Blockchain Outage & Network-Halt History: BTC, ETH, SOL, BNB Chain, Hyperliquid, XMR

Six chains, six very different reliability profiles — from a network that's had ~15 hours of downtime in 17 years to one that's had 8 full-network halts in under 4 years. Current scale-context for reference: Ethereum $39.6B TVL / $214.9B mcap, Solana $5.1B TVL / $47.2B mcap, BSC $4.9B TVL / $78.1B mcap (BNB), Bitcoin $3.6B TVL / $1.27T mcap, Hyperliquid $1.51B TVL / $15.9B mcap (HYPE), Monero (no DeFi TVL tracked) / $6.1B mcap [81] [82].

Bitcoin (launched Jan 2009) — ~99.98% uptime, 2 incidents in 17 years

INCIDENT	DATE	DURATION	CAUSE
CVE-2010-5139 (value overflow)	2010-08-15	~5.5–15h	Missing overflow check let a tx mint ~184.4B BTC; patched nodes reorged around it
CVE-2013-3220 (v0.7/v0.8 fork)	2013-03-11/12	~6–6.3h	BerkeleyDB lock-limit mismatch between client versions split the chain; pools coordinated a downgrade to resolve it
BIP66 SPV-mining split (not a CVE)	2015-07-04	brief, self-resolving	~50% of hashrate was "SPV mining" and extended an invalid block; resolved automatically via normal reorg, no coordinated fix needed

No confirmed mainnet chainsplit incidents from 2016–2026 (a March 2026 2-block reorg between mining pools was normal PoW behavior, not a bug). A privately-reported netsplit bug (CVE-2024-52912) was patched in 2021 before public disclosure in 2024, with no known exploitation. Combined downtime from the two counted incidents: under 15 hours over 17+ years — 10-minute blocks, PoW's longest-chain rule, and minimal consensus-critical code surface are the structural reasons.

Ethereum (launched Jul 2015) — never fully halted; repeated minority-client splits

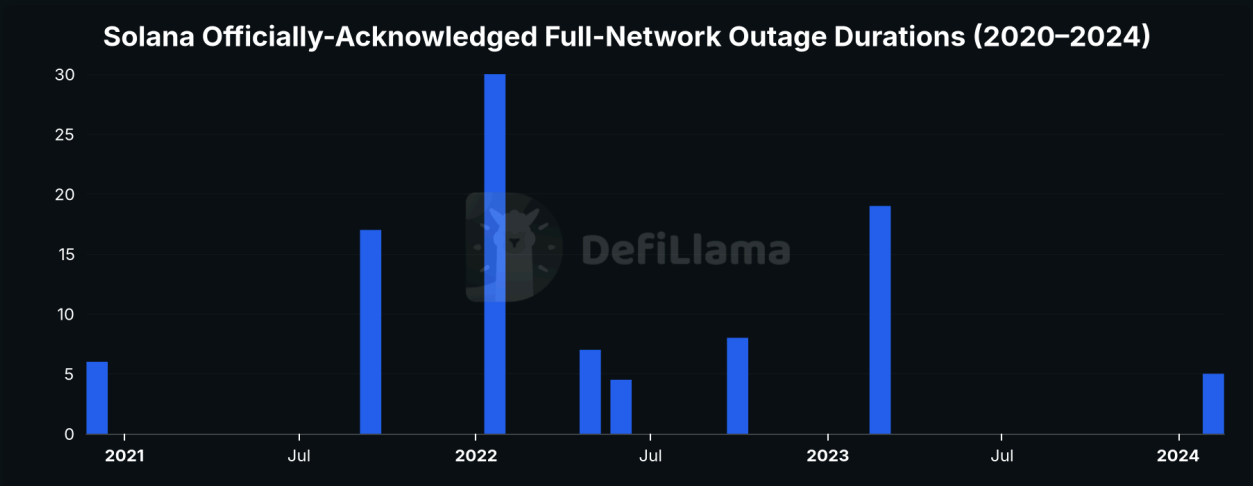
Ethereum mainnet has **never had a full network halt** (zero block production network-wide). Every incident is either a minority-client split (majority kept producing blocks) or a loss-of-finality event (blocks kept coming, just didn't finalize):

- **Nov 2016**: Geth v1.4.19/v1.5.2 journaling bug forked ~165 blocks before the bad chain was abandoned same-day.

