Signiq Whitepaper

Momentum Intelligence for Web3 Builders

The Signiq Core Team

August 03, 2025

1 Abstract

Signiq is a decentralized momentum intelligence platform for Web3. It provides early traction signals for builders, investors, and communities by tracking multi-modal activity across GitHub, social media (e.g., Twitter, Farcaster), onchain metrics, and community engagement. Designed with modularity, privacy, and extensibility in mind, Signiq enables transparent evaluation of project velocity using federated time-series modeling, anomaly detection, and AI-generated foresight.

Vision: In a noisy and fast-moving Web3 landscape, it is increasingly difficult to spot emerging projects early. Signiq acts as a signal radar — helping builders understand their own momentum, discover improvement points, and helping communities spot high-potential projects before they become obvious.

2 Problem Statement

Web3 builders often struggle to measure the impact of their efforts beyond surface metrics like price or Twitter followers. Meanwhile, early adopters and investors lack reliable tools to assess whether a protocol, dApp, or ecosystem is genuinely gaining traction. Traditional analytics tools fall short in:

- **Cross-modal signal analysis:** Combining GitHub, social, onchain, and community data in a meaningful way.
- **Time-sensitive momentum scoring:** Capturing not just raw numbers, but trends, surges, and decay over time.
- **Early signal identification:** Detecting traction while it is still nascent — not after it is widely known.
- **Privacy and decentralization:** Respecting Web3 principles by avoiding centralized data capture or tracking.

Signiq is built to directly address these issues, offering a transparent, federated, and extensible approach to measuring project velocity and community momentum.

3 Architecture Overview

Signiq follows a modular, privacy-respecting, and extensible architecture that is optimized for builder-first workflows and early signal detection. It combines real-time data ingestion, federated time-series scoring, anomaly detection, and AI-powered insight generation.

3.1 Core Components

- **Data Ingestion Layer:** Ingests data across four primary channels — GitHub (code activity), Social Media (e.g., Twitter, Farcaster), Onchain (transactions, holders, liquidity), and Community Platforms (Discord, Telegram, Reddit).

- **Time-Series Analytics Engine:** A federated scoring engine using weighted moving averages, deltas, decay functions, and trend change detection across time windows. Fully customizable per project.
- **Anomaly Detector:** Uses statistical and signal-based methods to detect irregular bursts, decays, or unexpected momentum drops across all modalities.
- **RAG-Based AI Insights:** A Retrieval-Augmented Generation (RAG) system powered by Gemini Pro or Groq LLaMA3 that generates narrative analysis, explanations, and foresight based on the data trends.
- **Privacy Federation Layer:** Ensures no raw data is centrally stored; processing happens via edge or user-controlled environments. Optional support for TEEs and ZK-based validation planned.
- **Momentum Dashboard UI:** A builder-facing interface for real-time momentum exploration, insight viewing, and configuration of tracking weights.

