

BigBrotr

Global Observability Infrastructure for the Nostr Protocol

Scientific Breakthroughs — Nonprofit Track

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 bigbrotr.com

Mission

BigBrotr is an **open-source, community-driven infrastructure** that observes, archives, and analyzes the Nostr protocol, a decentralized, censorship-resistant communication network.

It acts as a **black box recorder** for Nostr, continuously capturing and verifying every public event across cleernet and Tor relays – turning a dynamic global network into measurable, open data.

Why It Matters

Decentralized systems like Nostr are the foundation of digital freedom — but lack scientific visibility.

BigBrotr provides empirical observability:

-  Detects network bottlenecks and censorship
-  Maps information propagation and redundancy
-  Enables reproducible, verifiable research

Scientific Breakthrough

BigBrotr combines **cryptography, data science, and distributed systems** to study decentralized communication with unprecedented rigor.

It enables:

-  Relay uptime and behavior analysis
-  Information redundancy and resilience mapping
-  Network topology reconstruction
-  Spam and Sybil detection

Architecture Overview

- 📡 Synchronizer: Real-time collection & validation
- 🔍 Finder: Autonomous relay discovery
- 📡 Monitor: Health, latency, and protocol compliance
- 🌐 Tor Proxy: Full .onion network coverage
- 📄 Database: PostgreSQL with provenance tracking

Built in **Python**, modularized with **Docker**, and fully **MIT-licensed**.

Bitcoin Alignment

BigBrotr embodies Bitcoin's principles:

- 🔍 **Transparency:** Fully auditable data
- 🌐 **Decentralization:** No central control
- 🛡️ **Censorship resistance:** Full Tor integration
- ✅ **Reproducibility:** Verifiable results

By studying how Nostr behaves, BigBrotr strengthens Bitcoin's broader communication layer.

Open Science and Privacy

100% 100% **open source** (MIT)

100% 100% **open data** (ODbL)

 Only processes **public, signed events**

 Zero private or personal data collection

Transparency and privacy can coexist — through cryptographic verification and open data ethics.

Future Roadmap

-  Public dashboards and relay explorers
-  Live APIs for developers and researchers
-  Prometheus & Grafana integrations
-  Long-term Nostr datasets
-  Nostr-native DVM for real-time stats

Why CypherTank

CypherTank represents the convergence of **open innovation** and **Bitcoin ethos**.

BigBrotr contributes a new **scientific layer of transparency** – a foundation for the decentralized web.

By joining CypherTank, we bring verifiable insight and open infrastructure to the heart of Bitcoin's communication layer.

Thank You

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Building Transparency for the Decentralized Web