- **Aug 2021**: Geth EVM memory-corruption bug (CVE-2021-39137) caused a minority split; majority hashpower stayed correct throughout.
- **May 2023**: Beacon-chain lost finality twice (4 and 9 epochs) — participation dropped to 30.7% at its worst (lowest ever recorded), triggering the first-ever inactivity leak. Developers explicitly stated "the network did not go down."
- **Jan 2024**: Two separate incidents — Besu halted ~70% of its own nodes (Jan 6, no network-wide impact since Besu's share was under the finality threshold), and Nethermind (~8% of validators) stopped attesting for ~2 hours (Jan 21) — this is the widely-cited "8% of validators" story, not a July 2024 event as sometimes reported.

Client concentration remains the standing structural risk: Geth has run as high as 78–85% of validators historically and sits around 36–50% as of 2026 depending on source — still above the 33% "no supermajority" safety ceiling multiple sources flag.

Solana (launched Mar 2020) — 8 officially-acknowledged full-network halts



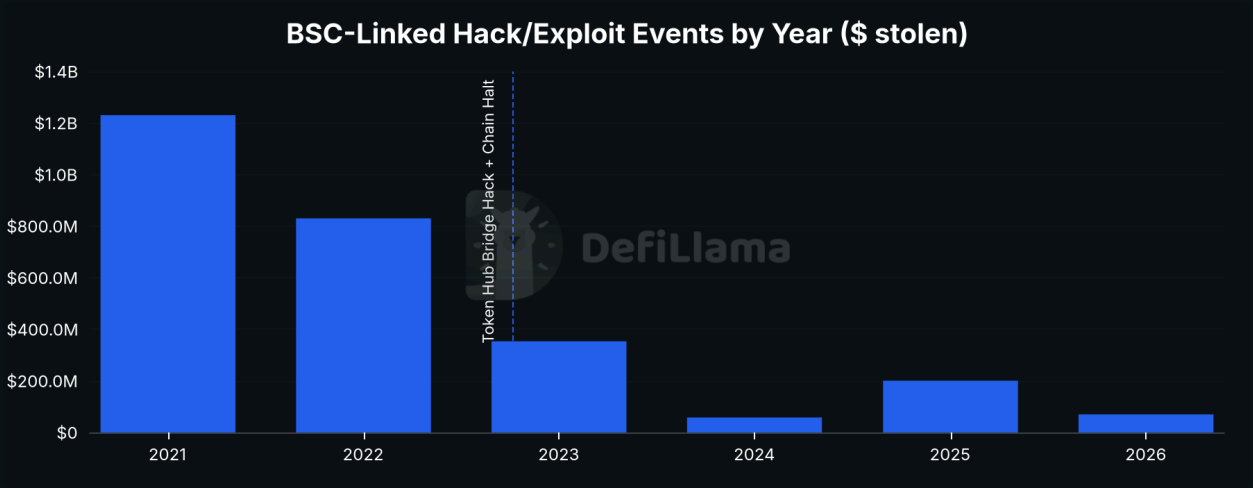
Total downtime across these 8 official incidents: ~96.5 hours, averaging ~12.1 hours per incident — split evenly between consensus/client bugs (4) and spam/congestion floods (4) [83]:

DATE	INCIDENT	DURATION	CAUSE
2020-12-04	Turbine bug	6h	Client bug
2021-09-14	Grape Protocol IDO flood	17h	Spam/congestion
2022-01-21/22	Duplicate-tx congestion	~30h	Spam/congestion
2022-04-30/05-01	Candy Machine NFT bot spam	7h	Spam/congestion
2022-06-01	Durable-nonce bug	4.5h	Client bug

2022-09-30/10-01	Duplicate-block fork-selection bug	~8h	Client bug
2023-02-25	Large-block Turbine overwhelm	~19h	Congestion-triggered bug
2024-02-06	Infinite recompile loop (JIT cache)	5h	Client bug

No officially-acknowledged full-network halt since Feb 2024 (~29 months as of this research). However, third-party monitor StatusGator logged ~9 unacknowledged disruptions (Oct 2024–Feb 2025, up to ~13h) that Solana never confirmed — these are disputed/unverified, not part of the official count. Structural fixes since 2022 (priority fees, local fee markets, QUIC) and the ongoing Firedancer client rollout (an independent codebase now carrying ~20%+ of stake) directly target the two failure classes above.