3.2 System Diagram

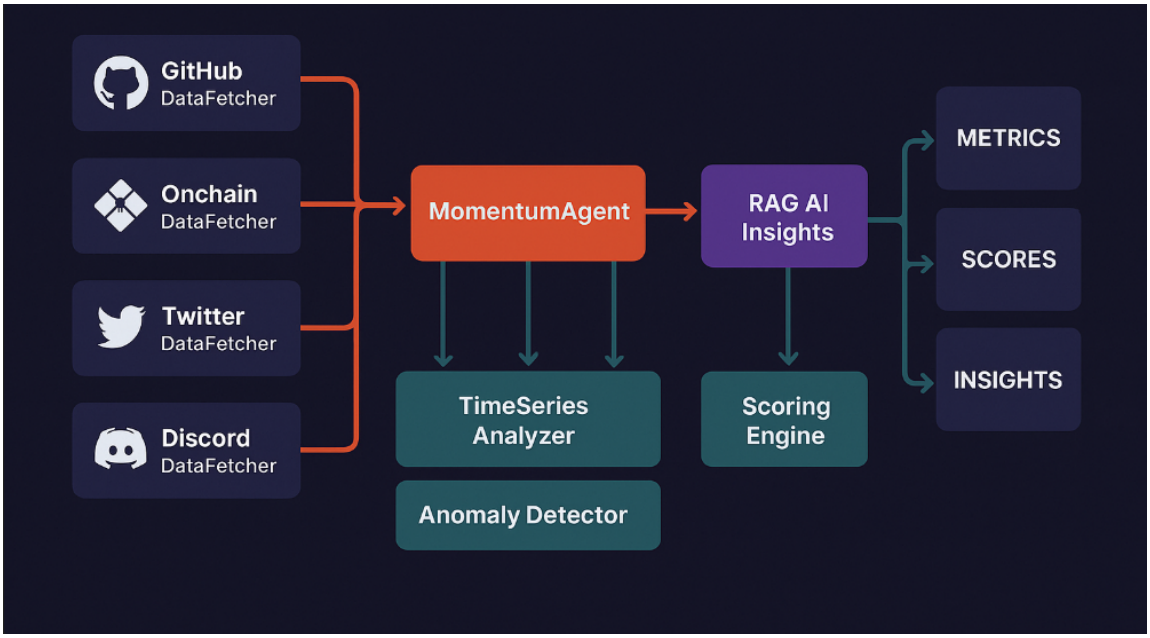

Figure: End-to-end architecture of Signiq, including ingestion, scoring, AI insight generation, and privacy-preserving execution.

4 Data Pipeline

Signiq's data pipeline processes heterogeneous Web3 signals across code, social, community, and onchain layers, transforming them into structured representations of project momentum.

4.1 Signal Types

- **GitHub Metrics:** Stars, forks, commits, releases, contributors, issues, and velocity.

- **Social Signals:** Twitter mentions, sentiment, impressions, engagement, Farcaster activity.
- **Onchain Metrics:** Transactions, holders, DEX volume, liquidity, transfer count.
- **Community Activity:** Discord messages, Reddit threads, GitHub discussions, Telegram mentions.

4.2 Pipeline Flow

1. **Data Fetching:** Each module fetches signals at configurable intervals using scraping, GraphQL, or public APIs. Redundant fallbacks exist (e.g., Nitter for Twitter).
2. **Normalization:** All signals are normalized via min-max scaling and delta computation for uniform interpretation across modalities.
3. **Time Series Encoding:** Metrics are timestamped and stored in memory (or edge-local cache) for scoring across rolling windows.
4. **Momentum Computation:** Each data stream is scored via weighted trend velocity + activity measures.
5. **Anomaly Identification:** Both spike and pattern-based anomalies are computed and logged.
6. **AI Narrative Generation:** A formatted context object is sent to Gemini Pro / Groq for insight generation via a RAG pipeline.

4.3 Extensibility

Each fetcher module (e.g., `GitHubDataFetcher.ts`, `OnchainDataFetcher.ts`) supports pluggable adapters to accommodate future sources like Lens, Mirror, or Mastodon. This enables Signiq to adapt to new ecosystems as Web3 evolves.

5 AI Intelligence Layer

Signiq integrates a Retrieval-Augmented Generation (RAG) system to transform raw time-series metrics and anomalies into human-readable insights, forecasts, and early warnings. This AI-driven layer provides builders and analysts with interpretable momentum narratives without relying on centralized heuristics.

5.1 Motivation

Most on-chain analytics platforms provide dashboards with charts and metrics but lack narrative synthesis. Signiq bridges this gap by generating insights contextualized in plain language, trend predictions, and actionable sentiment breakdowns — all localized to the project's unique signal pattern.

5.2 Architecture

- **RAG Stack:** Uses a hybrid RAG architecture with a fixed prompt template and context window filled with momentum score, trend deltas, anomaly history, and user-defined weights.
- **LLM Models:** Supports **Groq's LLaMA3-8B** for inference, selected based on latency, token cost, and insight fidelity.
- **Schema Constrained:** Insight output is parsed and validated against a Zod schema to ensure consistency, reliability, and display-friendly summaries.
- **Streaming-Ready:** Designed to support future streamed insight updates as new data arrives.

5.3 Insight Object Structure

Each insight response from the AI layer includes:

- `summary`: *Natural language synthesis of momentum trends*
- `keySignals`: *Standout metrics or combinations*
- `riskLevel`: *Coded as low / medium / high*
- `trendDelta`: *Short-term, long-term, and velocity*
- `signalAlignment`: *Are GitHub + Twitter or Community + Onchain correlated?*
- `narrative`: *Extended report with hypotheses and foresight*

5.4 Example Output (Simplified)

```
"Lens Protocol shows a bullish trend across GitHub and Twitter with
22% short-term activity surge.  Discord signals remain stable, while
onchain momentum decelerates.  AI assesses medium risk with 72% confidence
and a potential trend reversal in 3 to 5 days."
```

6 Momentum Scoring & Anomaly System

Momentum scoring lies at the heart of Signiq. It evaluates how well a project is performing across a dynamic and federated set of signals using tunable weights and statistical modeling.

