Building an OSS APM with OpenTelemetry

Goutham Veeramachaneni
Product Manager
Senior Software Engineer
Grafana Labs
Agenda

What is OpenTelemetry
What is an APM
Demo
Caveats*
Q/A
What is OpenTelemetry
OpenTelemetry is a collection of tools, APIs, and SDKs. Use it to **instrument, generate, collect, and export** telemetry data (metrics, logs, and traces) to help you analyze your software’s performance and behavior.

From: https://opentelemetry.io/
Standards, specifications and conventions

Client-side libraries (API, SDKs, instrumentation)

Middleware
Standards, specifications and conventions

- OpenTelemetry API / SDK: For those who want to implement an API or SDK
- Semantic conventions: What I should include in my telemetry data
- OpenTelemetry Line Protocol: Specification for data transport
OpenTelemetry API

- Enables developers to specify “what” to generate in terms of telemetry data

OpenTelemetry SDK

- Configuration of “how” to collect and transport instrumented application data

Auto Instrumentation

- Libraries that instrument parts of your stack automatically
OpenTelemetry Collector

- Conduit that allows connecting sources to destinations

OpenTelemetry Operator

- Operator for Kubernetes, able to manage Collectors and self-instrument services
HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)

SITUATION:
THERE ARE 14 COMPETING STANDARDS.

14?! RIDICULOUS! WE NEED TO DEVELOP ONE UNIVERSAL STANDARD THAT COVERS EVERYONE'S USE CASES. YEAH!

SITUATION:
THERE ARE 15 COMPETING STANDARDS.

SOON:
What is an APM?
Application Performance Management (APM) is the monitoring and management of the performance and availability of software applications.
My definition of APM (for the talk)

- Easy to instrument
- Probably an Agent
- High Quality telemetry and dashboards
Demo!
Caveats*

- Still early
  - Not all SDKs do good metrics
  - Demo used traces to generate Metrics
  - Semantic Conventions being stabilised now
  - Resource utilisation on its way
  - Logging still pretty early

- ~Soon though. Get Involved 😊!

- The vision is 🔥

https://github.com/gouthamve/srecon-americas-otel-demo