Avail: The Unification Layer for Web3

Preface

The permissionless environment of web3 has led to multiple ground breaking technologies that power a thriving ecosystem. Faced with multiple challenges to overcome in reaching the scale required for mass-adoption, the ecosystem has built incredible scaling technologies across the full breadth and depth of the Web3 tech stack. However the need for all of this technology to come together and operate as a cohesive whole for end users, while remaining true to the decentralized ethos of the ecosystem, still remains. Cross-ecosystem transactions are cumbersome and difficult, driving more fragmentation throughout an already fragmented ecosystem. User adoption efforts need to be directed towards onboarding net-new users, instead of pulling them between existing communities. A unification layer is needed.

Avail aims to accelerate the unification of Web3 using its cutting edge modular technology stack that combines data availability, aggregation, and shared security. To achieve this, Avail has been building out the Avail Trinity, a unifying tech stack starting with the foundational Data Availability (DA) layer, the Nexus unification layer, and Fusion, an additive security layer. Avail stands to anchor the whole Web3 ecosystem with a scalable, cutting edge data availability layer, harnessing validity proofs that leverage KZG Polynomial commitments to ensure immediate and reliable data availability, enabling rollups to grow, connect, stay secure, and adapt.

The Avail Trinity

Avail's ecosystem is designed to offer a superior experience for both users and developers, balancing the essentials of scalability, interoperability and security without compromise. The platform's structure is anchored in three primary layers:

1. Data Availability (DA) Layer
2. : A foundational layer focused exclusively on DA, forming the basis for abundantly scalable modular chains.
3. The DA layer is a highly optimized, low-level layer, specifically constructed for [data availability (opens in a new tab)](#)
4. .
5. This is the deepest blockchain layer, with the minimal functionality required to build
6. cross-ecosystem interoperability on top.
7. Avail DA uses validity proofs to make sure that devs don't have to trust Avail's claims about their data being available or not,they can verify
8. it for themselves.
9. Nexus Layer
10. : Nexus is a light but powerful proof aggregation and sequencer selection zk rollup on top of Avail DA.
11. Avail Nexus acts as a permissionless verification hub that will unify rollups (not just those built within the Avail ecosystem), leveraging Avail DA as the root of trust.
12. Fusion Security Layer
13. : Enhances the overall security of the Avail network by pooling different tokens, including established tokens and emerging tokens.
14. Fusion will also help bring and lock more liquidity from other blockchains into the Avail ecosystem.
15. This approach will progressively bolster Avail's cryptoeconomic security and marks one of the first instances
16. where foreign tokens like ETH and BTC are utilized to power consensus on a different blockchain.

These layers collectively aim to dissolve the market's fragmentation, providing a unified platform for users and developers from various ecosystems.

Our vision

Avail is designed to be a platform that connects different ecosystems by providing a modular, scalable, and interoperable platform. Avail's vision is to provide a cohesive, unified user experience within a flexible and modular blockchain ecosystem, drawing on lessons from Web2 to innovate in Web3. Avail is not just building a product; we are pioneering a new category in the blockchain space, paving the way for an era of enhanced scalability and seamless integration.

- Avail aims to provide a cohesive platform that bridges the gaps between various blockchain ecosystems.
- By implementing the right primitives and standards, Avail seeks to ensure interoperability and cooperation among diverse blockchain networks. This approach not only enhances
- the user experience but also fosters a more integrated and efficient blockchain ecosystem.

With Avail's foundational DA layer, different ecosystems can innovate on top freely, while leveraging Nexus for cross-ecosystem messaging. Read more about each layer of Avail trinity in the next section. You can also read more about Avail's vision and overall mission [on our blog(opens in a new tab)](#) .

[The Avail Trinity](#)