

Sharding and the Ethereum Roadmap: What It Means for Scalability

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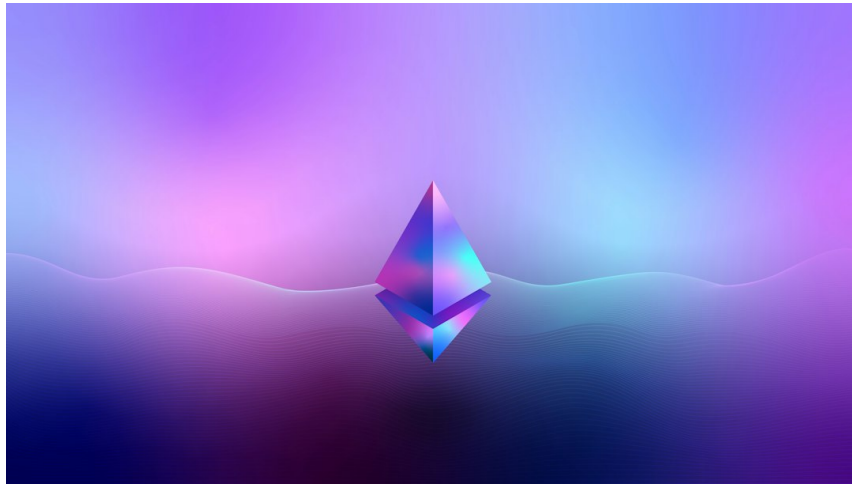


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Ethereum's long-term scalability strategy has undergone significant revision since the network's early years. What was once called "Eth2" has evolved into a multi-phase roadmap centered on rollups, execution improvements, and a specific form of data sharding called Danksharding. Understanding how sharding fits into this plan requires separating the original vision from the current approach.

The Original Sharding Concept

Early Ethereum scaling proposals imagined splitting the network into 64 parallel shard chains, each processing its own transactions and smart contracts. Validators would be randomly assigned to shards, and a beacon chain would coordinate the entire system. This design promised to multiply throughput by distributing execution load across many chains simultaneously.

That plan was effectively shelved around 2020–2021 when the rise of Layer 2 rollups changed the calculus. Rollups—networks like Arbitrum, Optimism, and zkSync—execute transactions off-chain and post compressed data back to Ethereum mainnet. The core team concluded that sharding Ethereum's execution layer was no longer necessary if rollups handled execution and Ethereum focused on providing cheap, abundant data availability.

Danksharding: Data Availability at Scale

The current roadmap centers on Danksharding, a redesigned form of sharding proposed by researcher Dankrad Feist. Rather than splitting execution, Danksharding targets data availability—the ability to verify that transaction data posted by rollups is accessible to anyone who needs to check it.

The first step was EIP-4844, also called proto-danksharding, which introduced a new transaction type carrying data "blobs." Each blob holds roughly 128 kilobytes of data and is priced separately from regular calldata. Blobs are available for about 18 days before nodes prune them, since historical availability is handled by other layers. EIP-4844 activated on Ethereum mainnet in March 2024 via the Dencun upgrade and immediately reduced rollup fees by roughly an order of magnitude.

Full Danksharding extends this by targeting 64 blobs per block instead of the current target of 3–6, and by adding data availability sampling (DAS). With DAS, light nodes can verify that full blob data is available by downloading small random samples rather than the entire dataset. This removes the need for every node to store all blob data while maintaining strong security guarantees.

Where Ethereum Stands on the Roadmap

As of mid-2025, Ethereum developers are working on the Pectra upgrade and planning subsequent milestones named Fusaka and Glamsterdam. PeerDAS, a peer-to-peer implementation of data availability sampling, is under active development and expected to ship before full Danksharding arrives.

Other roadmap tracks run in parallel. The Verge aims to replace Ethereum's Merkle Patricia trie with Verkle trees, reducing the data witnesses must carry. The Purge targets historical data reduction, and The Splurge covers miscellaneous improvements including EVM Object Format.

Sharding in Ethereum's current form is narrower than the original vision but more strategically focused. By treating rollups as the primary execution layer and Ethereum as a secure data availability foundation, the roadmap prioritizes credible decentralization alongside throughput gains.

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MNEMONIC SEED PHRASES

The following pages list 27 example seed phrases assembled from the 2048-word BIP39 dictionary.

[] fame scout bundle spike notice typical bless pave dress icon home long
[] vanish produce try blush tuition demand foot leisure reveal front cover voyage
[] employ effort base twist actor exercise romance old near rocket seminar auction
[] income better again immense base morning quarter satisfy aware lava arm hole
[] minute detect jungle stick couch sunset muscle luxury decade cherry doll able
[] lake describe embody avoid country era supreme worth flame diagram traffic video
[] else hammer crunch manage away peanut very used excite inherit produce recall
[] orbit scout tumble middle idea dismiss hurdle olympic way erase dice toward
[] design analyst admit vast mutual journey pole property boss century search have
[] road use brush symptom horror peace cupboard palace capable budget worry clever
[] connect okay help swamp elevator gown exact absorb naive silly wage bicycle
[] oblige isolate crowd snow attract prize liberty exile loyal praise danger ignore
[] market glimpse dilemma ecology art stadium drip olive believe trophy permit arctic
[] lake green recipe idle naive chair devote glare swing carbon define fly
[] clip tunnel hunt roof crowd pave gasp elder frost circle catch fish
[] oil viable one army ghost ankle blame live wheel narrow giggle core
[] novel fine orient lonely snap nurse box scheme dry gold expire glove
[] auto depend barrel undo unique minimum wave ugly palm absorb bamboo hire
[] give fence raw power door air senior dragon soon shallow outside virtual
[] forum survey donate junk brass noble chair hub faculty wrap photo measure
[] hobby royal original normal day impulse try stage capital gospel spray dutch
[] axis resist spoil pitch crunch spell pepper stadium cram fiction fork setup
[] tribe inner oval else total flush victory keep knife fat day bitter
[] arrive observe text pride cook lucky member math impose gaze power anchor
[] bicycle concert equip ripple doll powder position token jelly ancient coil token
[] split jaguar husband hair soccer gentle flash sting junk acid kangaroo grass
[] action task flee amount rotate purse defy because stomach egg jelly acoustic

Section 3 • 4 total

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- [what-is-infura-bip39-phrase_2025-11-12.pdf \(bip39-phrase_2025-11\)](#)

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