Modernise log collection of OKD deployments

CERN OpenLab 2024
Christian Klempau

Supervisors:
Alberto Pimpo
Chrysoula Dikonimaki

CERN

Telemetry

Metrics

Measurement of a service ➜ **Performance, availability**

Traces

Structured logs, correlation, hierarchy ➜ **Big picture**

Logs

Timestamped text record ➜ **Debug, diagnostic, security**
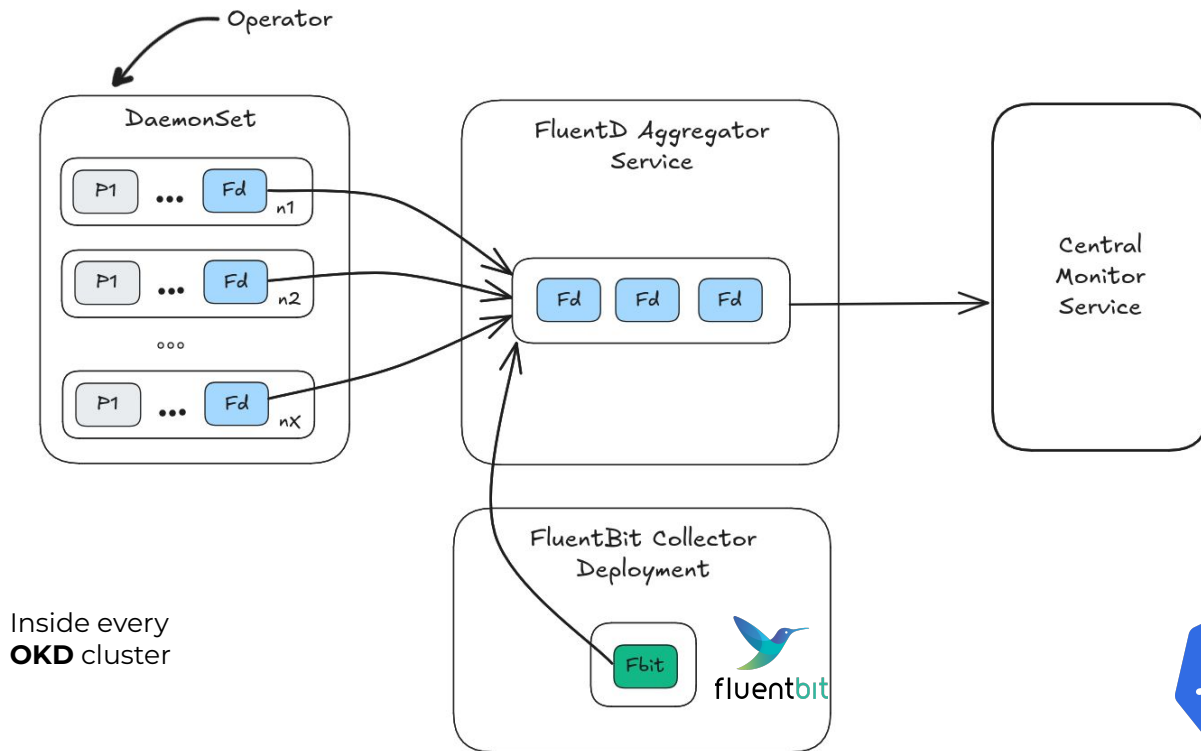
Telemetry