6.1 Federated Scoring Formula

Each project's overall momentum score S is calculated as:

$$S = w_g \cdot M_{github} + w_s \cdot M_{social} + w_o \cdot M_{onchain} + w_c \cdot M_{community}$$

Where:

- w_g, w_s, w_o, w_c are the user-defined weights (sum to 1)
- $M_{github}, M_{social}, M_{onchain}, M_{community}$ are normalized trend-based scores

6.2 Trend Computation

Each stream score is based on weighted deltas over a configurable time window:

$$M = \frac{1}{T} \sum_{i=1}^{T} (m_i - m_{i-1}) \cdot decay(i)$$

Where $decay(i)$ is an exponential or linear decay factor based on time distance from present.

6.3 Anomaly Detection Logic

Anomalies are detected using a hybrid approach:

- **Spike Detection:** Z-score or delta-based detection of sudden outliers ($z > 2.5$)
- **Pattern Breaks:** Slope direction changes or rolling window divergences
- **Multi-Modal Crossovers:** Misalignment of GitHub–Social–Onchain activity curves

6.4 Output Format

Alerts are returned with the following:

- `type`: spike, drop, or divergence
- `dimension`: github, twitter, onchain, etc.
- `severity`: numerical confidence score (0–1)
- `time`: timestamp

6.5 Customization

Users (or other agents) can change weights, time window length, anomaly threshold, or input custom smoothing kernels — allowing personalized, research-grade signal processing.

7 Tokenomics Design

The native token of Signiq, denoted as **$SGQ**, powers the incentive, governance, and access layers of the platform. Token utility is crafted to align economic behavior with long-term participation from builders, researchers, validators, and signal contributors.

7.1 Token Utility

1. **Access Control:** Access to premium dashboards, early project reports, and builder-specific analytics requires staking a minimum $SGQ threshold.
2. **Builder Incentives:** Builders can earn $SGQ by submitting validated GitHub metadata or launching verified on-chain deployments.

3. **Insight Verification:** AI-generated momentum insights can be validated through staking challenges — rewarding participants for dispute resolution.
4. **Community Curation:** Token-weighted voting is used to promote trending signals or projects on the platform.
5. **RAG Plugin Economy:** Developers can monetize custom plugins that improve insight generation, such as sentiment fine-tuners, NLP enrichers, etc.

7.2 Vesting Schedule

- Team/Advisors: 50% dev allocation, 3-month cliff, 4-year linear vest

7.3 Incentive Equilibrium Model

We model the utility-driven token participation as a bounded game:

$$U_i(t) = \alpha_i \cdot A(t) + \beta_i \cdot R(t) - \gamma_i \cdot S(t)$$

Where:

- $U_i(t)$ is the net utility of agent i at time t
- $A(t)$ is analytics access value
- $R(t)$ is reward from contribution
- $S(t)$ is staking cost or risk
- $\alpha_i, \beta_i, \gamma_i$ are agent preference weights

A Nash equilibrium is reached when $\frac{dU_i}{dt} = 0$, implying stable staking and signal flow over time.

8 Deployment Strategy

Signiq targets a multi-stage deployment with progressive decentralization, launching first on the Solana ecosystem due to its high throughput, low fees, and strong on-chain activity signals.

8.1 Why Solana?

- Fast, low-latency block finality (400ms)
- Rich project activity on-chain — ideal for momentum signal ingestion
- Active builder community (Hackathons, xNFTs, Realms)

8.2 Modular Architecture on Solana

1. **Core Protocol:** Program to anchor on-chain momentum proofs (commitments)
2. **Oracle Relays:** Fetch GitHub/Twitter/Discord data → hash → write to Solana for transparency
3. **AI Service Layer:** Off-chain RAG insight layer triggered via cron txns
4. **Token Access Guard:** Anchor-based token-gated access to dashboards features

8.3 zk-Sync ZK Future Proofing

Planned extensions for:

- ZK-Proof of Signal Alignment
- ZK-anonymity for builders requesting private forecasts

8.4 Privacy Compliance (Regulatory Readiness)

- **No user PII stored**
- **Federated inference possible (via edge LLM)**
- **TEE containers under roadmap**
- **ZK-RAG Verification in research phase**

9 Case Study: Farcaster

To illustrate Signiq's capabilities, we apply our framework to analyze **Farcaster** — a decentralized social protocol with rising developer and user activity.

