

AltLayer

Runtime Execution and Elastic Scaling Layer
for Ethereum

Dr. Yaoqi Jia

Founder, AltLayer

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



OthersideMeta ✓
@OthersideMeta

The Otherdeed NFT mint is sold out - we are awestruck at the demand shown tonight. Apes and Mutants, the opening of the 21-day claim period is being delayed until the price of gas drops to reasonable levels. We'll tweet when the claim opens.

Yuga Labs ✓ @yugalabs · Apr 30

We wanted to say a few words about the mint tonight. 📖

[Show this thread](#)

10:57 PM · Apr 30, 2022 · Twitter Web App

374 Retweets 85 Quote Tweets 2,095 Likes

The Otherdeed Land Sale Gas War

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.

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

Tech

Polygon Under Accidental Attack From Swarm of Sunflower Farmers

A popular new blockchain game is congesting Polygon, sending gas prices soaring.

By Andrew Thurman 🕒 Jan 6, 2022 at 9:48 p.m. GMT

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
@arbitrum

...



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. 

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

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



Why AltLayer?

Shared blockspace model offered by general purpose L{1,2}s is not ideal for most popular dApps due to poor UX and lack of flexibility for devs.

Our Proposition

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.

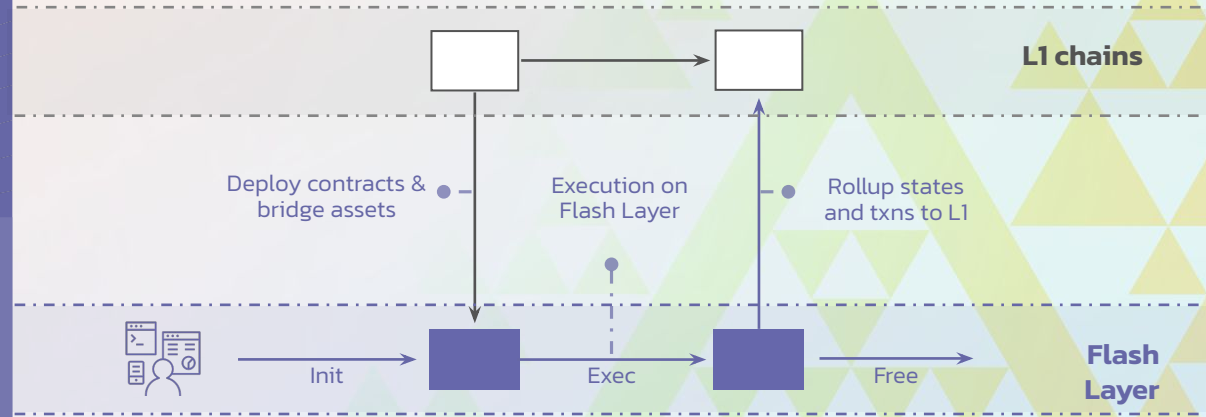
Ideal for

- NFT mint events
- Airdrops
- Mini games
- Governance

Flash Layers Create Resource Optimisation for dApps

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.





Flash Layer for NFTs

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

Benefits of Flash Layers over other AppChains for NFTs

Fast Deployment



One click set up and disposal

Mint-dedicated Blockspace



Elastic scaling

No Gas War



No negative externalities

Assets Distributed on L1



NFTs settled on the L1/L2 chain

Multi-chain



EVM & WASM L1/L2s

Familiar UX



Support for existing tools



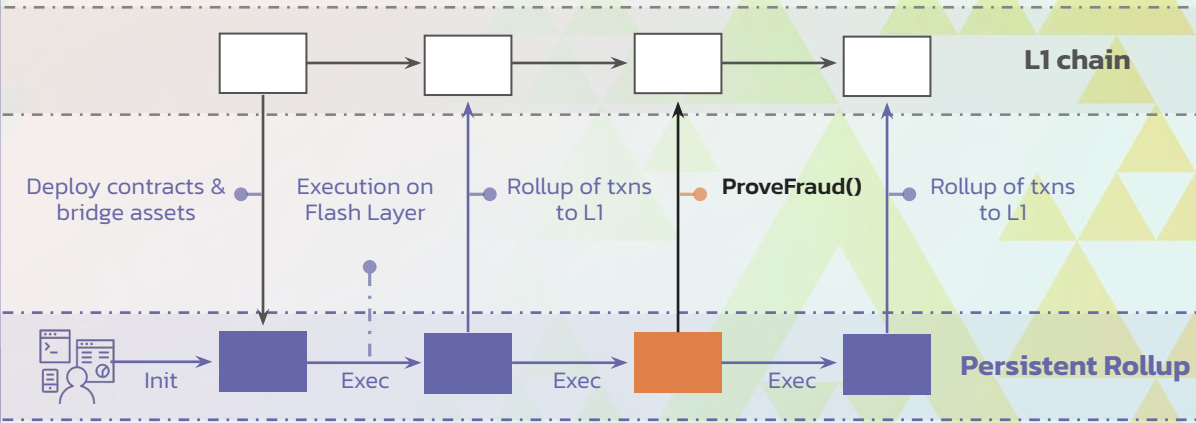
Persistent Rollups

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

Ideal for

- GameFi
- SocialFi
- MetaFi
- DeFi

Application-Tailored Persistent Rollups





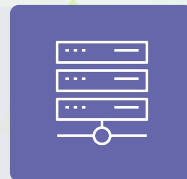
Decentralization

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

Decentralization with Diversified Operators

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.