BNB Chain / BSC (launched 2020) — one validator-coordinated halt, high hack frequency



The Oct 6–7, 2022 Token Hub bridge exploit ($570M targeted, ~$100–110M actually extracted) is BSC's only well-corroborated full-chain halt: Binance's team manually contacted BSC's then-26 active validators one-by-one to stop block production — no automated circuit breaker existed. This is structurally distinct from Bitcoin/Ethereum, where no small, identifiable group could coordinate a pause. No other confirmed validator-wide halt has occurred since; other incidents (2021 congestion, 2023/2025 node-level bugs, 2025 fee spikes) were degraded performance or single-validator issues, not network-wide stops.

BSC ranks #2 by hack-event count among major EVM chains in DefiLlama's tracked data — 103 events since 2021 vs. Ethereum's 281, Arbitrum's 70, Solana's 36, Polygon's 33, Avalanche's 19 [84]. Total stolen across those 103 BSC events: $2,742,800,355, with only $19,639,449 recovered [85]. By year:

2021 was the worst ($1.23B across 28 events, DeFi's early rugpull era), 2022 ($830M, including Token Hub), declining sharply to 2024 ($58M) before ticking back up in 2025–2026 [86]. Note this is a raw volume count, not risk-normalized for TVL or protocol count.

Hyperliquid (launched 2023–2024) — thin record, real transparency gap

Hyperliquid's history is genuinely thinner and harder to verify than the other chains:

- **Jul 29–30, 2025**: ~37-minute API outage (14:10–14:47 UTC) — status page didn't reflect the problem in real time. Hyperliquid stated explicitly the underlying blockchain, consensus, and HyperEVM were "functioning normally" the whole time; this was an API-layer traffic spike, not a chain halt. ~$2M reimbursed to affected users next day.
- **Mar 2025**: PeckShield flagged a suspected HyperEVM outage that was later clarified as a block-explorer front-end display bug, not an actual chain stall (dates across sources conflict — likely syndication drift).
- **Jun 2026**: A ~1-hour HyperEVM block stall reported via a third-party status aggregator (Alchemy), tied to an `eth_getLogs` issue.
- **Sep 2025**: A ~16-hour Hyperliquid **testnet** halt — clearly separate from mainnet.

A structural point corroborated by multiple independent outlets (though not directly by Hyperliquid's own documentation): the official status page covers only the core L1 and API, not HyperEVM's execution layer — creating a monitoring gap where the page can show "All Systems Operational" during a genuine HyperEVM-layer issue. Hyperliquid's validator set (~24, per its own SEC filing, with other sources citing 16–31) is smaller than BSC's 21-active model in relative terms, with the Hyper Foundation reportedly controlling a large share of stake — a similar centralized-halt risk profile to BSC's, just less tested by an actual incident to date.

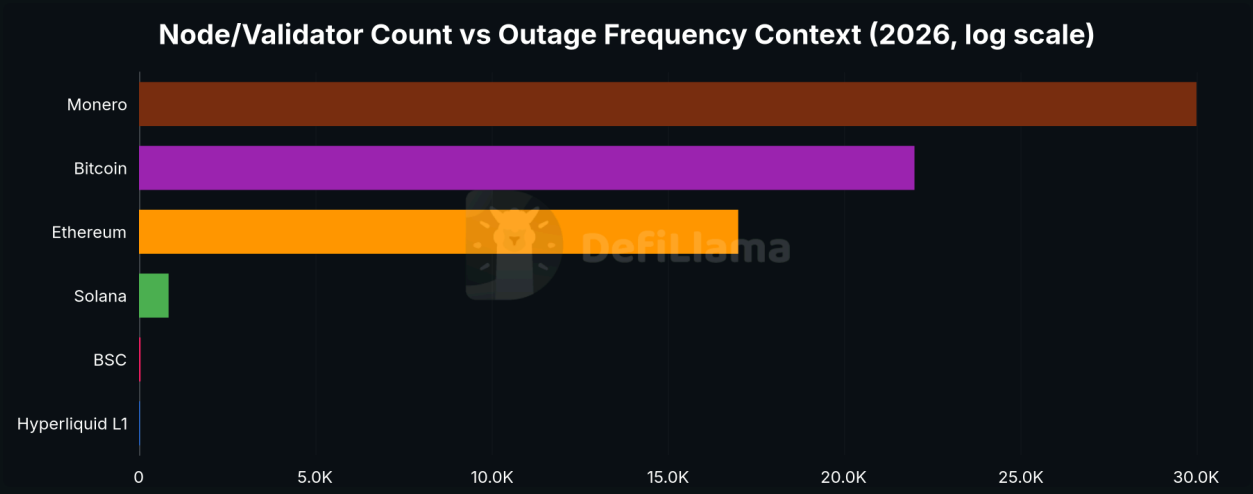
Monero (launched Apr 2014) — a different failure mode entirely

