KubeCon CloudNativeCon Europe 2026

#KubeCon #CloudNativeCon

Day-2 Reality Check: Taming Wasteful Telemetry

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Who we are

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Agenda

KubeCon CloudNativeCon Europe 2026

Chapter 1: The Root of All Evil
How Did We End Up Where We Are Today?

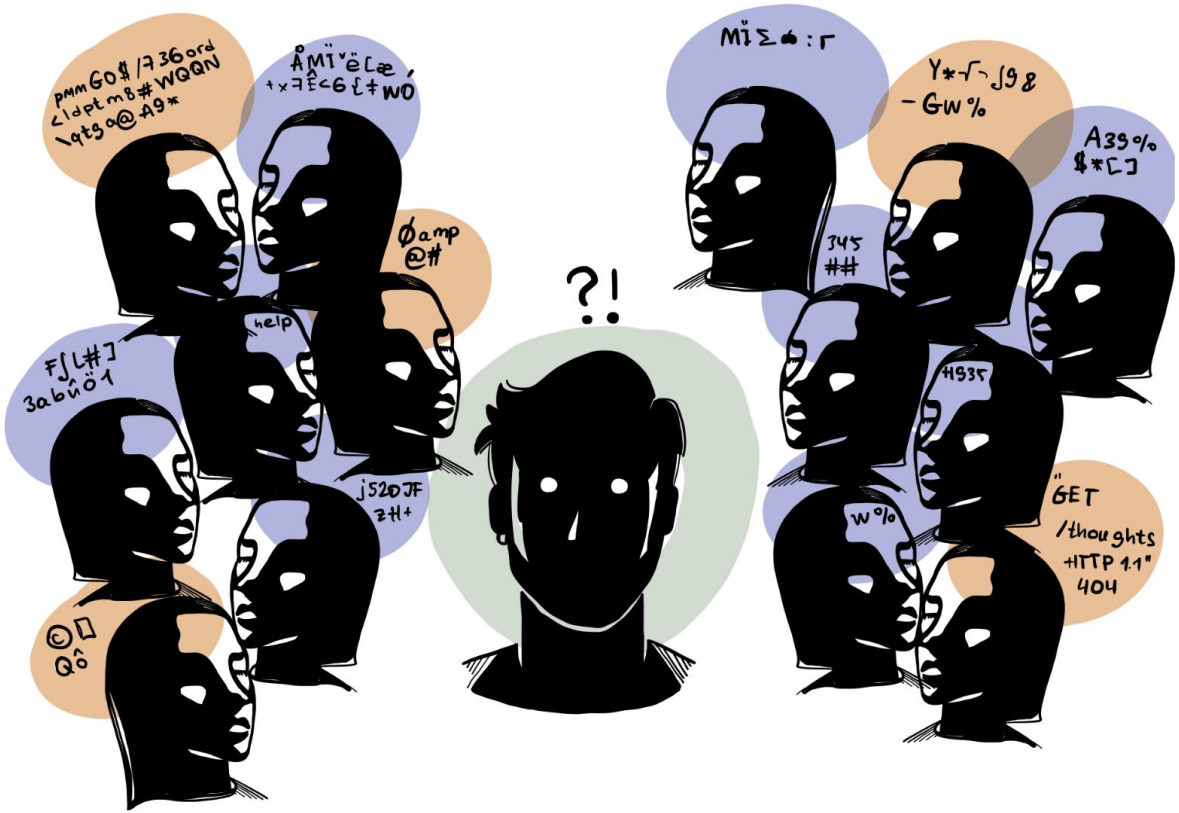
Chapter 2: The Monster We Created
Day-2 Telemetry Challenges

Chapter 3: The Way Out
What Can We Do To Improve Telemetry Quality, Reduce its Cost and Make it More Useful?

