduction

The idea of decentralization blew up in the 2010s. Since then, people have been making and building new networks. However, moving assets and information between networks has become a complex and inefficient process, requiring users to have an understanding of bridges and mechanics of specific networks. There's also a problem of having a centralized party monitor the minting and burning of tokens on two different networks in a bridging process, which questions the idea of decentralization in Web3.

PolyLink introduces an intent-based solution to these problems by enabling users to move assets between networks without delving into the technical details of the network. It uses an AVS to monitor the minting and burning of assets between two networks in the bridging process, making it completely decentralized and reinforcing people's belief in the idea of decentralization.

Concept

Many bridges involve a centralized party to monitor the minting and burning of tokens on different chains, which raises questions about decentralization. Additionally, the bridging process has become complex and inefficient for users. We're addressing these issues by replacing the centralized party with an AVS (Actively Validated Services), where a set of operators and validators verify the minting and burning of tokens during bridging. To simplify the process for users, we're making it intent-based, allowing them to move assets easily.

Diagram

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How it works?

PolyLink uses a network of operators and validators to verify intents and transactions. Here are a few steps to explain the process better:

1. User passes the intent in the form of text (let's say "I want to transfer 1000 tokens from one chain to another on the cheapest route").
2. PolyLink interprets the intent of the user and breaks it down to fulfill the user's request.
3. The broken-down information then goes into the cross-chain bridge and initiates the transaction.
4. Finally, the AVS verifies the transaction and ensures the minting and burning of tokens on both chains. This process verifies if the user's request has been fulfilled or not.

Components

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Flow of PolyLink Protocol

There are two ways the process can go:

- Request Fulfillment:
- User submits intent, locking funds on the source chain
- Protocol processes and breaks down the intent, then initiates the bridging process
- AVS verifies the minting and burning of tokens on both chains, fulfilling the user's request
- User submits intent, locking funds on the source chain
- Protocol processes and breaks down the intent, then initiates the bridging process

- AVS verifies the minting and burning of tokens on both chains, fulfilling the user’s request
- Request Unfulfillment -
- User submits intent, locking funds on the source chain
- Protocol processes it, breaks it down, and initiates the bridging process
- AVS detects the failure, returns the locked funds, and reports malicious activity in the bridging
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- Protocol processes it, breaks it down, and initiates the bridging process
- AVS detects the failure, returns the locked funds, and reports malicious activity in the bridging

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The Role of AVS (Actively Validate Services)

To scale the intent-based interoperability, verifiable AVS infrastructure is ideal. AVS (Actively Validated Services) plays a crucial role in PolyLink by providing a set of validators to verify and authenticate the process of bridging and intents more securely. AVS ensures that the minting and burning of tokens between two chains are executed successfully and that the intents provided by the user result in the desired outcome. It adds an extra layer of validation and prevention of frauds. This structure helps PolyLink achieve cross-chain functionality with an extra layer of security and validation.

Conclusion

PolyLink provides a new path for users to perform bridging securely and with greater ease. With an intent-based approach, users can now transfer tokens between two chains without delving into the technical aspects. For security, AVS provides an extra layer of validation to ensure users get the desired outcome for their respective inputs, while also verifying the minting and burning of tokens between two chains.

Authors

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Github - Code