Title: Modular Rollup Interoperability Benchmarks Code: NT-126 Author: Gabriel Berlitz Rondon Language: en Date: 2025-05 Methodology: future_outlook Tags: #rollups #interoperability #modular

Catalyst

Celestia mainnet, EigenDA, and Polygon's AggLayer all published interoperability benchmarks showing sub-second proof relay times between heterogeneous stacks. Hackathons now feature shared sequencer demos where app-rollups borrow security on demand.

Structural Shifts

Sequencers can post blobs to distinct data availability layers while settling on Ethereum, enabling mix-and-match deployments. Cross-domain messaging standards (Hyperlane, OP Stack fault proofs, zk light clients) move toward compatibility, so liquidity routers can treat rollups as peers rather than silos.

Experiment Log

Benchmarks compare latency, proof costs, and MEV-sharing formulas between shared and sovereign sequencers. MVPs include intent-based bridges that verify zero-knowledge proofs before releasing liquidity and MEV auction houses that span multiple rollups.

Risk & Opportunity Grid

Upside: specialized rollups per sector without fragmenting developer tooling. Risks: complex trust assumptions in bridge relayers, governance fragmentation if standards fork, and user confusion when settlement finality differs per stack.