Chapter 1: The Roots of All Evil

The World Before the Problem

Auto-Instrumentation

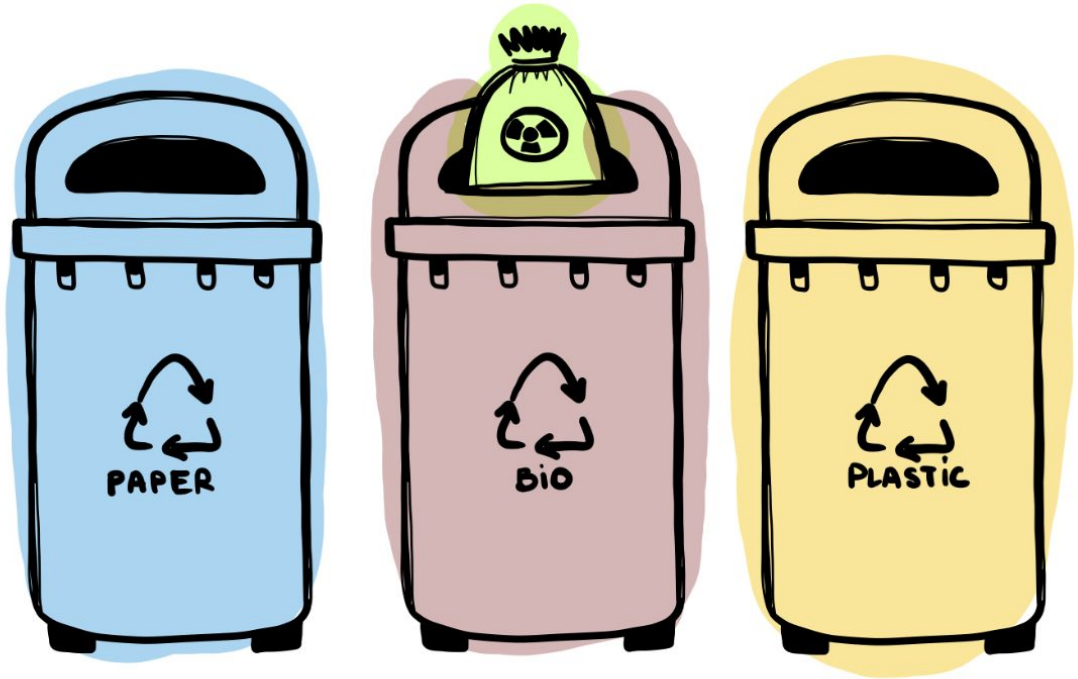


Organisational History

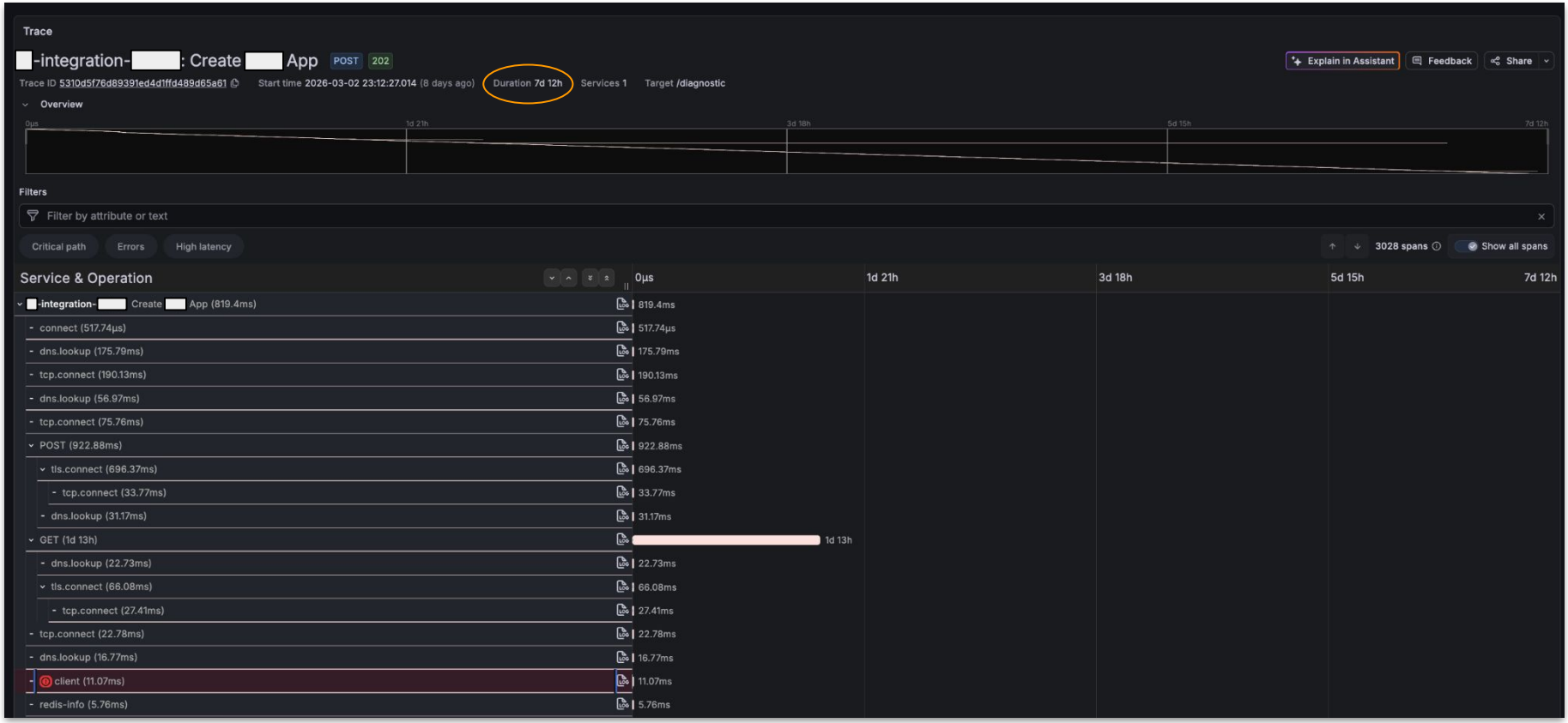
Desire to collect “Everything”

