

SOMNIA STREAM

RPC PROTECTION LAYER WITH REAL-TIME DATA STREAMING

Somnia DeFi Mini Hackathon 2024

DevTooling Track

Built with ❤️ for the Somnia ecosystem

THE PROBLEM & OUR SOLUTION

RPC OVERLOAD RISK

Direct WebSocket connections can **overwhelm RPC infrastructure** and degrade performance

SCALABILITY BOTTLENECK

Multiple apps connecting directly creates **connection limits** and performance issues


OUR SOLUTION: PROTECTION LAYER

Single RPC connection serves thousands of clients via SSE & NATS

ECOSYSTEM BENEFITS

Enables **unlimited DeFi applications** without infrastructure concerns

RPC PROTECTION ARCHITECTURE

 SINGLE RPC CONNECTION → THOUSANDS OF CLIENT CONNECTIONS



★ KEY FEATURES & BENEFITS

RPC PROTECTION

Single connection prevents node overload and ensures stability

DUAL ACCESS METHODS

Choose **SSE (web apps)** or **NATS (high-performance)**

REAL-TIME DATA STREAMS

Blocks (2s) • Pending TxS (3s) • Logs (5s) • Network Stats • Gas Prices

DDOS RESILIENCE

Protection layer absorbs **connection spikes** and malicious traffic

UNLIMITED SCALABILITY

Support **thousands of applications** without RPC performance impact

COST EFFICIENCY

Single infrastructure serves **entire DeFi ecosystem**

LIVE DEMO & PERFORMANCE

REAL-TIME BLOCKCHAIN DATA PROTECTION IN ACTION

1

RPC CONNECTION

1000+

CLIENT CONNECTIONS

< 1s

DATA LATENCY

Access Methods:

```
SSE: GET /sse/blocks • /sse/pending • /sse/logs
```

```
NATS: nats://server:4222/eth.blocks.full
```

Professional Frontend: Real-time dashboard with modern UI/UX

DEFI USE CASES & APPLICATIONS

TRADING BOTS

React to market changes **instantly** with real-time transaction data

MEV PROTECTION

Monitor mempool for **front-running detection** and protection

DEFI NOTIFICATIONS

Alert systems for **liquidations & arbitrage** opportunities

ANALYTICS PLATFORMS

Real-time dashboards for **DeFi protocols** and users

YIELD FARMING

Track **APY changes** and optimal farming strategies

DEX AGGREGATORS

Monitor **liquidity pools** and price movements

</> TECHNICAL EXCELLENCE

HIGH PERFORMANCE STACK

**Go + Gin Framework + NATS
JetStream + go-ethereum**

Sub-second latency • 1000+ concurrent connections • 99.9% uptime

CONNECTION MANAGEMENT

Single RPC Connection + Auto-reconnection

Efficient resource utilization • Graceful error handling

DATA DISTRIBUTION

Fan-out Architecture + Message Persistence

One source → thousands of consumers • Message replay capability

PRODUCTION READY

Docker + Kubernetes + .env Config

Easy deployment • Environment configuration • Health monitoring

MARKET IMPACT & VALUE PROPOSITION



TARGET AUDIENCE

- **DeFi Protocol Developers**
- **Trading Firms**
- **Analytics Companies**
- **Individual Developers**



COMPETITIVE ADVANTAGE

- **RPC Protection** vs overwhelming nodes
- **1000+ clients** vs limited connections
- **Dual access** vs single protocol
- **Somnia native** vs generic solutions

90%

DEVELOPMENT TIME SAVED

10x

FASTER THAN POLLING

\$0

INFRASTRUCTURE SETUP COST

SECURITY-FIRST ROADMAP

PHASE 1 - ENHANCED SECURITY & ACCESS CONTROL (Q1 2025)

- ▶ **NATS Proxy Protection:** Additional layer to secure NATS JetStream access
- ▶ **Read-only API Keys:** Granular authentication with limited permissions
- ▶ **Rate Limiting & Access Control:** Per-key throttling and user isolation

PHASE 2 - ADVANCED FEATURES (Q2 2025)

- ▶ **WebSocket Support:** Bidirectional communication for advanced use cases
- ▶ **Custom Filtering:** Client-side event filtering and subscriptions
- ▶ **Historical Replay:** Time-based data replay functionality

PHASE 3 - ENTERPRISE & ANALYTICS (Q3-Q4 2025)

- ▶ **Multi-tenant Architecture:** Isolated environments for organizations
- ▶ **Built-in MEV Detection:** Real-time MEV opportunity identification
- ▶ **Predictive Analytics:** AI-powered gas price and network predictions

 **PROTECT. SCALE. INNOVATE.**

SOMNIA STREAM - THE INFRASTRUCTURE DEFI NEEDS



OPEN SOURCE



LIVE DEMO



PRODUCTION READY

 **Protecting Somnia RPC** •  **Enabling Unlimited DeFi** •  **Built for Developers**

Questions & Discussion

Let's build the future of DeFi together

