



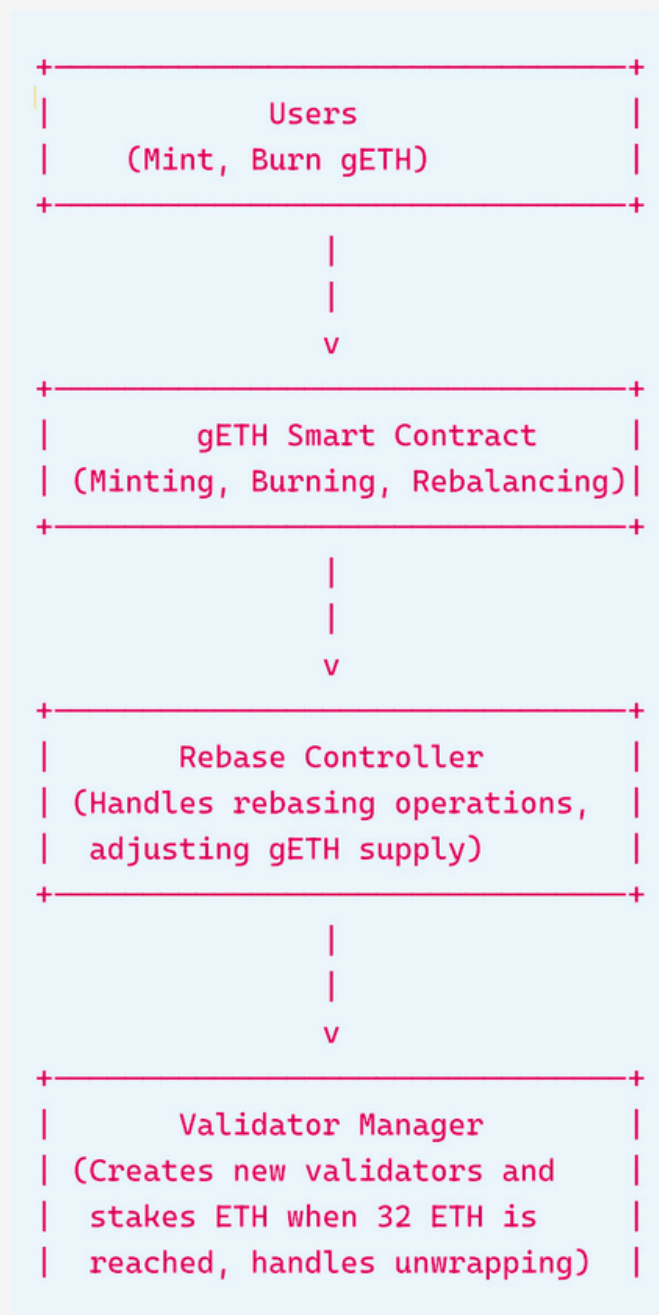
gETH

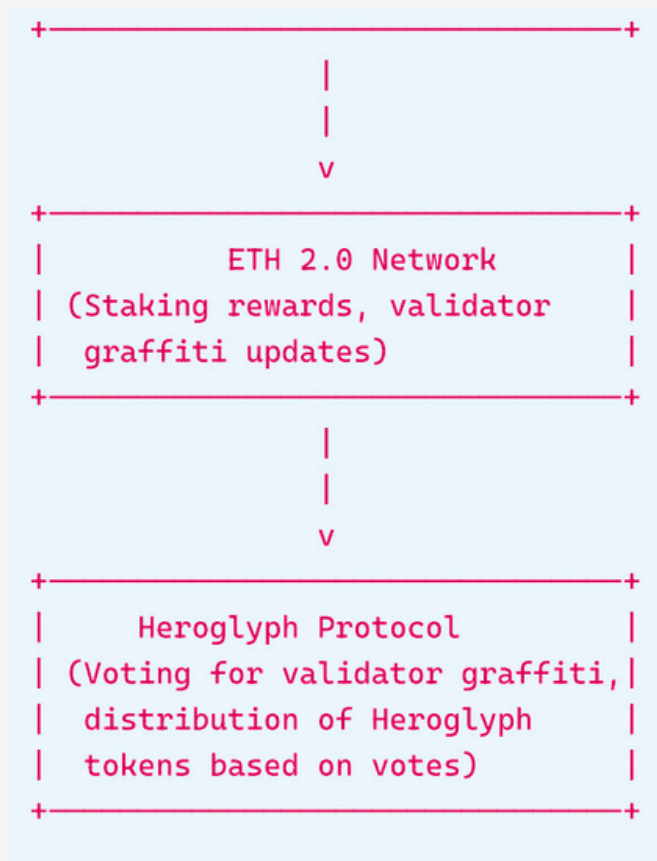
White Paper

High-Level Architecture for gETH

Below is a high-level architecture flow chart for the gETH system, followed by a brief technical paper explaining how it works.

Flow Chart





gETH: A Liquid Staking Token with Rebasing and Validator Graffiti Voting

Abstract

This technical paper describes the design and implementation of gETH, a liquid staking token (*LST*) on the Ethereum blockchain. gETH allows users to stake ETH in a 1:1 ratio, participate in validator creation, and earn rewards through the Heroglyph protocol by voting on validator graffiti. The system supports rebasing features to reflect staking rewards in the gETH supply.

1. Introduction

Liquid staking tokens enable users to stake their ETH while maintaining liquidity. gETH is designed to provide users with a tokenized version of staked ETH that supports rebasing to adjust for staking rewards. It also incorporates a unique voting mechanism for validator graffiti through the Heroglyph protocol.

2. System Architecture

2.1 Users

Users interact with the gETH system by minting and burning gETH tokens using ETH. When users deposit ETH, they receive gETH in a 1:1 ratio. When they want to withdraw, they initiate an unwrapping process that releases ETH once 32 ETH are collectively ready to be withdrawn.

2.2 gETH Smart Contract

The core component of the system, this smart contract handles:

- Minting and burning of gETH tokens.
- Rebasing operations to adjust the gETH supply based on staking rewards.
- Initiating staking when 32 ETH are pooled together.

2.3 Rebase Controller

This component manages the rebasing process. It periodically adjusts the gETH supply to reflect the staking rewards earned by the underlying ETH.

2.4 Validator Manager

The Validator Manager is responsible for:

- Creating new validators when 32 ETH are collected.
- Staking ETH into the Ethereum 2.0 network.
- Managing the unwrapping process to ensure users can withdraw their ETH when 32 ETH are ready.

2.5 ETH 2.0 Network