dApp



Node



Exchange



Browser



Tiered Security

Tiered approach to security that caters to a user's security budget

Latency with Progressive Security

Execution Level < 2 s

At least one honest producer generates the correct block.



dApp



Node

Verification Level < 2 m

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



dApp



Node



Exchange



Browser

Rollup Level < 2 h

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



Ethereum



Cosmos



Polkadot



Solana



Avalanche



Binance

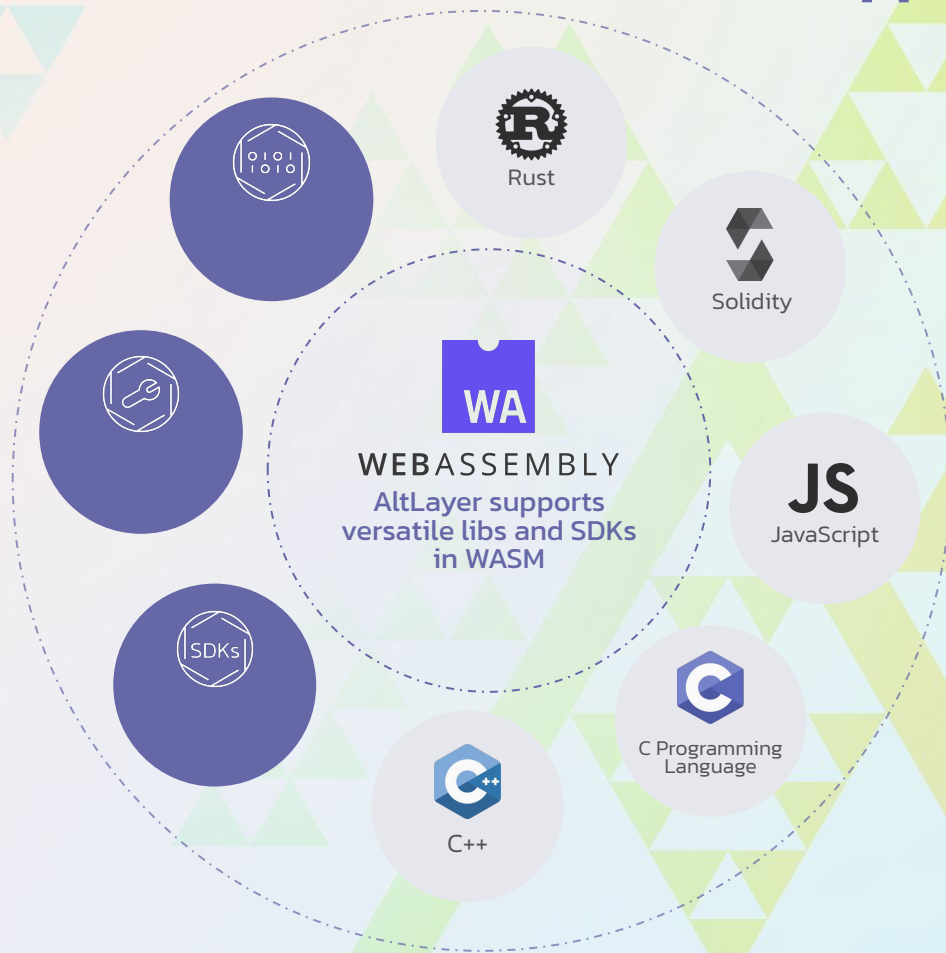


Multi-VM Support

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.

Versatile Choices for Web3 dApps





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

Sold out within
18 seconds



Gasless
0 gas auction



TPS 50

Relative to 5.6 for Optimism and 3.32 for Arbitrum

The same network was stress tested and reached 2500 TPS



Settlement

400 NFTs settled on Ethereum at a total gas costs of **0.25ETH**





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)



EVM-Equivalent Testnet



Blocks ▾

Transactions ▾

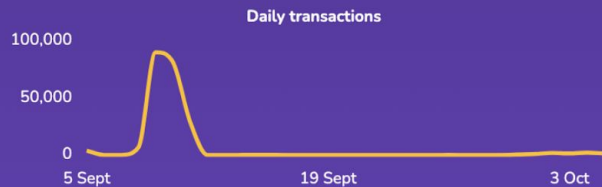
Tokens ▾

APIs ▾

Alt Devnet



Search by address, token symbol, name, transaction /



Gas tracker

1.0 Gwei ⓘ

Daily Transactions

1,375

Average block time

2 seconds

Total transactions

320,083

Total blocks

3,581,261

Wallet addresses

42,150

Blocks

[View All Blocks](#)

3581260

0 Transactions

Miner 0xf788457308133982E990751399...

3581259

0 Transactions 2 seconds ago

Miner 0x8b61cc184895ec15A4CD83DE50...

3581258

0 Transactions 4 seconds ago

Miner 0x5EB51391b174232F2428BF3e63...

3581257

0 Transactions 6 seconds ago

Miner 0x06272d014E12b1E8A6b854C79...

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!

Yaoqi Jia

AltLayer

y@altresearch.ch



@jiayaoqi