Boundless vs Brevis Network – comparison of ZK-proof platforms (latest information as of 1 Oct 2025)

Background

Zero-knowledge (ZK) proofs allow a party to prove the correctness of a computation without revealing the underlying data. In blockchain ecosystems, ZK-proof systems are used to compress off-chain computations into succinct proofs that can be cheaply verified on-chain. Two high-profile projects in this space are **Boundless** (developed by RISC Zero) and **Brevis Network**. Although both leverage ZK proofs, they pursue different goals, architectures and incentive models. This report compares them using up-to-date public sources.

Boundless – universal verifiable compute layer

- **Purpose and design.** Boundless is a universal, decentralised protocol for verifiable compute across multiple blockchains. It aims to relieve scalability bottlenecks by off-loading intensive computations from L1s, L2s and dApps to a permissionless network of independent **provers**. These provers generate succinct ZK proofs of computation that can be verified on the client's chain[1]. The protocol treats compute as a tradable commodity, providing an elastic supply of proof generation similar to how cloud markets supply compute[2].

- **Architecture and workflow.** Clients (dApps, rollups or chains) submit proof requests specifying a program, inputs and auction parameters. Provers compete for each job in a **reverse-Dutch auction**: the job starts at a low price that rises linearly until someone locks it by staking the required ZKC collateral[3]. The winning prover executes the program off-chain, produces a ZK proof and submits it to the client chain where it is verified via a smart contract[4]. Provers can batch jobs and produce a single Groth16 proof for multiple computations[5].

- **Economic model.** The network uses a novel **Proof of Verifiable Work (PoVW)** mechanism. Provers are rewarded in the native **ZK Coin (ZKC)** in proportion to the cycles they prove[6]. An on-chain meter records the number of computation cycles for each proof and ZKC emissions (7 % inflation in year 1, tapering to 3 % from year 8) are distributed 75 % to provers and 25 % to stakers[7]. Provers must stake ZKC—typically 10× the job's maximum fee—as collateral and are **slashed** if they fail to deliver; half of the slashed funds are burned and half become a bounty[8].

- **Token and governance.** ZKC (1 billion supply) is used for collateral, mining rewards, staking and governance. Staked ZKC gives voting power to decide protocol parameters, new zkVM integrations and grants[9]. The mainnet launched on 15 Sep 2025 on the Base network, and the protocol is already used by rollups (Taiko, Citrea), hybrid rollups (BOB, SOON), verifiable exchanges and DeFi protocols[10].

- **Adoption.** During Season 1, more than 2,800 provers generated over 500 trillion cycles of proofs; mainnet beta throughput reached 2.6 trillion daily cycles across 8,000 orders and auctions cleared in under 100 ms[11]. Boundless also proved entire Ethereum consensus with 50 billion-cycle proofs and integrated with 30+ protocols【744924773797507†L142-L168】.

Brevis Network – omnichain ZK coprocessor and compute layer

- **Purpose and design.** Brevis is a verifiable computing platform and an “infinite compute layer” targeting data-rich applications. It processes complex computations off-chain and delivers ZK proofs so that smart contracts can verify results on-chain at a fraction of the on-chain cost. The platform positions itself as an “omnichain data attestation” layer and aims to enable cross-chain AI and DeFi use-cases[12].

- **Hybrid computation model.** Brevis uses a three-step flow: (1) **off-chain processing** – heavy computations are sent to the Brevis network; (2) **ZK proof generation** – Brevis generates a succinct ZK proof of correctness; and (3) **on-chain verification** – the proof is verified by the client smart contract[13]. This model removes gas-cost constraints and allows developers to build data-intensive applications[14]. Brevis claims the cost of verification can be reduced by up to 1/1,000,000 compared with performing the computation on-chain[15].

- **Products.** The network offers several products:

- **zkCoprocessor** – core engine that runs off-chain computations and generates ZK proofs[16].