Chapter 2: The Monster We Created

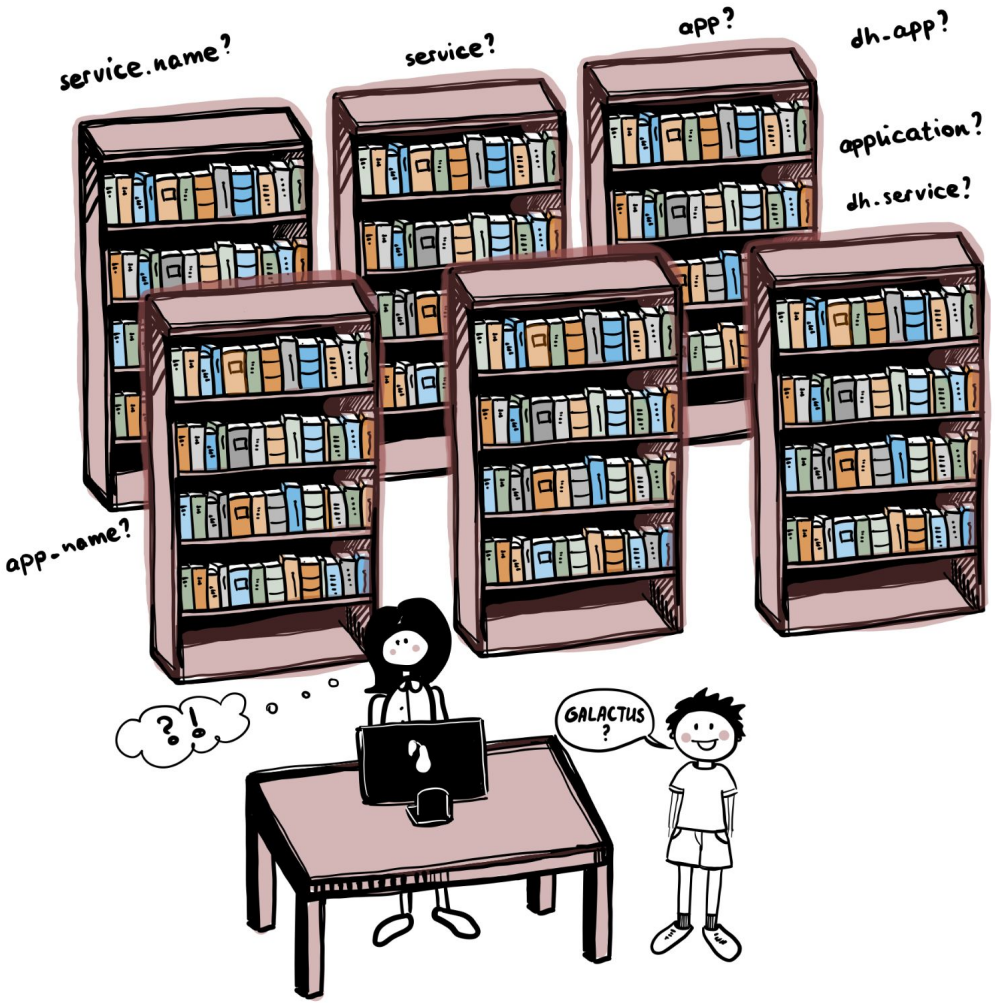
PII in Application Logs



The Traces of Doom

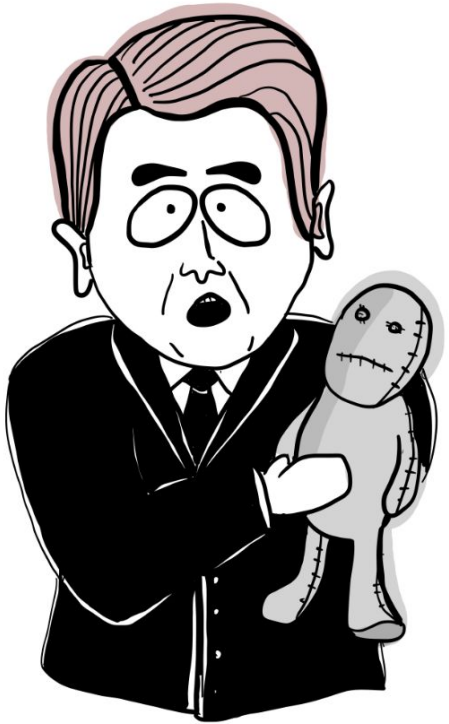


Inconsistency in attribute usage



```
service.name =
--_name:_getbyorderidsandstatusandexpireat_:many_select
_order_id_status_created_at_updated_at_st

service.name = 169.254.169.254

service.name = net/http

service.name = aws.s3

service.name = myapp-mongo

service.name = myapp-rest-validate-poc-<k8s-pod-hash>

service.name = java-aws-sdk

service.name = production_<region>
```

Show me on the Doll ...



... What they did to your service.name

Useless Attributes

Attribute Size Analysis

Top Resource Attributes by Size

Attribute	Avg Chars	Max Chars	Occurrences
k8s.pod.annotation.cnpg.io/podSpec	2,048	2,048	30,985
process.command_args	710	1,129	56,107
k8s.pod.annotation.ad.VENDOR.com/postgres.checks	376	389	28,808
k8s.pod.annotation.ad.VENDOR.com/rabbitmq.checks	364	364	35,376
k8s.pod.annotation.ad.VENDOR.com/proxy.checks	307	307	11,058
k8s.pod.annotation.ad.VENDOR.com/elasticsearch.checks	209	304	19,492
k8s.pod.annotation.ad.VENDOR.com/rabbitmq.logs	207	207	35,376
k8s.pod.annotation.ad.VENDOR.com/keda-admission-webhooks.checks	147	147	896
k8s.pod.annotation.ad.VENDOR.com/keda-operator.checks	147	147	2,288
k8s.pod.annotation.ad.VENDOR.com/keda-operator-metrics-apiserver.checks	147	147	936

Useless Logs

Dedup by Severity

Severity	Total	Unique	Savings	Reduction %
(empty)	22,198	4,636	17,562	79.1%
INFO	16,791	6,550	10,241	61.0%
ERROR	3,701	1,739	1,962	53.0%
Warning	3,234	78	3,156	97.6%
Normal	1,279	410	869	67.9%
DEBUG	476	4	472	99.2%
WARN	350	161	189	54.0%

Useless Traces

4. Health Check Span Noise (Medium)

Top span names include health/readiness checks:

- `GET /health/readiness` (499 spans, pipeline-trigger)
- `GET /actuator/health/**` (244 spans, monitor)
- `GET /health` (210 spans, pipeline-controller)
- `GET /health/liveness` (166 spans, pipeline-trigger)
- `GET /actuator/prometheus` (102 spans, monitor)

