Grafana Labs

Building an OSS APM with OpenTelemetry

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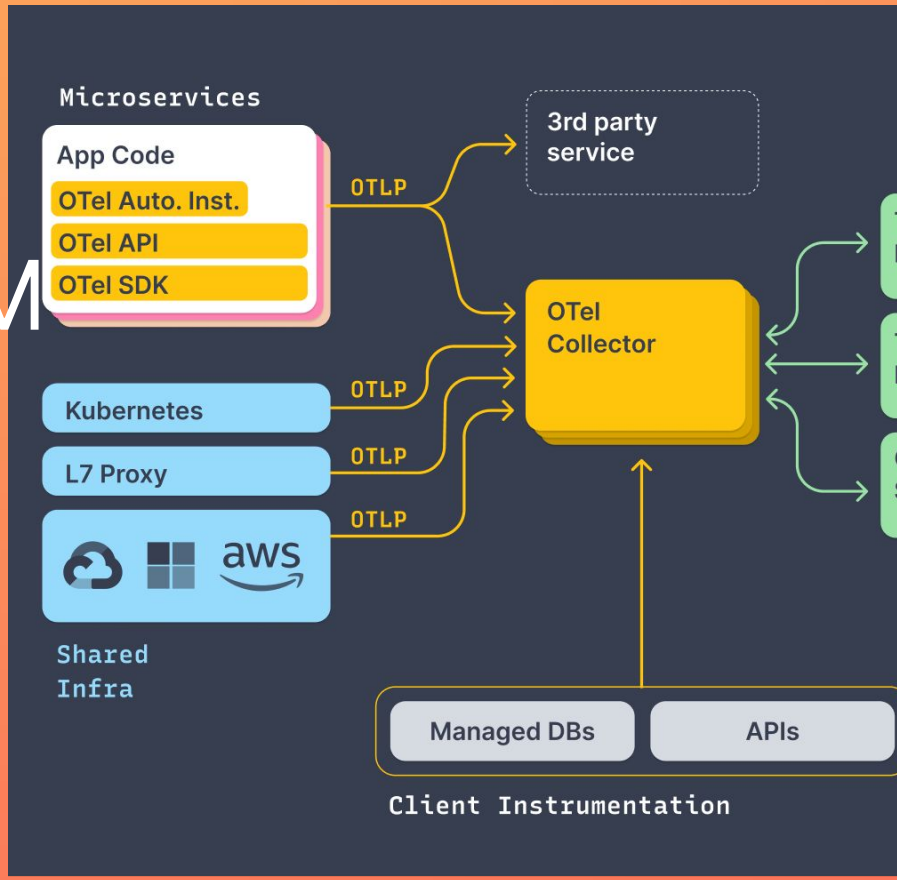
Product Manager
~~Senior Software Engineer~~
Grafana Labs



