What Is EigenLayer?

The protocol that turned staked ether into shared, rentable security — and the ideas, roles, and risks behind it.

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AT A GLANCE

WHAT IT IS	BUILT BY	CORE IDEA
Ethereum restaking protocol	**EigenLabs (Sreeram Kannan)**	**Reuse staked ETH as shared security**
THREE ROLES	FLAGSHIP SERVICE	NATIVE TOKEN
Restakers, operators, AVSs	**EigenDA (data availability)**	**EIGEN**

01 — THE SHORT ANSWER

What EigenLayer Actually Is

EigenLayer is a protocol built on Ethereum that lets people who have already staked their ether — the network's native asset, locked up to help secure the blockchain — put that same stake to work a second time. Instead of their capital sitting behind a single job, securing only Ethereum itself, restakers can opt in to extend the weight of that stake to additional applications and services. This mechanism, reusing already-committed collateral to underwrite more than one system, is called *restaking*, and EigenLayer is the protocol that pioneered it and turned it into a functioning market.

The intuition is simple even if the machinery is not. Every new piece of blockchain infrastructure — a bridge, an oracle, a data-availability layer, a settlement network — normally has to convince a large pool of capital to show up and secure it before it can be trusted. That is expensive and slow. EigenLayer's proposition is that the enormous pool of value already staked on Ethereum could be rented out, in a permissioned and priced way, to

secure many of those new systems at once. In exchange, the people supplying that security earn additional rewards, and the new services get economic backing without having to bootstrap it from zero.

02 — THE PROBLEM IT SOLVES

Bootstrapping Security Is Hard

To understand why EigenLayer exists, it helps to see the problem it was designed around. Proof-of-stake blockchains are secured by capital: participants lock up a valuable asset and can lose part of it if they misbehave, a penalty known as slashing. The larger and more honest that pool of bonded capital is, the harder and more expensive it becomes to attack the network. Ethereum has one of the deepest such pools in the industry, representing an enormous amount of staked value.

But every independent service that wants similar guarantees — its own validator set, its own token, its own slashing conditions — must build that trust from scratch. A brand-new network with a thin, cheaply-acquired token is far easier to attack than Ethereum. EigenLayer's answer is *pooled security*, sometimes called shared security: rather than fragmenting capital across dozens of small, weakly-secured systems, let those systems draw on one large, already-trusted pool. This is the same core idea explored in our broader explainer on what is restaking, of which EigenLayer is the flagship implementation. The protocol effectively creates a marketplace where security is a resource that can be supplied, priced, and consumed.

03 — THE CAST

The Three Roles: Restakers, Operators, and AVSs

EigenLayer's design revolves around three participants, and understanding how they fit together is the key to understanding the whole system. The first are **restakers** — holders of staked ether who choose to opt their stake into EigenLayer, accepting extra rules and extra risk in return for extra rewards. They supply the raw economic weight.

The second are **operators**. Most restakers do not want to run sophisticated infrastructure themselves, so they delegate their restaked position to an operator, a professional node runner who actually performs the technical work of validating on behalf of the services being secured. Operators are the active hands; restakers are the backers who stand behind them. The third role belongs to the **AVSs**, or Actively Validated Services — the applications that consume this pooled security. An AVS is any system that needs its own network of validators

and is willing to pay for economic backing rather than assemble it independently. Bridges, oracles, and data-availability layers are illustrative examples of the categories an AVS might occupy. Restakers back operators; operators secure AVSs; AVSs pay rewards that flow back down the chain.

> EigenLayer is not free money layered on top of staking. Every extra service a restaker underwrites adds another set of conditions under which their capital can be slashed. The rewards are real, but so is the compounded downside — and the two must always be weighed together.

04 — TWO DOORS IN

Native Restaking and LST Restaking

There are two principal ways capital enters EigenLayer, and the distinction matters for how the risk is held. The first is **native restaking**. Here a solo staker who runs their own Ethereum validator points that validator's withdrawal credentials — the on-chain settings that control where staked funds can ultimately be sent — at a special EigenLayer smart contract called an EigenPod. This routes the stake through EigenLayer at the base layer, keeping the capital as close to raw staked ether as possible. It is the more hands-on path and is generally suited to those already operating their own validator, as covered in our guide to what is Ethereum staking.

The second door is **LST restaking**. Many people do not stake directly; instead they hold a liquid staking token, a tradable receipt such as those issued by large staking providers that represents staked ether plus its accruing rewards. EigenLayer lets holders deposit these liquid staking tokens into the protocol, restaking them without ever running a validator. This path is far more accessible, which is a large part of why deposits grew so quickly, but it also stacks EigenLayer's risks on top of the risks already carried by the underlying liquid staking token. Two layers of smart-contract exposure sit beneath a single position.

05 — THE ANCHOR PRODUCT

EigenDA: The Flagship Service

For a security marketplace to matter, something has to actually buy the security. EigenLayer's own flagship demonstration of demand is **EigenDA**, a data-availability service. Data availability, in this context, means guaranteeing that the transaction data behind a rollup — a layer-2 network that processes transactions off Ethereum's main chain

and posts the results back — is genuinely published and retrievable, so anyone can reconstruct and verify the rollup's state. It is unglamorous but essential infrastructure, and it is one of the largest recurring costs a rollup faces.