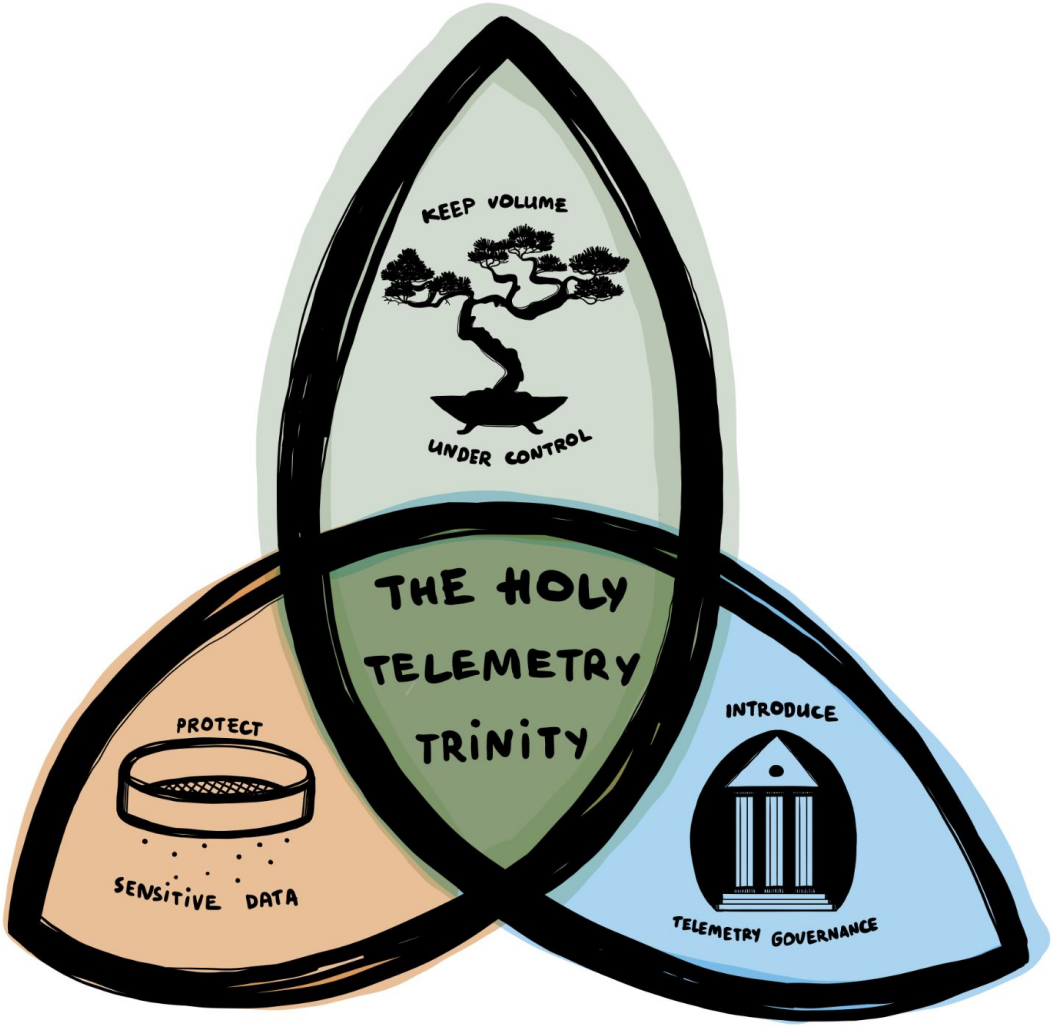
Total: ~1,221 spans (2.7%) are health/metrics check noise.

5. Redis PING Spam (High)