Agenda

What is OpenTelemetry

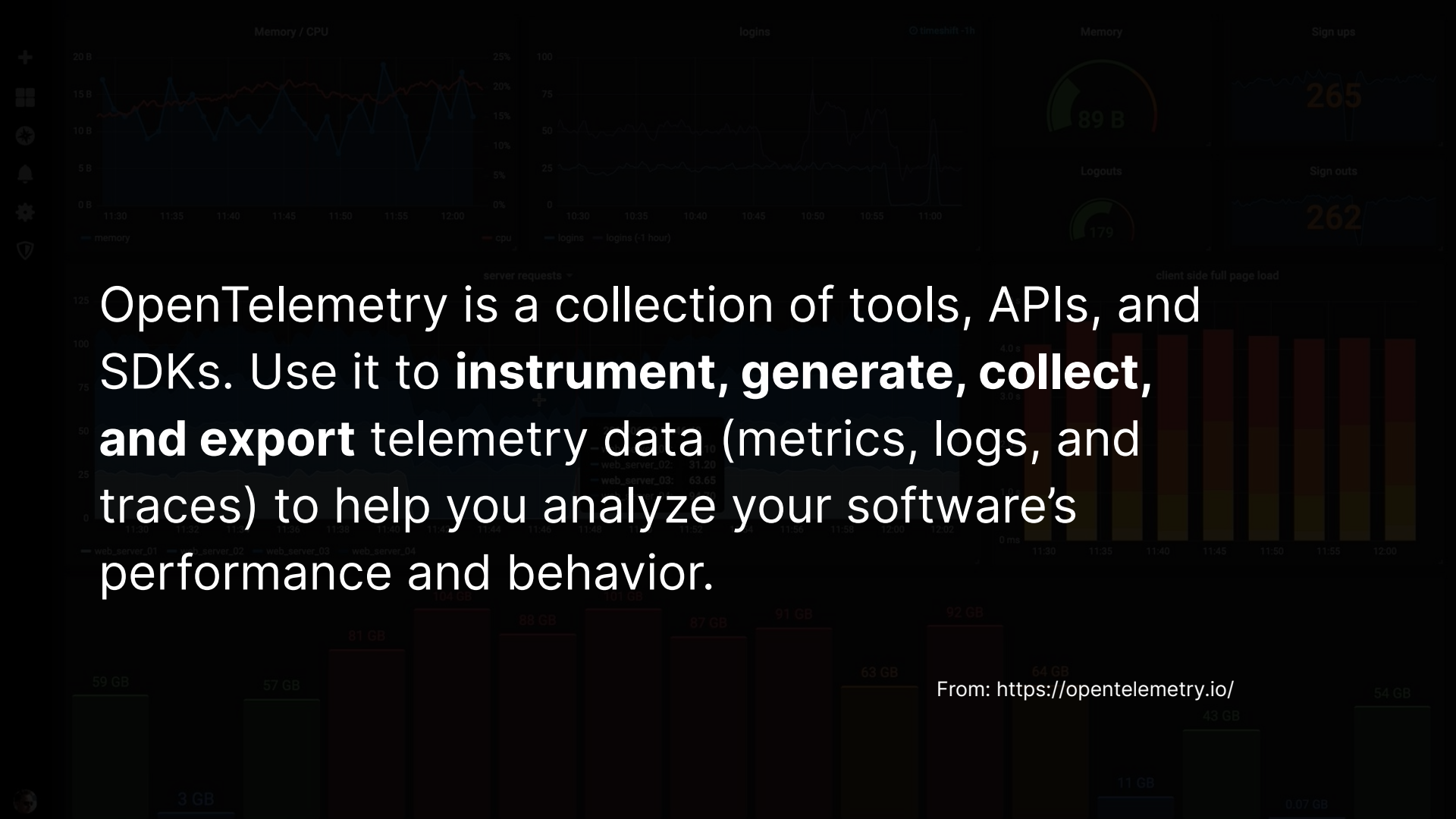
What is an APM

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

Client-side libraries

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

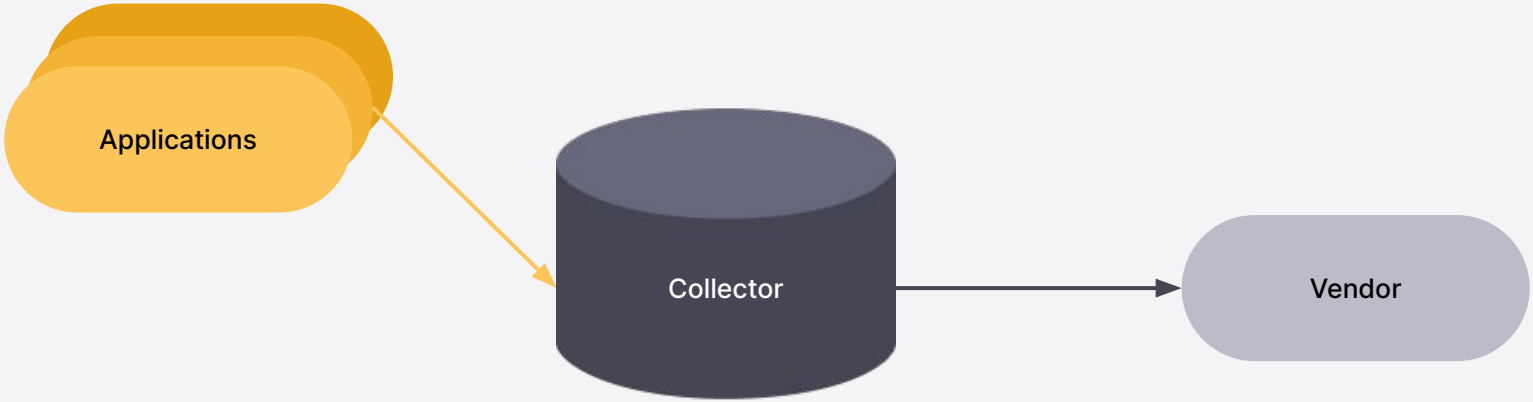
Middleware

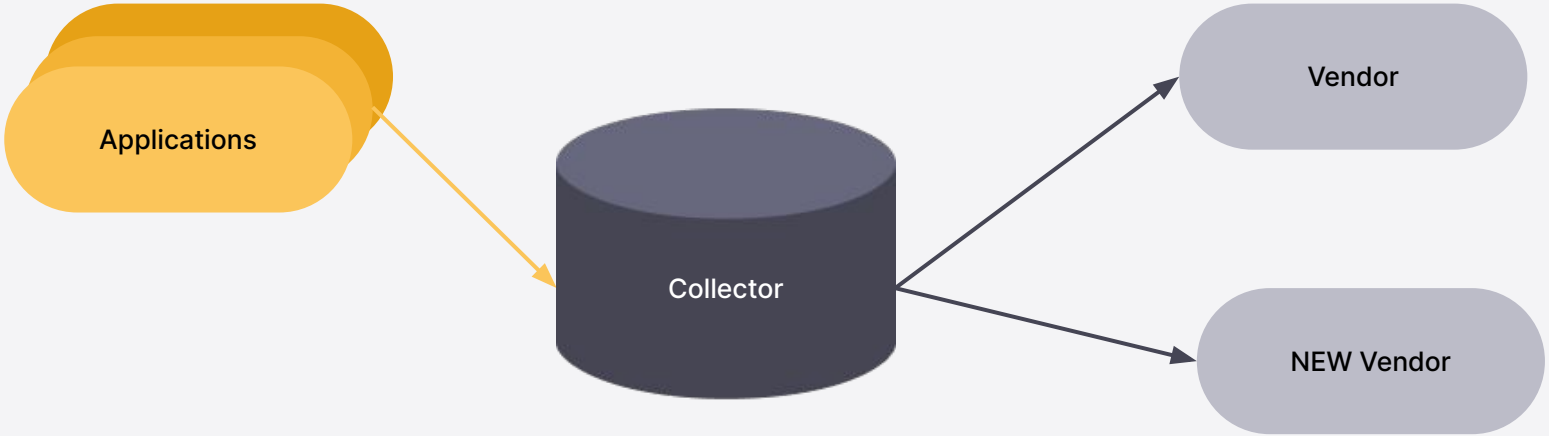
OpenTelemetry Collector

- Conduit that allows connecting sources to destinations

OpenTelemetry Operator

- Operator for Kubernetes, able to manage Collectors and self-instrument services

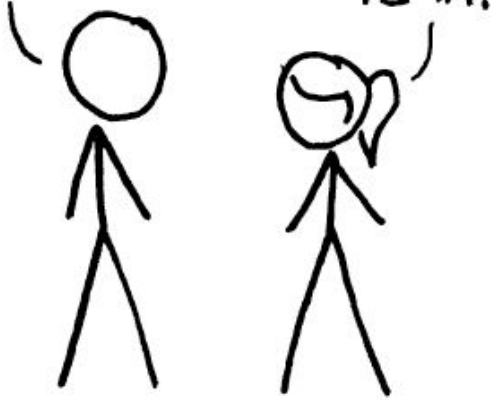

Applications
Collector
Vendor


Applications
Collector
Vendor
NEW Vendor

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.