- **Pico zkVM** – a zero-knowledge virtual machine designed for ease-of-use; it aims to let developers with no ZK experience build zk-enabled applications[17].
- **Incentra** – a continuous incentivisation programme designed to reward DeFi users; it reportedly engaged over 23,000 users and distributes >100 million in incentives annually[18].
- **Explorer** – provides transparency on network activity[19].

A separate article notes that Brevis functions as a “smart ZK coprocessor” that can **read full historical on-chain data from any chain**, run custom computations on data of any size and verify ZK proofs on any blockchain[20]. It supports use-cases like data-driven DeFi, user-segmented live-ops, zkBridges, zkDIDs and ZK machine-learning, all executed trustlessly across multiple chains[21].

- **Cross-chain capability.** Brevis’s ZK light client can generate **proofs of consensus** for other blockchains. In the 0G partnership, Brevis takes data stored on the 0G chain, produces a ZK proof of the chain’s block header and then lets other chains trustlessly access that header[22]. Developers can run arbitrary computations on this data using Brevis’s SDK and use the results on any supported chain[22]. The proof ensures data validity while keeping underlying information confidential[23].
- **Token and incentives.** Brevis has not yet launched a public token, but it is running campaigns like the **Brevis Yapper Leaderboard** that will distribute a portion of the project’s Token Generation Event (TGE) allocation to top participants. Incentra provides continuous rewards to users[18], but there is no on-chain PoVW equivalent described in public sources. Co-founder **Noam Nelke** leads the project[24].
- **Partnerships and adoption.** Brevis collaborates with many DeFi protocols and infrastructure projects such as PancakeSwap, Uniswap, QuickSwap, Beefy, Gamma, Frax and Berachain[25]. Its cross-chain focus has led to partnerships with AltLayer, EigenLayer, KaitoAI and events like (Re)fundamentals[26]. The network is also integrated with 0G, enabling trust-free cross-chain data availability[27].

Comparative table

Category	**Boundless** (RISC Zero)	**Brevis Network**
Mission/positioning	**Universal ZK compute layer:** off-loads computation from L1/L2 chains to a permissionless network of provers to make compute elastic and verifiable[1].	**Omnichain ZK coprocessor:** provides an "infinite compute layer" and data attestation platform; focuses on enabling cross-chain smart contracts and AI applications[12].
Core architecture	Proof requests are posted to **Boundless Market**; provers compete via a **reverse-Dutch auction**; the first prover to lock a job stakes ZKC collateral, executes the program off-chain, and submits a ZK proof that is verified on the client chain[4][3]. Batching with Groth16 reduces on-chain verification costs[5].	Computations are executed **off-chain** on Brevis; a succinct **ZK proof** is generated and returned for on-chain verification[13]. The architecture emphasises cross-chain data access via a ZK light-client that proves other chains' consensus[22].
Proof engine	Built on RISC Zero's **zkVM** but designed to be proof-system agnostic (future support for SP1, Boojum, Jolt etc.)[28] [29].	Offers **zkCoprocessor** and **Pico zkVM**; the latter lowers the barrier for developers with little ZK experience[30].

Category	**Boundless** (RISC Zero)	**Brevis Network**
Incentive model	Novel **Proof of Verifiable Work (PoVW)**; provers earn ZKC proportional to computation cycles; 75 % of emissions to provers, 25 % to stakers[6]. Requires staking collateral; failing to deliver results in slashing (50 % burned, 50 % bounty) [8].	Incentives primarily through **Incentra** (continuous DeFi rewards)[18] and social campaigns (Yapper Leaderboard). No public PoVW-style staking mechanism documented; token details yet to be fully disclosed.
Pricing mechanism	**Reverse-Dutch auctions**; price starts near zero and increases until a prover locks the job[31]. Jobs frequently clear at zero due to incentive pools, making proof generation cheap[11].	No auction mechanism described. Brevis functions more like a ZK service provider/ API; pricing details not publicly documented.
Token	**ZK Coin (ZKC):** used for collateral, miner rewards (PoVW), staking and governance[9]; 1 billion supply and 7 %–3 % emission schedule[32].	Token not yet launched publicly. Campaigns (e.g., Yapper leaderboard) hint at an upcoming TGE allocation.