9.1 Input Configuration

- GitHub: `https://github.com/farcasterxyz`
- Twitter: `@farcaster`$_{xyzContract}$: `0x420...`
- Community: Discord, Frames, Warpcast

9.2 Detected Insights

- **Trend Spike:** 32% increase in GitHub velocity post Frames launch
- **Twitter Burst:** 18K mentions in 3 days, average sentiment 0.63
- **Onchain Footprint:** 12x increase in unique casts (txns), $> 300K$ new signers

9.3 AI Narrative Excerpt

> "Farcaster shows breakout momentum across GitHub and onchain signals. While Twitter sentiment remains positive, community discord has slightly fragmented. AI flags early-stage bullish consolidation with moderate long-term volatility risks."

9.4 Scoring Result

$$S_{farcaster} = 0.32 \cdot M_{github} + 0.28 \cdot M_{twitter} + 0.30 \cdot M_{onchain} + 0.10 \cdot M_{community}$$

Final Score: **87.2/100**, Trend: *Bullish, High Confidence (0.88)*

10 Roadmap

Signiq's launch plan follows an agile, builder-centric approach, focusing on signal credibility, developer experience, and long-term on-chain value.

Phase	Milestones
Q4 2025 (Genesis)	• Rebrand and redeploy as `Signiq` • Publish whitepaper + token strategy • GitHub, Discord, Twitter, Farcaster integrations • AI-powered Momentum Insights (via Google Gemini Pro) • Virtuals Launch + DAO Onboarding
Q1 2026 (Builderverse)	• Launch Builder Dashboard with GitHub-linked identity • Dev Spotlight: On-chain contributor leaderboard • Momentum-as-a-Service (MaaS) for partner communities • Beta: Signal Plugins (RAG extensions, z-scorer modules)
Q2 2026 (Proof of Signal)	• Anchor verifiable signal hashes on Solana • TEE-based privacy zones for stealth project mode • Anomaly Challenge Protocol: crowd-dispute prediction • Token-gated Launch Readiness Score for projects
Q3 2026 (RAGNet DAO)	• Decentralized RAG worker pool with $SGQ rewards • Insight verification leaderboard (Staking-based) • zkProof of Alignment: validate AI summaries • Retroactive airdrop for contributors + liquidity launch

11 Team and Governance

11.1 Core Contributors

Signiq was created by a team of builders with a background in:

- Web3 infrastructure, analytics, and smart contract engineering
- LLM integrations, multi-modal signal analysis
- Participated in hackathons including Incubate 2025, Hack2Launch

11.2 Community Participation

- Community contributors can submit signal plugins, dashboards, and models
- All AI insights are open for staking-based challenge and refinement
- > 15 builders onboarded via GitHub OAuth in testnet phase

11.3 Governance Plan

- Initially progressive multisig (3/5 devs)
- Gradual DAO handover as $SGQ participation increases
- Voting logic: quadratic token-weighted, GitHub-based delegation
- Proposal types: Plugin integration, Model update, Signal curation, Treasury usage

12 Legal Notice and Risk Factors

Signiq is an open-source analytics and prediction platform designed to democratize access to Web3 signal intelligence. It does not constitute financial advice.

12.1 Disclaimers

- All momentum scores and AI insights are probabilistic estimations, not guarantees of outcome
- $SGQ token has no promise of value or appreciation
- No personally identifiable data is stored or sold by the platform

12.2 Risk Factors

1. **Model Drift:** Over time, signal interpretation models may degrade; mitigated via staking challenges
2. **Sybil Attacks:** Artificial GitHub activity or engagement farms; mitigated by velocity normalization and historical scoring
3. **Regulatory Uncertainty:** Global token laws may affect distribution — Signiq avoids direct investment utility
4. **LLM Bias:** AI insights are shaped by model training corpus; human oversight encouraged