SOON:

SITUATION:
THERE ARE
15 COMPETING
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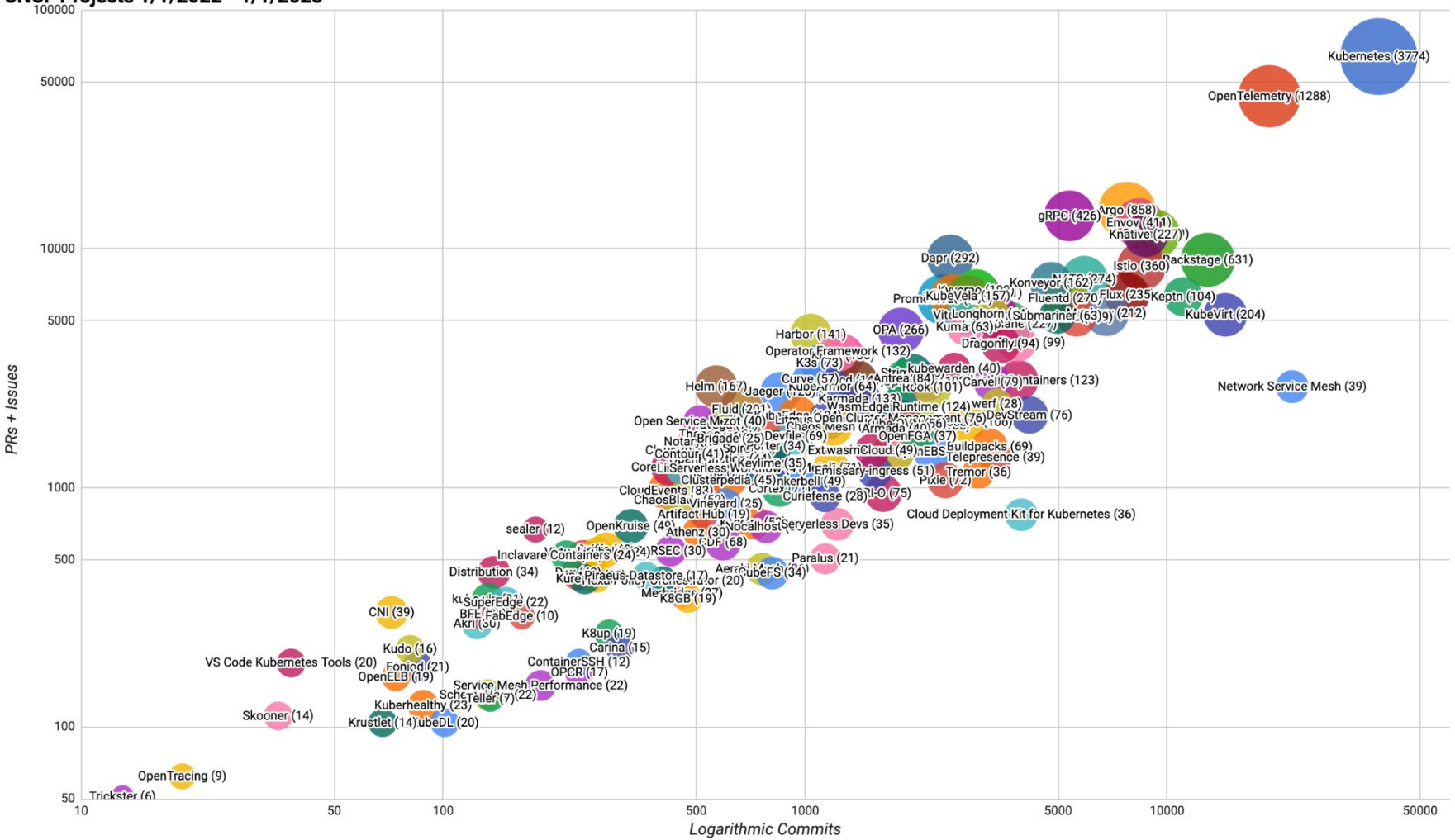
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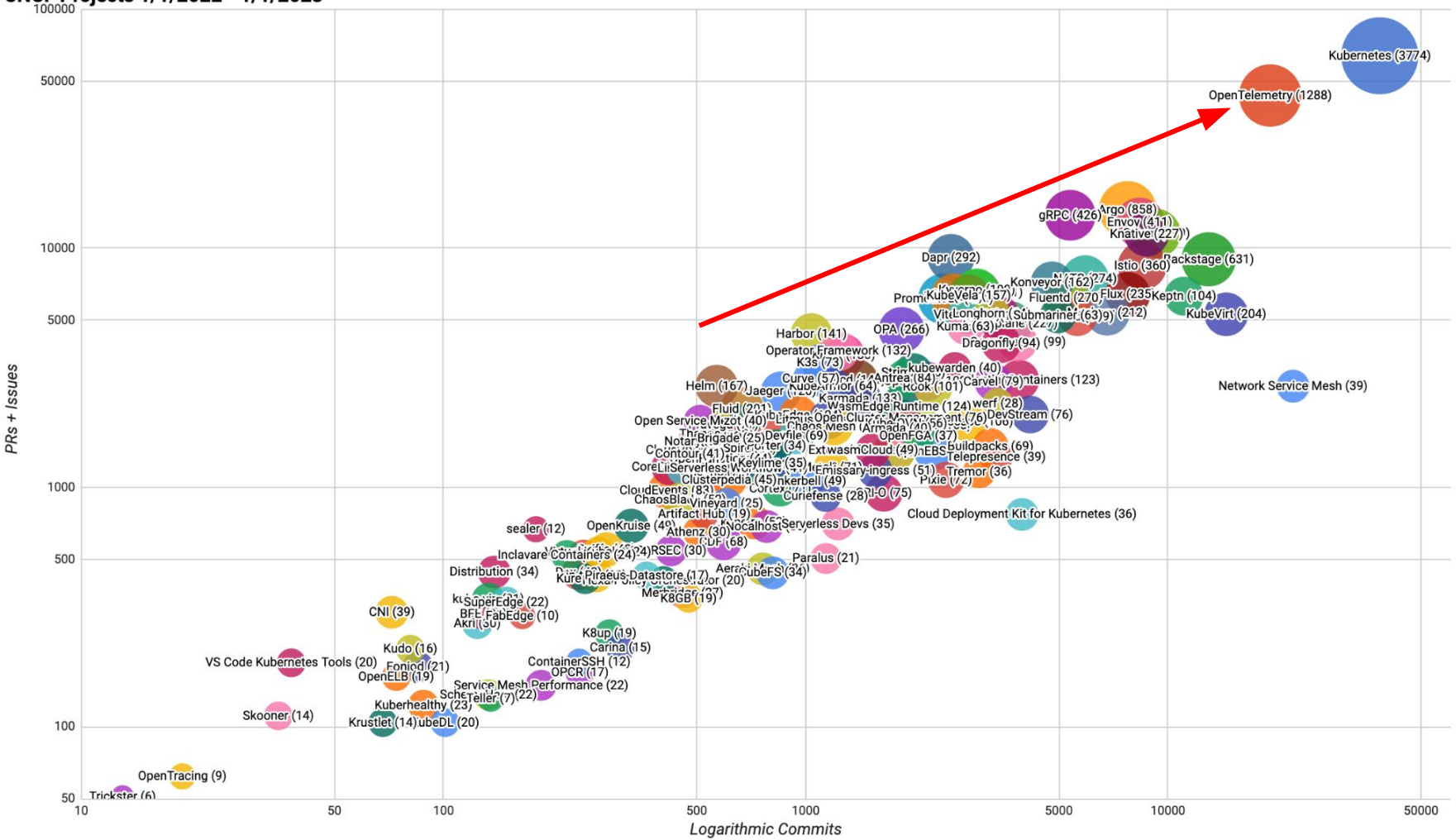
