

Hyperscale Weekly

Split the work, not the world

MILESTONE 1 PROGRESS

41%

Previously: flightofthefox had just closed a fork-safety gap by locking shard consensus into the HotStuff-2 safe-vote rule, and was driving a full epoch transition through the simulator with the new topology schedule.

A wide-ranging week. With the basic building blocks settled, flightofthefox turned to the messy middle: what happens to a cross-shard transaction whose shards are reshaped out from under it? The answer — a fence built on settled waves, a new way for shards to join via snapshot sync, and the first splits and merges actually running end-to-end in the simulator — is the meat of this week's digest.

161

+87% vs last wk

COMMITTS

+16k -3.8k

+136% vs last wk

LINES CHANGED

276

FILES TOUCHED

27

DAY COMMIT STREAK

COMMITTS / DAY



peak 42/day · 7/7 days active

WHAT FLIGHTOFTHEFOX BUILT

A fence for stranded transactions

When a shard splits or merges, cross-shard transactions can be left hanging. flightofthefox built a settled-waves fence: the surviving side reconstructs what the disappeared shard had committed, and aborts what can't carry over. Nothing is silently lost.

['see "The Will" on hyperscale.rs](#)

New shards can snap into place

A new shard no longer has to replay history from scratch. flightofthefox added a snap-sync protocol and a BoundaryStore that pins each shard's state at every epoch crossing. A joining shard downloads a recent checkpoint and catches up fast.

['see "The Archive" on hyperscale.rs](#)

Splits and merges run for real

The simulator grew end-to-end scenarios: two sibling shards merging into their parent, a shard splitting live with observers tracking it, a validator relocating between shards. Adaptive sharding — the headline promise of M1 — is no longer just theory.

['see "The Crash Lab" on hyperscale.rs](#)

THE BOTTOM LINE

STANDOUT CHANGE

The settled-waves fence is now in place, so cross-shard transactions survive a shard split or merge without getting lost or silently double-spent.

WHAT'S NEXT

Likely next: stress-testing the reshape loop in the simulator with rougher scenarios — committee failures, validator drops mid-reshape, rotation stalls — before turning to the lottery-style validator shuffling also promised in M1.

From the community

What people are saying, and the words behind the work.

THIS WEEK'S CONCEPT

The Will — *A fence for transactions stranded by a reshape.* More than a third of the week's commits are about the settled-waves fence: the machinery that decides, safely and deterministically, what happens to cross-shard transactions when one of their shards disappears at a reshape.

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JARGON, DECODED

Straddler — A transaction that touches more than one shard, so it needs both shards to commit it together.

Snap-sync — A way for a new shard to download a recent checkpoint of state instead of replaying every block from the beginning.

Settled wave — A batch of cross-shard transactions that a shard has fully committed and won't reconsider.

The bigger picture

Where the work landed, and the map to read along on hyperscale.rs.

MOMENTUM • LINES CHANGED / WEEK



THIS WEEK’S WORK



WHERE THE WORK LANDED

simulation • [The Crash Lab](#)
split, merge, and relocate e2e tests

shard • [The Will](#)
settled-waves fence machinery

beacon • [The Census](#)
per-shard boundary data and QCs

THE FULL PICTURE

The System
The whole sharded design at a glance.

The Journey
One transaction’s trip through the network.

The Clock
Consensus-attested time across independent shards.

The Census
The leaderless beacon of validators, stake and shards.

The Overlap
Why two conflicting blocks can never both commit.

The Generals
All-or-nothing cross-shard commits, computed not voted.

The Archive
Every published byte is preserved or provably expired.

The Library
All state in one merkle tree; a shard is a subtree.

The Will
How in-flight transactions settle when a shard dies.

The Lottery
Random, ever-moving committees; proven cheats are jailed.

The Triage
Under overload, urgent traffic never waits for bulk.

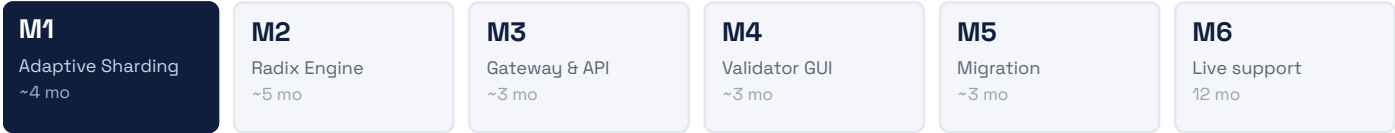
The Governor
Validator entry is re-priced every epoch, like a market.

The Crash Lab
The simulator that replays any failure byte-for-byte.

The Proof
Proving safety with maths, not just tests.

The Asterisks
Every design’s trade-offs — including Hyperscale’s own.

THE ROAD TO MAINNET



Now: Milestone 1 · Adaptive Sharding — Week 7 · ~month 2 of 4 · 41%. Since day one: 2,324 commits — one developer, fully in public.

LINKS

WEBSITE

[hyperscale.rs](#)

CODE (PUBLIC)

[github.com/hyperscalers/hyperscale-rs](#)

MILESTONE PROPOSAL (PDF)

[hyperscale.rs/xian_proposal.pdf](#)

COMMUNITY (TELEGRAM)

[t.me/hyperscale_rs](#)

AUTHOR

[flightofthefox](#)



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Questions? *flightofthefox* is always happy to discuss in the community Telegram — [t.me/hyperscale_rs](#).