Metrics

Measurement of a service ➔
Performance, availability

Traces

Structured logs,
correlation, hierarchy
➔ **Big picture**

Logs

Timestamped text record
➔ **Debug, diagnostic,
security**

Telemetry

Metrics

Measurement of a service ➔
Performance, availability

Traces

Structured logs,
correlation, hierarchy
➔ **Big picture**

Logs

Timestamped text record
➔ **Debug, diagnostic,
security**

+

fluentd

Current logging pipeline

Operator

DaemonSet

P1 ... Fd n1

P1 ... Fd n2

ooo

P1 ... Fd nX

FluentD Aggregator Service

Fd Fd Fd

Central Monitor Service

Inside every **OKD** cluster

FluentBit Collector Deployment

Fbit

fluentbit

kubernetes + fluentd

Why we need an upgrade

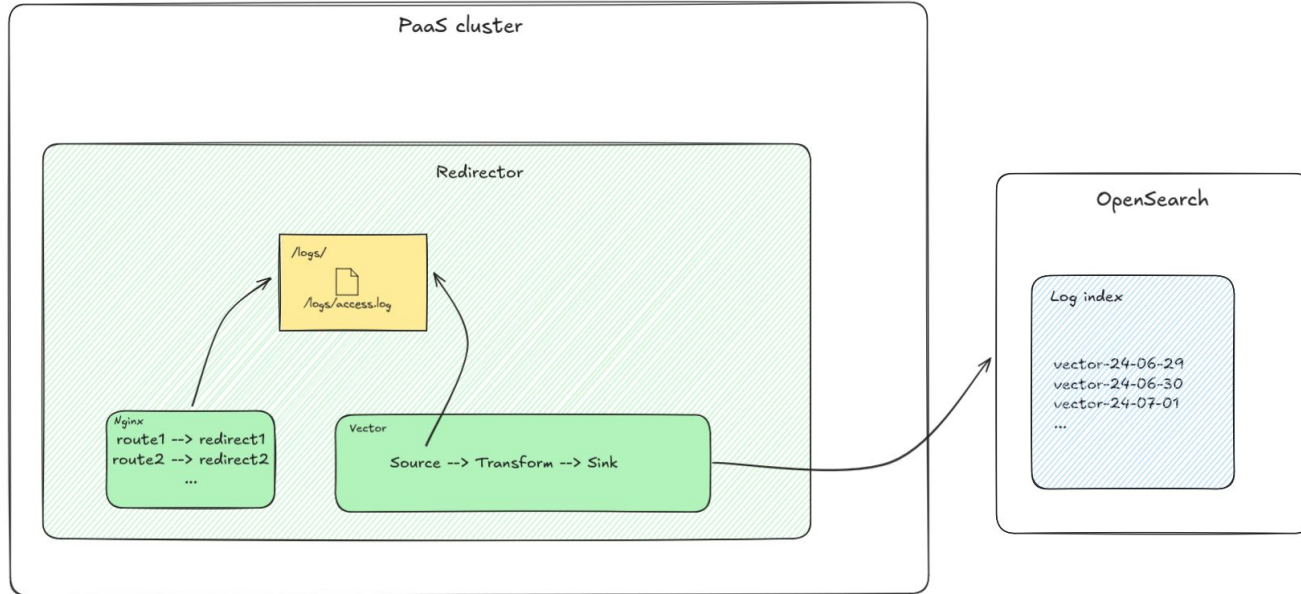
Control

Inefficient,
less supported

Operator
deprecation

Alternatives: Vector

- **Future default Operator**
  - RedHat OKD support

- **Rust**
  - Memory safe, efficient

- **Full-fledged**
  - logs, metrics, plugins

VECTOR
BY DATADOG

Technology validation pilot

Inside
legacy-web-redirector

Technology validation pilot

- **Rust**
  - Memory safe, efficient

- **Default future Operator**
  - RedHat OKD support

- **Full-fledged**
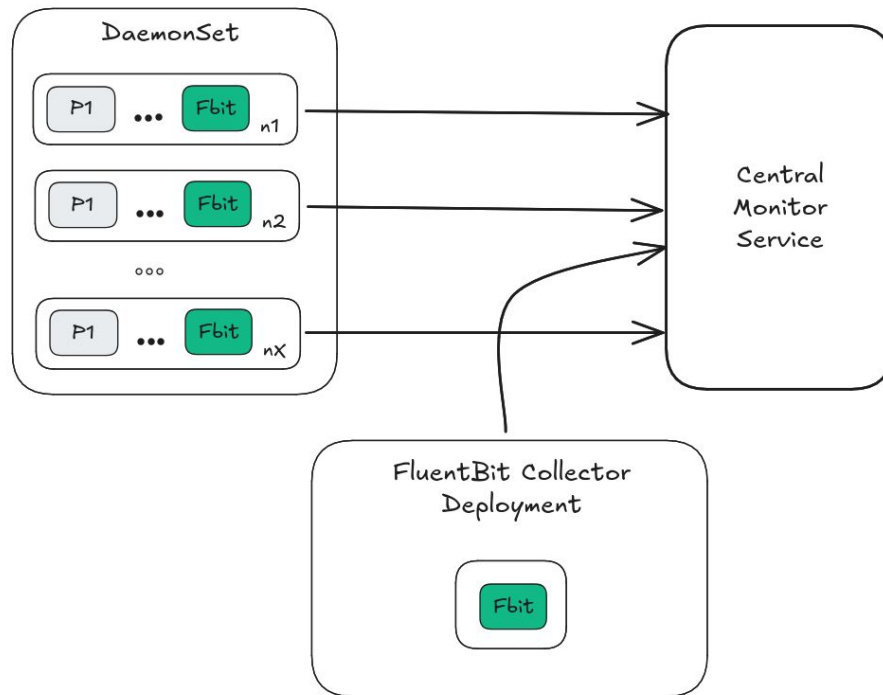 - logs, metrics, plugins

- **Low extensibility**

- **Lacking documentation**

- **Imperative code, not declarative**

- **Limited VRL language support**

Proof of concept

- **C**
  - Efficient

- **CNCF support**
  - Active deployment, OSS

- **Inspired by FluentD**
  - Easier transition

fluentbit

Proof of concept

Where we are now

- **Research**

- **Technology validation pilot**

- **Proof of concept**

- [Future] FluentD phase out

Thanks

Do you have any questions?

christian.alex.klempau.funk@cern.ch