Krustlet (14)
OpenTracing (9)
Trickster (6)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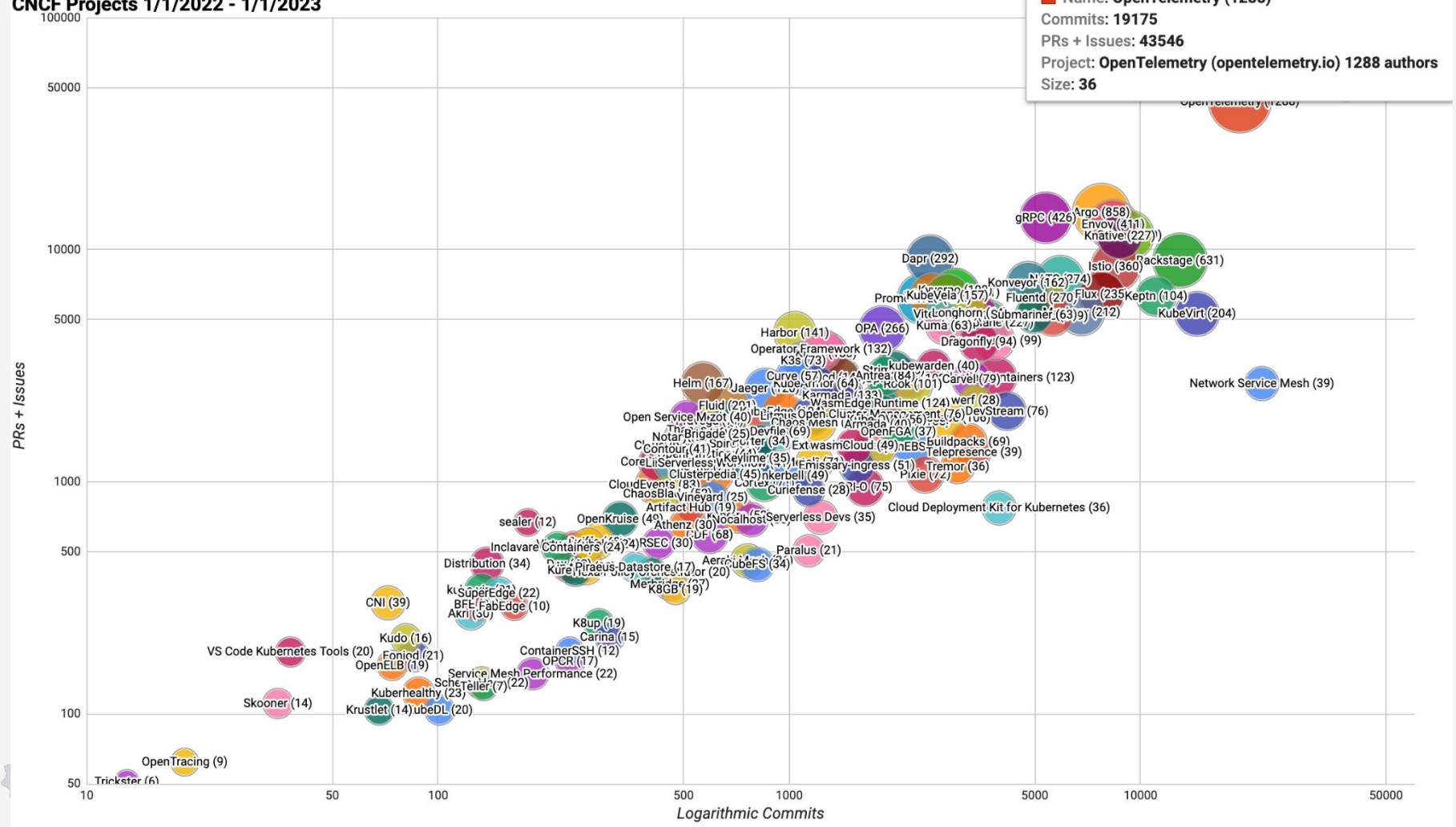
CNCF Projects 1/1/2022 - 1/1/2023