Redis `PING` commands account for 16,902 spans (37% of all traces):

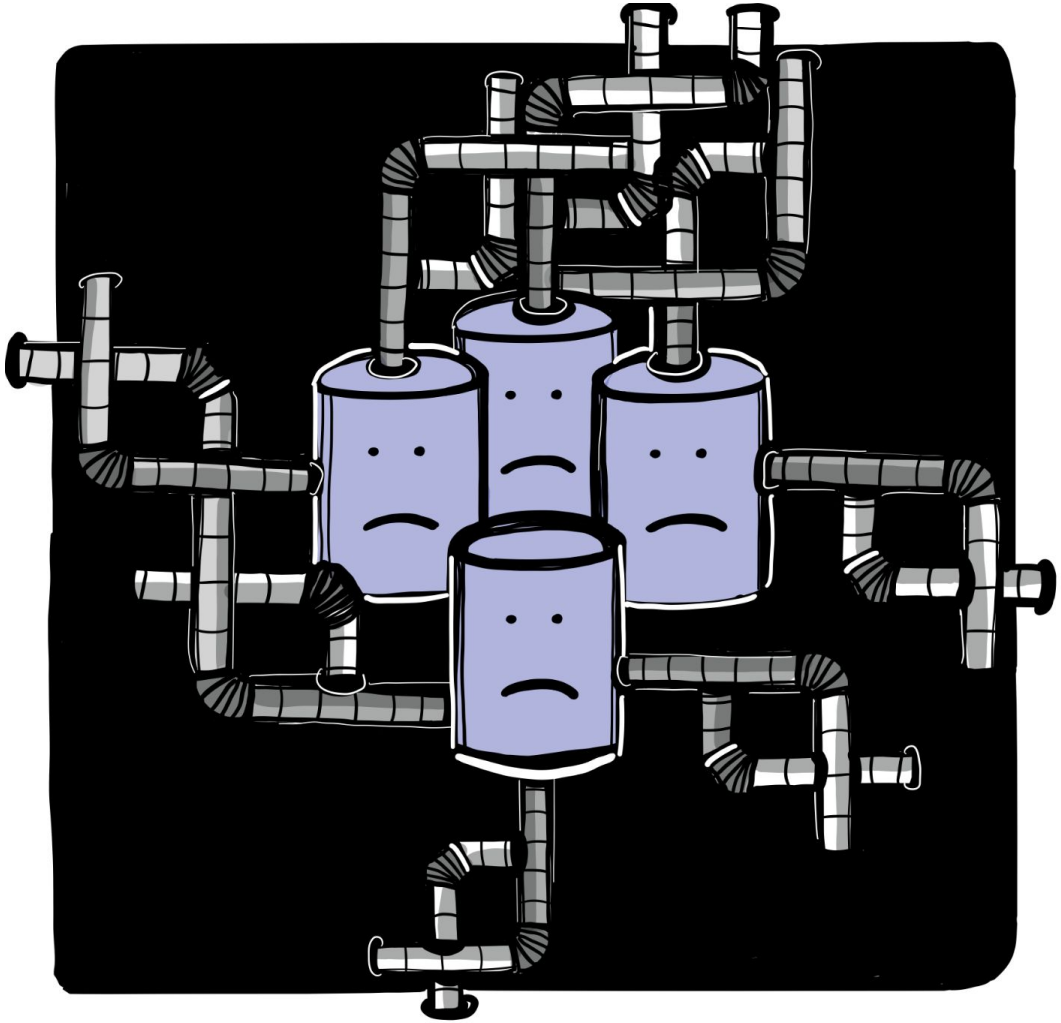
- SERVICE-A PING: 12,494 spans
- SERVICE-B PING: 4,408 spans