EigenDA was built to offer that guarantee at high throughput and lower cost by leaning on EigenLayer's pooled security rather than assembling a dedicated validator set of its own. It serves as both a real product and a proof of concept: evidence that an Actively Validated Service can be built on restaked ether, attract paying users, and return rewards to the operators and restakers underwriting it. In practice EigenDA has been the clearest example of the whole model working as designed, which is why it is so often cited as the reference AVS.

06 — THE TOKEN

EIGEN and Intersubjective Faults

EigenLayer's native token is **EIGEN**, and its design reflects an unusually specific philosophy. Its whitepaper is titled "The Universal Intersubjective Work Token," and that phrase points at the problem the token is meant to address. Ethereum's base protocol can only slash faults that are *objectively* provable on-chain — a validator signing two conflicting blocks, for instance. But many failures an AVS might care about are what EigenLayer calls *intersubjective* faults: things that essentially everyone paying attention would agree were wrong, yet cannot be proven by a single line of on-chain code alone.

EIGEN is designed to give those social-consensus failures a financial backstop. The mechanism is built to be forkable, using a two-token structure — the EIGEN token together with a bonded counterpart — so that in a genuine dispute the community can, in effect, fork the token and slash actors judged to have committed an intersubjective fault, even without a purely on-chain proof. The token first became claimable through an airdrop to early participants in 2024 and was initially non-transferable, with a points program having driven much of the earlier deposit growth. Whether this forking mechanism proves robust in a real, contested event remains one of the more genuinely novel open questions in the space.

07 — THE OTHER SIDE

Risks and Criticisms

The same efficiency that makes EigenLayer attractive is also the root of its central risk. When one pool of capital secures many services simultaneously, the failure modes can compound rather than stay isolated. A restaker who backs several Actively Validated

Services is exposed to the slashing conditions of all of them at once; a bug or a bad rule in a single service could, in the worst case, put capital that was also securing others at risk. Layered on top are ordinary smart-contract risk in EigenLayer's own contracts and operator-concentration risk — the danger that a small number of large operators end up controlling a disproportionate share of restaked stake.

There is also a higher-level critique. In a widely-read 2023 essay, Ethereum co-founder Vitalik Buterin cautioned against efforts to "overload" Ethereum's consensus — extending the social and economic guarantees of the base layer to secure external systems — warning that doing so could import fragility back into the core protocol. It is best read as a category-level caution about restaking as a whole rather than a verdict on any single protocol, but EigenLayer, as the pioneer, sits squarely at the center of that debate. To its credit, EigenLayer's slashing was rolled out cautiously and on an opt-in basis rather than being switched on for everyone at once.

08 — THE ARC

History, EigenCloud, and the Competitive Field

EigenLayer rolled out in deliberate stages rather than all at once. Restaking deposits opened first, in mid-2023, letting capital flow in before any services were live. Operators and the first version of EigenDA followed in 2024. Enforcement of slashing — the penalties that give the whole system its teeth — arrived later still, in 2025, and on an opt-in basis, a sequencing that let the ecosystem accumulate stake and demand before the sharpest risks were switched on. Around this period the broader effort was rebranded under the banner of EigenCloud, reframing the project from a single protocol into a wider platform for building verifiable services on restaked security. This trajectory closely tracks the maturing role of restaking and layer-2 infrastructure we set out in our Ethereum thesis on restaking and L2s.

EigenLayer no longer has the field to itself. On Ethereum, protocols such as Symbiotic and Karak pursue overlapping visions of shared security with different design choices. Beyond Ethereum, restaking-style models have emerged on other chains — Jito and Solayer on Solana among them — each adapting the pooled-security idea to a different base layer. Different designs make different trade-offs between flexibility, safety, and how much they lean on the underlying chain, and it is still early enough that no single approach has clearly won. What is settled is that EigenLayer defined the category, gave restaking its first large-scale market, and forced the rest of the industry to reckon with both its promise and its risks.

“And if one prevail against him, two shall withstand him; and a threefold cord is not quickly broken.”

ECCLESIASTES 4:12

METHODOLOGY & SOURCES

This report synthesizes EigenLayer’s public documentation, the EIGEN token whitepaper (“The Universal Intersubjective Work Token”), Ethereum research and commentary including Vitalik Buterin’s 2023 essay on not overloading consensus, and independent analyses of restaking mechanics. It was prepared with a multi-agent verification process in which claims were independently checked and cross-referenced.

Figures relating to total value restaked, participant counts, and reward rates are directional and change continually; readers should consult live on-chain data for current values. Timeline points reflect a staged rollout — deposits from mid-2023, operators and EigenDA in 2024, opt-in slashing in 2025 — and the EigenCloud rebrand dates to 2025. Funding is described in aggregate terms across multiple capital events rather than as a single confirmed total. Nothing here is investment advice; restaking layers additional, compounding risk on top of ordinary staking and should be approached accordingly.

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