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PRs + Issues: 43546
Project: OpenTelemetry (opentelemetry.io) 1288 authors
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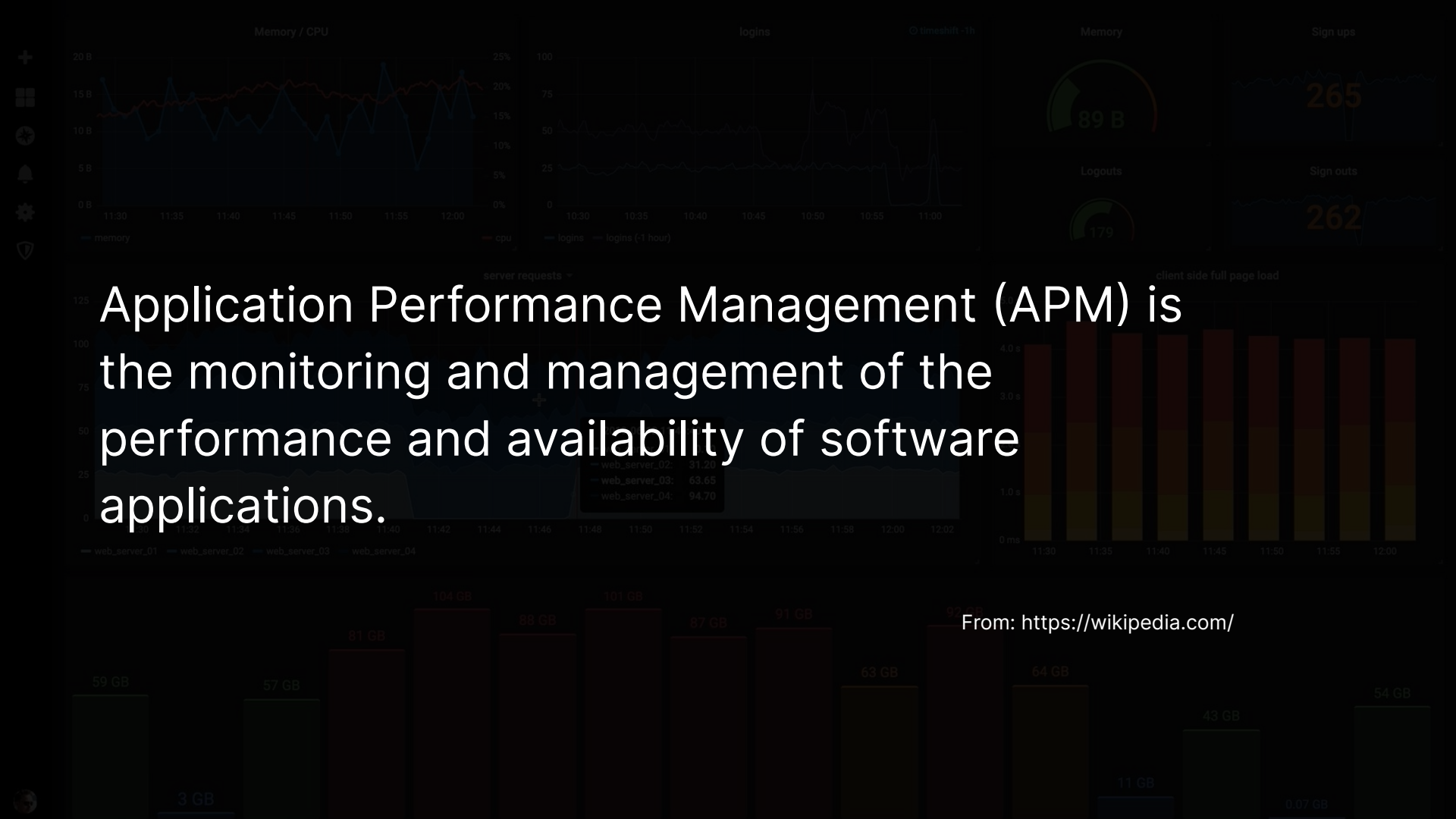
What is an APM?



Application Performance Management (APM) is the monitoring and management of the performance and availability of software applications.

From: https://wikipedia.com/

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