

Instrumenting Lambda with OpenTelemetry

Meetup SRE / OpenTelemetry France - 23th March - v1 Dimitris Finas



Agenda

- What is OpenTelemetry?
- Why use it for Lambda?
- How to do it?

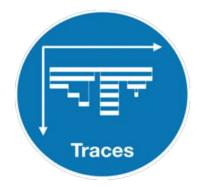


What is OpenTelemetry?

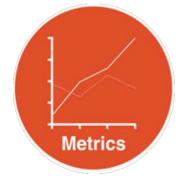


OpenTelemetry is an open source project. It is a set of APIs, SDKs, tooling and integrations that are designed for the creation and management of *telemetry data*, such as traces, metrics, and logs.

OpenTelemetry's Mission is to enable effective observability by making high-quality, portable telemetry ubiquitous and vendor-agnostic.



A trace represents a single user's journey across multiple applications and systems (usually microservices).



Numeric data measured at various time intervals (time series data); SLI's (request rate, error rate, duration, CPU%, etc.)



Timestamped records of discrete events that happened within an application or system, such as a failure, an error, or a state transformation

You want more? See Otel vision in https://github.com/open-telemetry/community/blob/main/mission-vision-values.md#otel-mission-vision-and-values



OpenTelemetry - A brief history



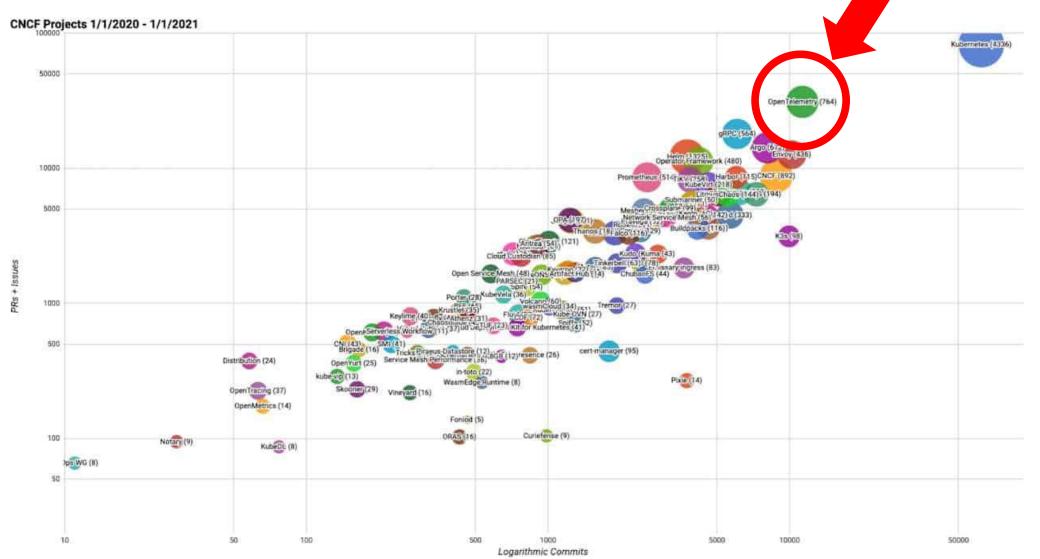
Lightstep is founded by Ben Sigelman, Daniel Spoonhower, and Ben Cronin Lightstep helps to found OpenTracing, the first common, portable API for distributed tracing Jaeger, an opensource tracing tool developed by Yuri Shkuro, is opensourced by **Uber**

Google releases a new portable instrumentation project called OpenCensus The OpenTracing and OpenCensus projects announce a merger, forming OpenTelemetry to be a part of CNCF

OpenTelemetry is released in beta



2nd most active project in CNCF



Kubernetes (kubernetes io) 4336 authors

Heim (heim.sh) 1225 authors

ONCF (www.cncf.io) 892 authors

OpenTelemetry (opentelemetry.io) 764 authors

Argo (argoproj github.io) 672 authors

gRPC (grpc.io) 564 authors

Prometheus (prometheus io) 514 authors

Operator Framework (operatorhub io) 480 authors.

Envoy (www.envoyprary.io) 436 authors

Fluentd (fluentd.org) 333 authors

TiKV (trkv.org) 258 authors

Backstage (backstage io) 258 authors.

