AltLayer
Runtime Execution and Elastic Scaling Layer for Ethereum

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Issues Faced by Popular Applications on General Purpose L{1,2}s — Ethereum Edition

Over 20,000 ETH was burnt as gas fees in the heavily hyped Otherdeed land sale.

Each user spent an average of 2–3 ETH in gas fees alone.
Sunflower game on Polygon PoS consumed over 40% of the blockspace.

Created negative externalities for users of other dApps.
Issues Faced by Popular Applications on General Purpose L{1,2}s — Arbitrum Edition

Arbitrum’s NFT campaign was paused due to ensuing congestion on the network.

Gas fees on Arbitrum was higher than that on Ethereum L1.

ARBINAUTS, FALL IN!

The first week or so of the Arbitrum Odyssey has been very exciting to say the least!

But we’ve decided to pause the Arbitrum Odyssey as of now, to be resumed after Nitro is released.
Shared blockspace model offered by general purpose L1,L2s is not ideal for most popular dApps due to poor UX and lack of flexibility for devs.

**Why AltLayer?**

A platform to launch application-tailored L2 execution layers.

**Elastic**
2,500 TPS

**Near-Instant Time to Finality**
< 2s

**Multi-VM Support**
EVM & WASM

**Disposable L2s**
Resource Optimised

**Powered by Optimistic Rollup**

**Modular Design**
Two Product Offerings With the Same Underlying Tech

Short-lived Application-Dedicated Rollups *aka Flash Layers*

**Persistent Application-Dedicated Rollups**

These are optimistic rollups.
Flash Layers

Flash layers are disposable application-tailored rollups with optional fraud proofs. Disposability makes them highly resource optimised.

Consider an NFT sale happening on an L1. As the developer notices a surge in demand, he initiates a flash layer.

Once the NFT sale has been completed on the flash layer, the state is committed to the L1. The flash layer is subsequently freed and taken down.

Ideal for

- NFT mint events
- Airdrops
- Mini games
- Governance
Flash Layer for NFTs

Flash layer offers several advantages over one-size-fits-all offerings from other appchains (e.g., Cosmos SDK).

<table>
<thead>
<tr>
<th>Benefits of Flash Layers over other AppChains for NFTs</th>
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<tbody>
<tr>
<td><strong>Fast Deployment</strong></td>
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<tr>
<td>One click set up and disposal</td>
</tr>
<tr>
<td><strong>Mint-dedicated Blockspace</strong></td>
</tr>
<tr>
<td>Elastic scaling</td>
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<tr>
<td><strong>No Gas War</strong></td>
</tr>
<tr>
<td>No negative externalities</td>
</tr>
<tr>
<td><strong>Assets Distributed on L1</strong></td>
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<tr>
<td>NFTs settled on the L1/L2 chain</td>
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<tr>
<td><strong>Multi-chain</strong></td>
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<tr>
<td>EVM &amp; WASM L1/L2s</td>
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<tr>
<td><strong>Familiar UX</strong></td>
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<td>Support for existing tools</td>
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</table>
Persistent Rollups

These are similar to any rollups except that they are application-tailored.

Ideal for

- GameFi
- SocialFi
- MetaFi
- DeFi
Decentralization

To embrace decentralization, AltLayer runs multiple block producers with consensus and different types of verifiers.

Multiple Producers
- Multiple producers with consensus.
- Avoid single point of failure.
- Censorship mitigation.

Diversified Verifiers
- Various types of verifiers, including nodes in x86, browsers for users, hardware and dApp backends to enforce verification ubiquitously.
- Ensure different levels of security.

Decentralization with Diversified Operators
At least one honest producer generates the correct block.

At least one light-client/hardware/dApp/user verifies the block.

L1 verifies the fraud proof to ensure the same level of L1 security.

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**Tiered Security**

Tiered approach to security that caters to a user’s security budget.

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**Latency with Progressive Security**

<table>
<thead>
<tr>
<th>Tier</th>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>Execution Level</td>
<td>&lt; 2 s</td>
<td>At least one honest producer generates the correct block.</td>
</tr>
<tr>
<td>Verification Level</td>
<td>&lt; 2 m</td>
<td>At least one light-client/hardware/dApp/user verifies the block.</td>
</tr>
<tr>
<td>Rollup Level</td>
<td>&lt; 2 h</td>
<td>L1 verifies the fraud proof to ensure the same level of L1 security.</td>
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**Tiered Security**

- dApp
- Node

**Verification Level**

- dApp
- Node
- Exchange
- Browser

**Rollup Level**

- Ethereum
- Cosmos
- Polkadot
- Solana
- Avalanche
- Binance
AltLayer supports versatile libs and SDKs in WASM.

**Multi-VM Support**

AltLayer unleashes the potential of building super dApps that can’t be built due to the limitations imposed by Solidity.

With AltLayer, Solidity dApps can call any crypto library or Metaverse SDKs in WASM.
### AltLayer in the Wild

Hosted a POAP-style mint event on a flash layer. Setup was designed to create a burst in demand.

- 12k whitelisted minters
- No KYC
- Freemint
- No need to acquire gas token

### Real-World Validation with AltLayer’s OG Badge NFT Mint Event

<table>
<thead>
<tr>
<th>Sold out within 18 seconds</th>
<th>Gasless 0 gas auction</th>
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<tr>
<td>TPS 50</td>
<td>Settlement 400 NFTs settled on Ethereum at a total gas costs of 0.25ETH</td>
</tr>
<tr>
<td>Relative to 5.6 for Optimism and 3.32 for Arbitrum</td>
<td>The same network was stress tested and reached 2500 TPS</td>
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</table>

TPS 50 Relative to 5.6 for Optimism and 3.32 for Arbitrum
AltLayer in the Wild

Provide a game-dedicated execution layer for Dark Forest. Over 300+ players scored and handled over 94K txns per day.

Real-World Validation with AltLayer’s Dark Forest’s Community Round

- over 2,500 TPS
- 1–2s latency
- Seamless User experience

Highest number of transactions from a single player: 15,324
Total game txns: 189,723

Game-layer txns per day:
- 94k (equivalent to over 90% of daily txns on Optimism
- and over 60% of daily txns on Arbitrum)
AltLayer Roadmap

Q3 2022
- **Alpha Testnet:** Full EVM support and verifier ready

Q4 2022
- **Beta Testnet:** L1-L2 interaction and bridge ready

Q1 2023
- **Mainnet Candidate Alpha:** Connected to Ethereum and select L2s

Q1–Q2 2023
- **App-specific add-ons:** In-game wallets and marketplaces

Q3 2023
- **Mainnet Candidate Beta:** Connected to non-EVM chains
Thank you!

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