

Layered Visibility & Coverage Evidence (NGINX Edge vs WAF Backend)

AstroPema AI LLC

Execution Stamp (UTC)

- run_ts_utc: 2026-03-01T20:35:55Z
- host: mail.astropema.ai
- user: oba

Analysis Window (UTC)

- window_hours: 48
- start_utc: 2026-02-27T20:35:55.575097+00:00
- end_utc: 2026-03-01T20:35:55.575097+00:00

Purpose (SOC / ISO Evidence)

This report demonstrates, for a fixed UTC time window, the relationship between: (1) NGINX edge observations, (2) backend WAF event ingestion, and (3) corroboration overlap. Artifacts are produced deterministically and include cryptographic hashes for audit verification.

Summary (Key Coverage KPIs)

- HTTP- \rightarrow WAF coverage (% of HTTP IPs also in WAF): 69.67%
- STREAM- \rightarrow WAF coverage (% of STREAM IPs also in WAF): 7.52%
- HTTP/STREAM overlap (% of HTTP IPs also in STREAM): 54.98%
- HTTP/STREAM overlap (% of STREAM IPs also in HTTP): 9.43%
- WAF visibility via HTTP (% of WAF IPs also in HTTP): 100.0%
- WAF visibility via STREAM (% of WAF IPs also in STREAM): 62.93%
- 3-layer corroboration (% of WAF IPs also in HTTP and STREAM): 62.93%

Web Links

- Stable PDF: https://astropema.ai/latest_report.pdf
- Stable manifest: <https://astropema.ai/latest.json>

Layer Counts (Snapshot)

Table 1: Layer event/IP counts for the analysis window (snapshot).

layer	events	ips
NGINX edge http_access_default	4534	422
NGINX edge stream_443_default	8549	2461
NGINX edge error_events	4	1
WAF backend (all waf.events)	3217	294
Rust detector (detections.log)	3217	294

Overlap Summary (Snapshot)

Table 2: Set overlaps across HTTP, STREAM, and WAF (snapshot).

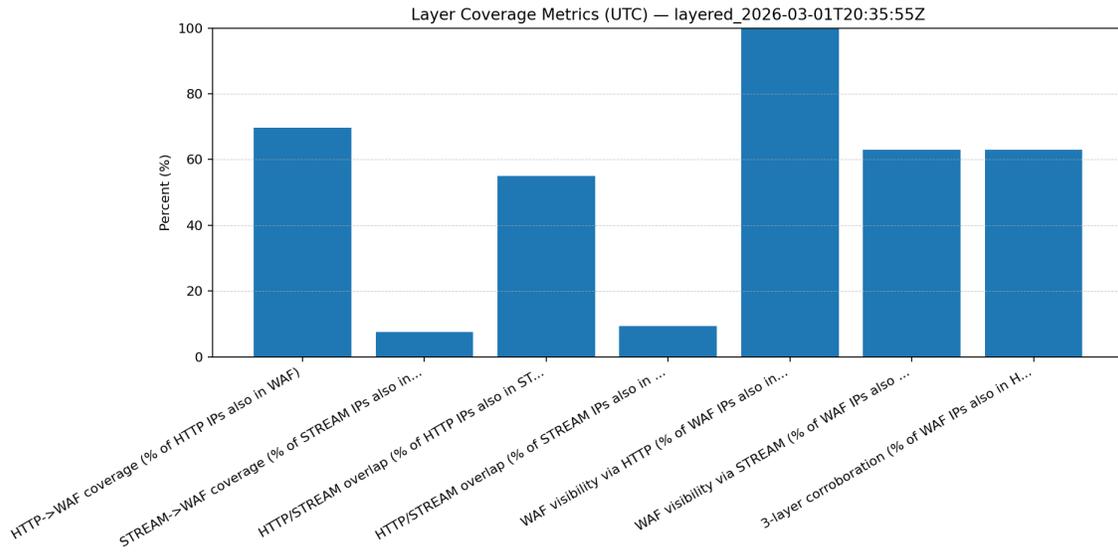
metric	count
HTTP unique IPs	422
STREAM unique IPs	2461
WAF unique IPs	294
HTTP INTERSECT WAF	294
STREAM INTERSECT WAF	185
HTTP INTERSECT STREAM	232
HTTP INTERSECT STREAM INTERSECT WAF	185

Coverage Metrics (Snapshot)

Table 3: Coverage / corroboration metrics derived from overlaps (snapshot).

metric	numerator	denominator	percent	interpretation
HTTP-∩WAF coverage (% of HTTP IPs also in WAF)	294	422	69.67	Of unique HTTP client IPs, how many appear in WAF detections within the window.
STREAM-∩WAF coverage (% of STREAM IPs also in WAF)	185	2461	7.52	Of unique TLS stream client IPs, how many appear in WAF detections within the window.
HTTP/STREAM overlap (% of HTTP IPs also in STREAM)	232	422	54.98	Of HTTP IPs, what fraction also appears in STREAM telemetry.
HTTP/STREAM overlap (% of STREAM IPs also in HTTP)	232	2461	9.43	Of STREAM IPs, what fraction also appears in HTTP telemetry.
WAF visibility via HTTP (% of WAF IPs also in HTTP)	294	294	100.0	Of WAF-detected IPs, how many were also observed in edge HTTP logs.
WAF visibility via STREAM (% of WAF IPs also in STREAM)	185	294	62.93	Of WAF-detected IPs, how many were also observed in edge STREAM logs.
3-layer corroboration (% of WAF IPs also in HTTP and STREAM)	185	294	62.93	Of WAF-detected IPs, how many have corroboration in both edge layers (HTTP+STREAM).

Coverage Chart



Artifact Integrity (sha256)

Artifact	sha256
run_metadata.json	a2fe31584116cdaced201c66868890c420a29bf6c54e89345bd1bebe93aeeca3
layer_counts_snapshot.csv	fd2ea2208d182b7d8963ac4db4f044bf1d187d67365a61a3fc882fed23ff2b6d
overlap_summary_snapshot.csv	7e0e03d130f5742c2d9c444d97a2bd7a4712a9e22d12f6243f632c6c7ac0b887
coverage_metrics_snapshot.csv	4d1db910841947b889d46724a1f7e569d07276b7923f5527a45ba9ec3112bddb
coverage_chart.png	fbfb30eb54c5e3d020031207503e6f97b2735d328ee028726edd9dc652e43b47