These are Redis sentinel health checks, not business-relevant operations.


KEEP VOLUME
UNDER CONTROL
THE HOLY
TELEMETRY
TRINITY
PROTECT
SENSITIVE DATA
INTRODUCE
TELEMETRY GOVERNANCE

Chapter 3: The Way Out

Collector-level Fixes



Easy collector-level PII Redaction

```
transform/log_redaction_[redacted]:
 error_mode: ignore
 log_statements:
  - context: log
    conditions:
      - resource.attributes["dh_platform"] == "[redacted]" or resource.attributes["dh_platform"] == "[redacted]"
    statements:
      - replace_pattern(body, "[\\w-+\\.]+@([\\w-]+\\.)+[A-Za-z]{2,4}", "MASKED_EMAIL")
      - replace_pattern(body, "([Aa]uthorization.[Bb]earer.)[A-Za-z0-9+-_]+", "$1 MASKED_BEARER")
      - replace_pattern(body, "(\\\\?\"?[Pp]assword\\\\?\"?(?::|=)(?:\\s?)\\\\?\")[^\\\\\"]+(\\\\?\")", "$1 MASKED_PASSWORD_1 $2")
      - replace_pattern(body, "([&?][Pp]assword=)[^&\\s]+", "$1 MASKED_PASSWORD_2")
      - replace_pattern(body, "([Xx]-[Aa]pi-[Kk]ey[:=]\\s?)[A-Za-z0-9+-_]+", "$1 MASKED_API_KEY")
      - replace_pattern(body, "(\\\"?(?:name|firstName|lastName|first_name|last_name|address|phone|contact_no|customerAddress|phone_no)\\\"?:\\s*\\\")[^\\\"]+(\\\")", "$1$2\"MASKED_DATA$2\"")
```

Easy collector-level noisy resource attributes drops

```
processors:
  transform:
    resource_statements:
      - context: resource
        statements:
          - delete_matching_keys(attributes, "^k8s\\.pod\\.annotation\\.ad\\.VENDOR\\.com/")
          - delete_matching_keys(attributes, "^k8s\\.pod\\.annotation\\.cnpg\\.io/")
          - delete_key(attributes, "process.command_args")
```

Easy collector-level logs deduplication

```yaml
processors:
  logdedup:
    log_count_attribute: log_count
    interval: 10s
    conditions:
      - 'severity_text == "Warning" and body contains "will retry"'
      - 'severity_text == "DEBUG" and body == "Collecting data"'
      - 'body contains "client metadata"'
```