Jaeger (jaeger readthedocs.io/en/latest) 221 authors

KubeVirt (kubevirt.io) 218 authors

Flux (github.com/fluxed) 211 authors

NATS (nats.io) 204 authors

OPA (openpolicyagent.org) 197 authors

OpenEBS (openebs.io) 194 authors

Meshery (layer5.ic/meshery) 193 authors

contained (contained io) 186 authors.

Thanos (thanos.io) 183 authors

LitmusChaos (litmuschaos.io) 144 authors

Linkerd (linkerd.io) 142 authors

etcd (coreos com/etcd) 136 authors

Vitess (vitess io) 133 authors

Rook (rook.io) 132 authors

Cortex (github.com/cortexproject) 129 authors

KEDA (keda sh) 729 authors

KubeEdge (kubeedge.io) 124 authors

CloudEvents (cloudevents io) 121 authors

Falco (falco.org) 116 authors

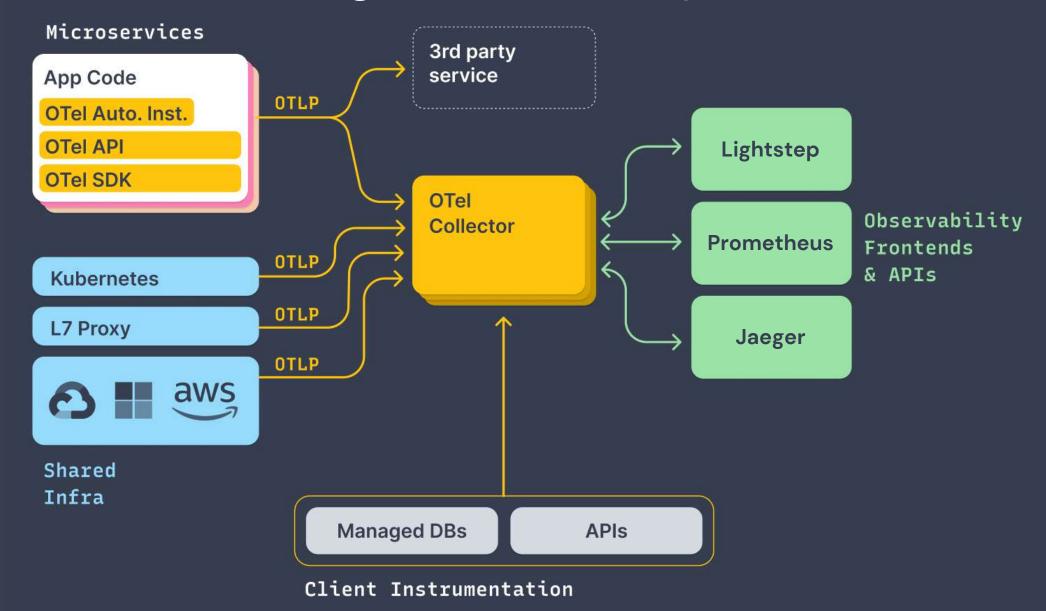
Buildpacks (buildpacks io) 115 authors

74 more





A performant solution, agnostic from any vendor









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Benefits of using OpenTelemetry with lambdas

- Choose my observability backend (x-ray limitations)
- Store history of all calls
- Distributed traces for faster RCA
- Measure and improve performance
- Measure Golden Signals ⇔ RED metrics ⇔ Rate / Error / Delays
- Alerts on golden signals (SLI) / SLO
- Monitor my own technical/business attributes



How to do it?

- Enable X-Ray
- Add AWS Layer
- Add environment variable
- Add collector config
- Add environment variable again
- Update your code (optional)



Git Example



Step by Step Video



https://www.youtube.com/watch?v=iycLNwmpcOQ

Further readings

- OpenTelemetry documentation https://opentelemetry.io/docs/ and https://opentelemetry.lightstep.com/
- OpenTelemetry registry to get up-to-date list of supported technologies and projects: https://opentelemetry.io/registry/
- How to choose your Observability solution: https://medium.com/dzerolabs/unpacking-observability-how-to-choose-an-observability-vendor-aa0e6d80b71d