Monero has never had a Solana/BSC-style liveness halt (network-wide block production stopping). Its two documented issues are categorically different:

- **Sept 4, 2014**: A Merkle-tree counterfeiting bug in the CryptoNote reference code partitioned the network into two disagreeing subsets — but block production never stopped; it was a consensus-rule/safety bug, not a liveness failure.
- **Recurring since 2018**: Non-upgraded nodes get stuck syncing an invalid pre-fork chain after each hard fork, requiring manual intervention (`--pop-blocks`) to rejoin the correct chain — a well-documented "support nightmare" per Monero's own GitHub issues, not a network-wide event.

The structural driver is cadence: Monero ran hard forks roughly every 5–7 months from 2015–2018 (9 fork versions in ~3.5 years) before slowing to 9–12 months — far more frequent than Bitcoin (no scheduled forks) or Ethereum. Every mandatory upgrade recreates the node-desync pattern for anyone who doesn't update in time.

Decentralization vs. outage frequency — the pattern that held up



The strongest correlate across all six chains was **client/implementation diversity**, not raw validator count or Nakamoto coefficient:

- **BSC**: lowest Nakamoto coefficient (~7), ~40–45 validators, single client — had the most severe halt (2022 hack response).
- **Pre-Firedancer Solana**: mid-tier Nakamoto coefficient (~20–29) but near-100% single-codebase concentration — had by far the most liveness failures (8 halts).
- **Bitcoin and Ethereum**: genuine implementation diversity (pool-level forkability; no execution/consensus-client supermajority) — zero chain-wide liveness halts in either's history.
- **Hyperliquid**: smallest validator count (21–27), single consensus implementation — a real centralization vector, but with too thin an incident history to compare directly.
- **Monero**: different failure axis entirely (hard-fork-driven node desync, not consensus liveness) — doesn't map cleanly onto the same scale.

Six chains is too small a sample to claim statistical proof, but the directional signal across every one of these searches was consistent: raw node/validator counts (Bitcoin's ~20–24k nodes vs. Solana's ~840 vs. BSC's ~45) matter less for uptime than whether a single piece of client software can unilaterally take the network down.

A few things worth flagging honestly: Solana's "clean since Feb 2024" streak rests partly on absence-of-evidence (no new official postmortem) rather than a live status-page confirmation I could pull directly, and StatusGator's disputed 2024–2025 disruptions were never Solana-

acknowledged. Hyperliquid's validator count and exact incident dates disagree across sources by a meaningful margin — treat those as directional, not precise. And BSC's #2 hack ranking is a volume count, not a risk-adjusted score.

That leaves an interesting asymmetry unresolved: Hyperliquid runs a smaller, more concentrated validator set than BSC did *before* its one major forced halt — yet has no comparable stress-test on record. Whether that's genuine resilience or just untested exposure is the open question its transparency gap makes hard to answer from outside.

Data as of Jul 7, 2026. Chain TVL/fees and token prices per DefiLlama. Outage histories per official chain postmortems (Solana Foundation/Anza, Ethereum Foundation, go-ethereum, BNB Chain, bitcoin.org), cross-verified with tier-1/tier-2 press (CoinDesk, The Block, Decrypt) — unverified/disputed items (StatusGator third-party monitoring, single X-post claims) are labeled as such above.

Sources

[81] chain metrics · $6.1B · as of Jul 7, 2026
[82] price history · $6.1B · as of Jul 7, 2026
[83] Calculated · 4 · as of Jul 7, 2026
[84] Calculated · 19 · as of Jul 7, 2026
[85] DefiLlama warehouse · $19,639,449 · as of Jul 7, 2026
[86] DefiLlama warehouse · $58M · as of Jul 7, 2026