This network handles the staking of ETH, distribution of staking rewards, and validator operations, including graffiti updates.

2.6 Heroglyph Protocol

This protocol allows gETH holders to vote on the graffiti for validators, incentivizing participation by distributing Heroglyph tokens based on voting outcomes.

3. User Interactions

Liquid staking tokens enable users to stake their ETH while maintaining liquidity. gETH is designed to provide users with a tokenized version of staked ETH that supports rebasing to adjust for staking rewards. It also incorporates a unique voting mechanism for validator graffiti through the Heroglyph protocol.

3.1 Minting gETH

- Users send ETH to the gETH smart contract.
- The contract mints an equivalent amount of gETH and sends it to the user.

3.2 Staking ETH

- When the total staked ETH reaches 32 ETH, the Validator Manager creates a new validator.
- The Validator Manager stakes the 32 ETH into the Ethereum 2.0 network.

3.3 Rebasing gETH

The Rebase Controller adjusts the gETH supply periodically based on the rewards accrued from staked ETH.

3.4 Unwrapping gETH

- Users initiate the unwrapping process, burning gETH to signal their intent to withdraw ETH.
- Once the total unwrapping requests accumulate to 32 ETH, the Validator Manager withdraws the ETH and sends it to the users.

3.5 Voting on Validator Graffiti

- gETH holders use their tokens to vote on validator graffiti through the Heroglyph protocol.
- Participants earn Heroglyph tokens based on their voting activity.

Conclusion

gETH provides a flexible, liquid staking solution with added incentives for user participation through validator graffiti voting. By combining rebasing features with a decentralized voting mechanism, gETH enhances the staking experience while promoting active engagement in the Ethereum ecosystem.

This architecture and technical approach ensure that gETH provides liquidity, incentivizes participation, and efficiently manages staking operations, all while integrating seamlessly with Ethereum's existing infrastructure.

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