

RIP-7755

Workshop

DevCon 2024

Goals

01 Deeper understanding of RIP-7755

02 New chain support considerations

03 Nested Storage Proofs

04 Integration details

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High-Level Purpose

There should exist a standard for communication between chains that:

- Is public & decentralized.
- Relies solely on validation data that is trustlessly available on-chain.
- Has built-in flexibility to support any arbitrary message

#	NAME	PAST DAY TPS	MAX TPS	30D COUNT	DATA SOURCE
1	Base	73.97	85.30 on 2024 Nov 07	187.08M ▼ 9.43%	Blockchain RPC
2	Xai L3 on Arbitrum One	65.55	140.30 on 2024 Jul 16	165.62M ▼ 3.56%	Blockchain RPC
3	Taiko	43.60	57.89 on 2024 Nov 04	96.50M ▼ 9.44%	Blockchain RPC
4	Arbitrum One	24.78	58.97 on 2023 Dec 16	58.61M ▲ 8.76%	Blockchain RPC
5	Gravity	24.03	69.45 on 2024 Aug 19	62.92M ▲ 17.4%	Blockchain RPC
6	PlayBlock L3 on Arbitrum Nova	17.28	18.94 on 2024 Oct 21	43.73M ▲ 0.75%	Blockchain RPC
7	Ethereum	14.22	22.69 on 2024 Jan 14	34.57M ▲ 11.6%	Blockchain RPC
8	PoP Apex L3 on Arbitrum One	11.30	32.08 on 2024 Jul 04	28.47M ▲ 7.24%	Blockchain RPC
9	OP Mainnet	10.84	11.28 on 2024 Mar 27	23.81M ▲ 22.8%	Blockchain RPC
10	Blast	8.84	27.34 on 2024 Aug 21	18.97M ▲ 48.9%	Blockchain RPC
11	PoP Boss L3 on Arbitrum One	8.24	8.24 on 2024 Nov 08	17.67M ▲ 21.4%	Blockchain RPC
12	World Chain	4.42	8.48 on 2024 Oct 18	12.28M ▼ 26.5%	Blockchain RPC
13	WINR L3 on Arbitrum One	4.33	21.39 on 2024 Sep 12	11.67M ▼ 6.66%	Blockchain RPC
14	Mantle	3.75	25.47 on 2023 Dec 27	9.55M ▲ 1.41%	Blockchain RPC
15	Manta Pacific	3.72	20.46 on 2024 Aug 16	7.26M ▲ 29.8%	Blockchain RPC
16	Immutable X	2.35	42.52 on 2024 Sep 04	8.97M ▼ 31.4%	Closed API

Screenshot from <https://l2beat.com/scaling/activity>

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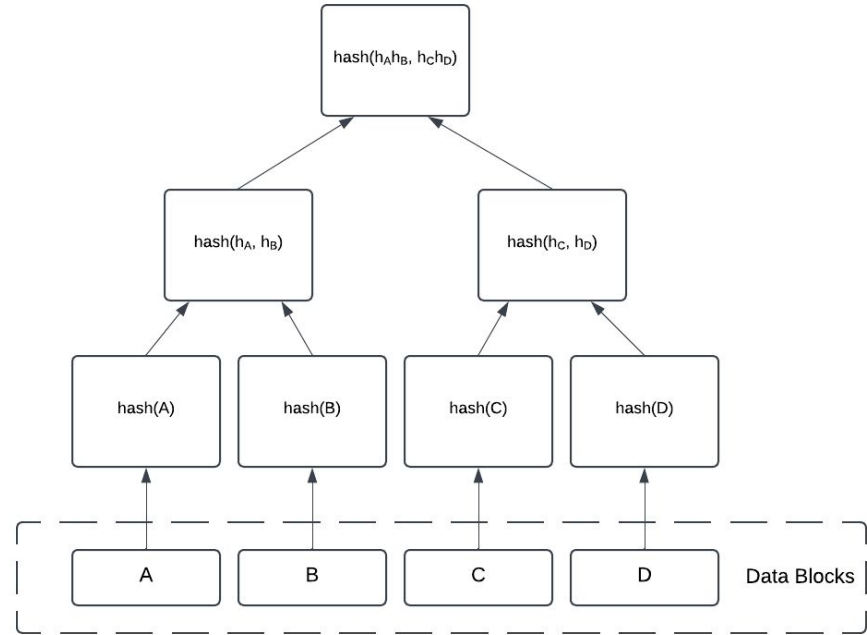
Ethereum L2s are uniquely positioned to solve this problem.

We can prove state about an L2 from another L2 via nested storage proofs.