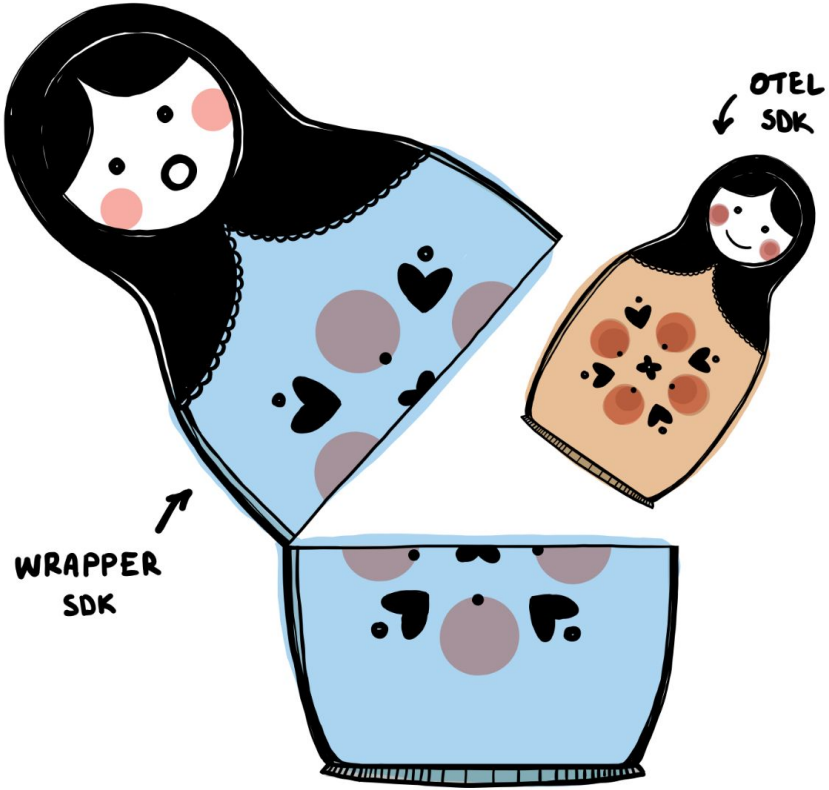
Controlling Attributes with OTel Weaver

```yaml
#registry-manifest.yaml
name: my-app
description: "Telemetry conventions for my app"
semconv_version: 0.1.0
dependencies:
  - name: otel
    registry_path: https://github.com/open-telemetry/semantic-conventions/archive/refs/tags/v1.30.0.zip[model]
```

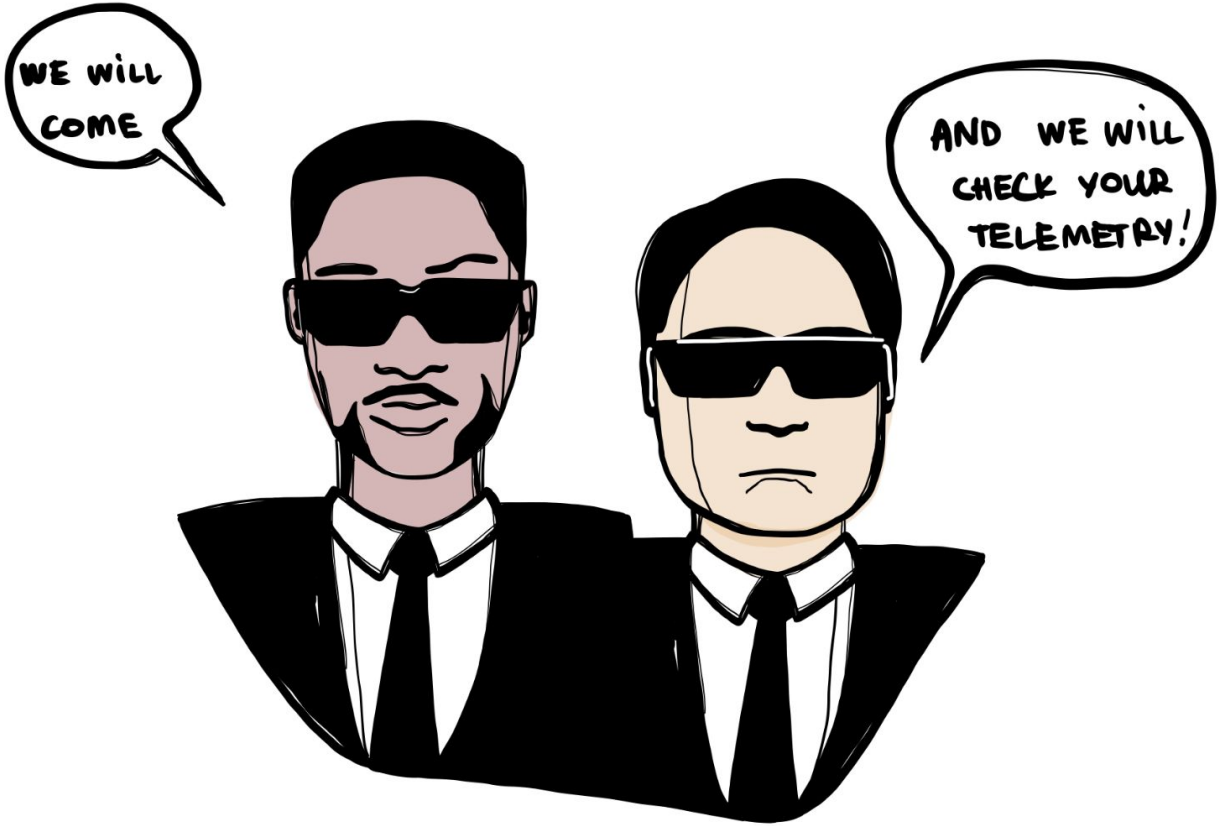
Controlling Attributes with OTel Weaver

```yaml
# metrics.yaml
version: "2"

attributes:
  - key: order.type
    type:
      allow_custom_values: true
      members:
        - id: purchase
          value: purchase
        - id: refund
          value: refund
    stability: stable
    brief: "Type of Order"

metrics:
  - name: order.count
    instrument: counter
    unit: "{order}"
    stability: stable
    brief: "Total number of processed orders"
    attributes:
      - ref: order.type
        requirement_level: required
```