Category	**Boundless** (RISC Zero)	**Brevis Network**
Use-cases and partners	Provides verifiable compute for rollups (Taiko, Citrea), hybrid rollups (BOB, SOON), verifiable exchanges (Hibachi) and universal DeFi (Mendi Finance) [33]. Already integrated with >30 protocols and can prove Ethereum consensus 【744924773797507†L142-L170】.	Enables data-rich DeFi, zkBridges, zkDIDs and ZK-ML by reading full historical on-chain data and running custom computations[21]. Partners with DeFi protocols (PancakeSwap, Uniswap, QuickSwap, Beefy, Gamma, Frax etc.)[25] and infrastructure providers like AltLayer, EigenLayer and 0G[26].
Cross-chain capabilities	Aims to be chain-agnostic; jobs can pay in native tokens (ETH, SOL); verified proofs can settle on any integrated chain; integrates with RISC Zero zkVM but plans to support other proof systems[34][29].	Provides an **omnichain** ZK coprocessor. Its ZK light-client produces proofs of consensus for other chains and allows arbitrary computation on data from any chain[22].
Adoption (as of Sep 2025)	Over 2,800 provers; >500 trillion cycles proven; 8,000 orders daily; used by rollup projects, EigenLayer, Celestia and Lido[11] [35].	Early-stage; active partnerships across DeFi protocols and cross-chain infrastructure; continuous incentive programmes.

Key differences and considerations

1. **Goal and scope:** Boundless is a general-purpose marketplace for ZK proofs that decouples computation from consensus and treats compute as a commoditised resource[1]. Brevis positions itself as a coprocessor that reads full on-chain history and performs custom computations across chains[21], making it more of a specialised data-attestation and cross-chain computation engine.

2. **Network design:** Boundless uses a permissionless network of provers who compete in auctions and stake collateral; the network's economics revolve around PoVW and ZKC token rewards[3][6]. Brevis appears to function more like a service layer/API operated by a single protocol; it lacks a public mining network or auction-based job allocation in publicly available documents.

3. **Incentives and tokens:** Boundless has a fully specified token (ZKC) with PoVW rewards, collateral requirements, slashing and governance[9]. Brevis's token is still in pre-TGE phase; incentives are delivered through programmes like Incentra and marketing campaigns, not via a formalised proof-of-work mechanism[18].

4. **Cross-chain approach:** Both aim to serve multiple chains, but Boundless focuses on verifying arbitrary computations requested by clients across chains, whereas Brevis emphasises reading entire on-chain histories, generating proofs of consensus and enabling cross-chain data queries[22].

5. **Developer experience:** Boundless currently relies on RISC Zero's zkVM but plans to support multiple zkVMs; developers need to write programs for a zkVM and interact with the auction market. Brevis provides an abstraction layer (Pico zkVM and zkCoprocessor) that may simplify building ZK-enabled dApps[17].

6. **Maturity and adoption:** Boundless has launched its mainnet and shows significant network activity with thousands of provers and major partners[11]. Brevis has active collaborations and events but is earlier in its rollout; details of its mainnet and token economics remain forthcoming.

Summary: Boundless and Brevis are both leveraging zero-knowledge proofs to scale blockchain applications, but they occupy distinct niches. Boundless is a decentralised marketplace for verifiable compute with a robust PoVW incentive system and reverse-Dutch auction mechanism. Brevis operates as an omnichain ZK coprocessor, emphasising full-chain data access and cross-chain computations. Developers should

choose between them based on whether they need a general ZK-proof marketplace (Boundless) or a cross-chain data-querying compute layer (Brevis).

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