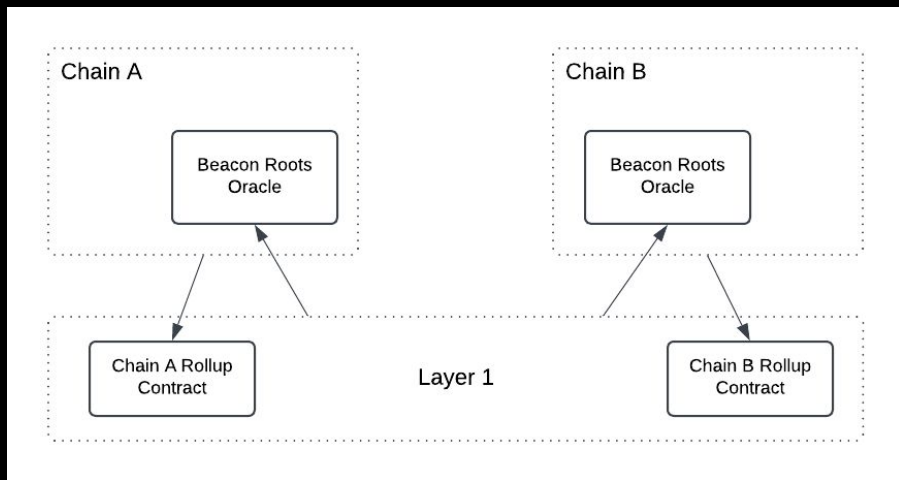
Merkle Tree

A tree structure where each node is a hash of its descendants.

- Represent large data-set with a single root hash
- Efficient proofs of inclusion / exclusion

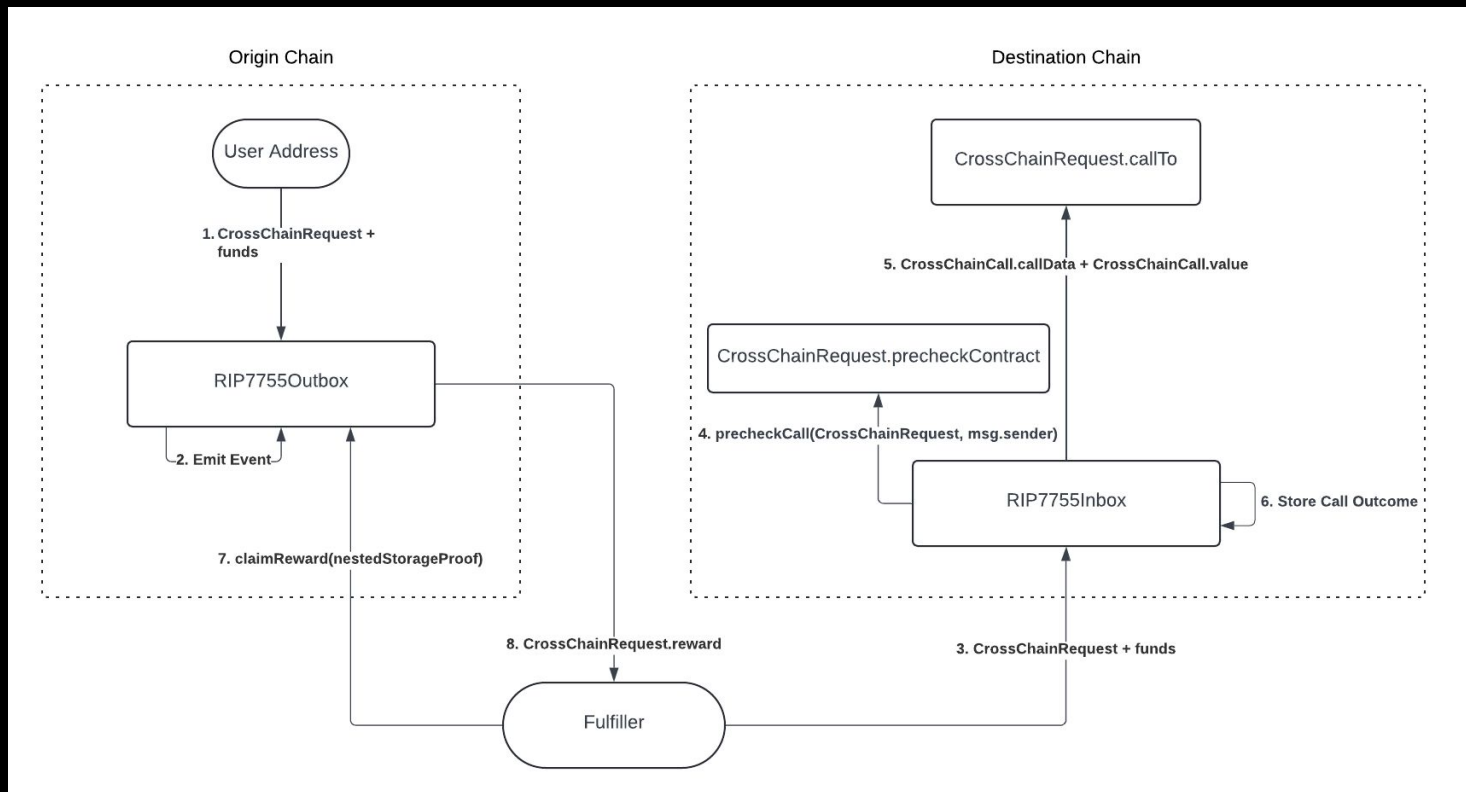


Ethereum Storage



- All of Ethereum's state is stored as a Merkle Patricia Trie
- State trie values are accounts
 - Nonce
 - Balance
 - Storage Root
 - Code Hash

Architecture



Agenda

- Walkthrough of contracts + services
- Implement + test a nested storage proof validation contract
- Integrate with our off-chain client application
- Run app end-to-end!



Questions?

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