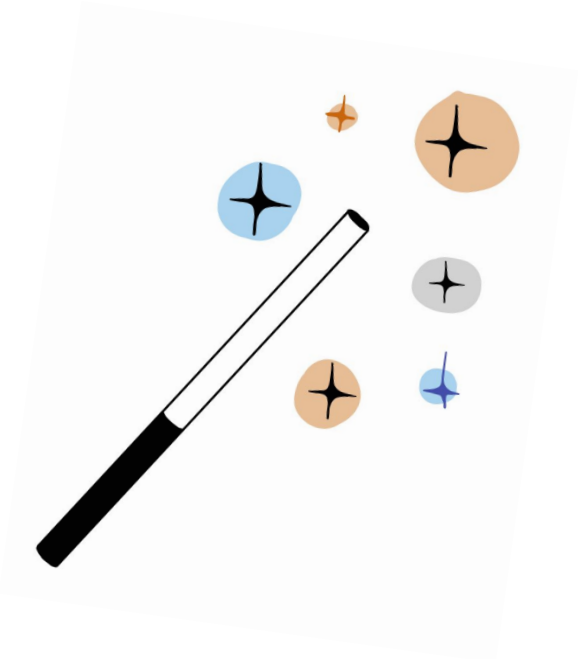
Popular time-proven solution - an SDK wrapper



Agentic instrumentation and telemetry quality checks



Agentic instrumentation and telemetry quality checks



ollygarden-rose bot opened on Feb 9 · edited by ollygarden-rose Edits

OpenTelemetry Instrumentation Dashboard

Do not edit this issue manually. Only checkbox interactions are supported.

Last scan: **2026-02-09T11:22:14Z** | Next scheduled scan: **2026-02-12T11:22:14Z**

- [ ] Trigger manual scan

Instrumentation Summary

This Go microservices application uses OpenTelemetry SDK v1.38.0 for distributed tracing and metrics, running in parallel with DataDog APM. Auto-instrumentation covers HTTP server/client via otelhttp middleware and AWS SDK calls via otelaws. Manual spans instrument SQS and Pub/Sub consumer flows. Business metrics include 11 counters and 3 histograms tracking issue creation, action deployment, and check-in/out workflows. Exports via OTLP/HTTP to a centralized collector with 100% sampling and 30-second metric intervals.

Action Queue

Critical (0)

No findings

High (8)

- [ ] **Salesforce OAuth HTTP calls missing OpenTelemetry instrumentation**
  `internal/salesforce/auth.go:82`

  ▼ Why and how to fix

  Authentication calls to Salesforce are invisible in distributed traces. When case creation fails, cannot determine if OAuth token acquisition was the bottleneck. Breaks trace continuity for critical CRM integration.

  Fix: Wrap the http.Client passed to NewOAuthAuth() with otelhttp.NewHTTPClient() at instantiation in internal/salesforce/client.go:34-43

- [ ] **Tweety notification HTTP calls missing OpenTelemetry instrumentation**
  `internal/tweety/tweety.go:68`

  ▼ Why and how to fix

Key Takeaways

1. Commodities like auto-instrumentation that expedite transition from Day-0 to Day-1 may hurt you on Day-2 if used irresponsibly.
2. Absence of governance & telemetry hoarding are social factors responsible for huge telemetry volumes.
3. Observability vendor's backend is not a place for PII data.

Key Takeaways

1. Use collector-level attribute filtering & PII masking.
2. Use auto-instrumentation responsibly.
3. Use Weaver, SDK wrappers and agentic instrumentation review for telemetry governance.

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Thank You!