Observability & Debugging Microservices with Linkerd and Conduit

Franziska von der Goltz
Software Engineer at Buoyant
@franziskagoltz

BUOYANT

About me

Software Engineer at Buoyant

Twitter: @franziskagoltz

I work on service meshes!

Debugging Microservices is Hard

— Application logic is split across service boundaries

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As a result, tools that used to work for monoliths break down, and we see a new set of tools.

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Service Mesh

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Today’s focus: **debugging**.

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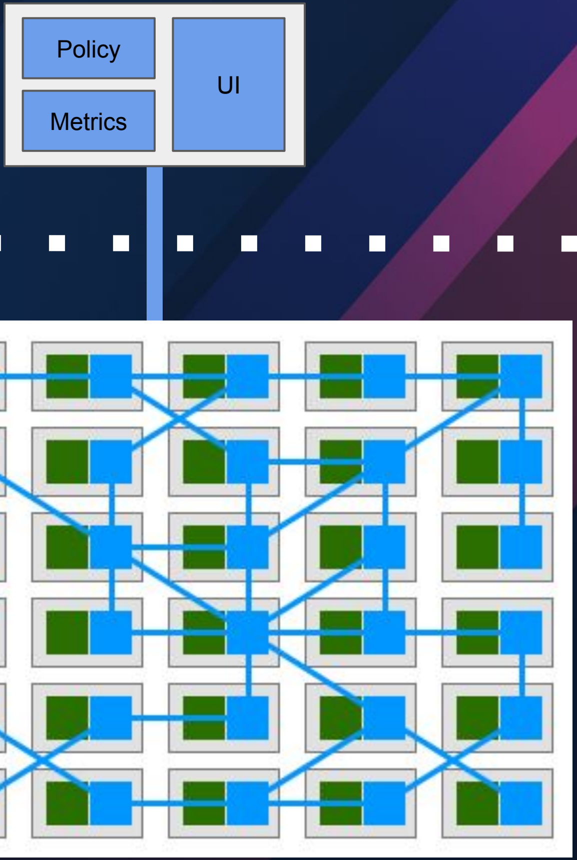
Control plane

Data plane



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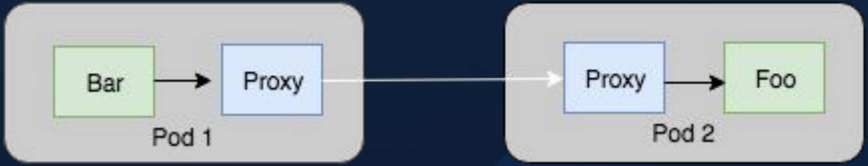
Example service meshed request



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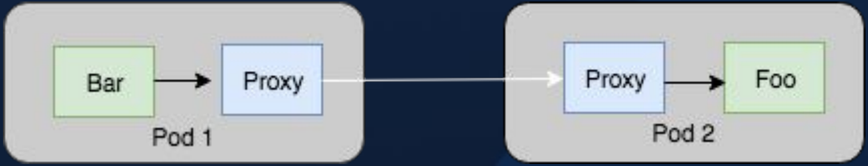

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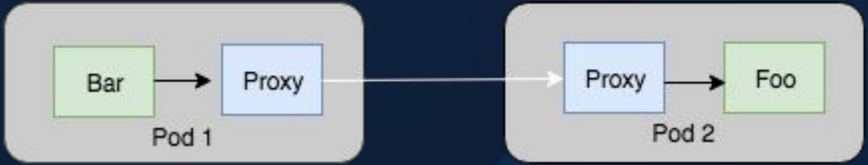

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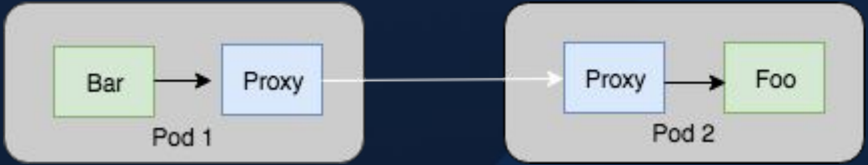

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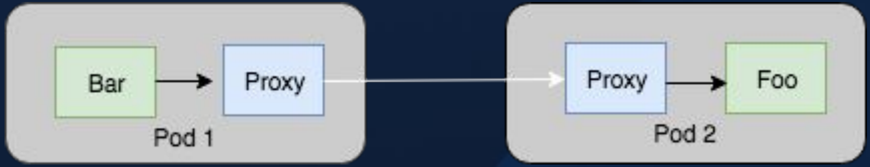

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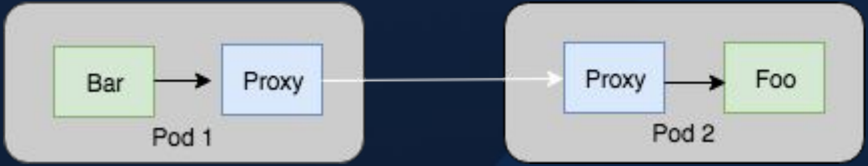

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- How many of these requests happened recently *(volume)*
- Who sent the request, and who received it *(identity)*
- Lots more! (was it retried, which instance it went to, etc.)

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Tied to identity, including caller/callee relationships!

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- What's the success rate of Foo when called by Bar?
- What's the request volume, latency distribution, ...

All *without* having to modify our applications.

CONDUIT

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Conduit

- Open source service mesh (Apache v2)
- Built from the ground up for Kubernetes
- Ultralight, ultrafast
- Data plane: tiny Rust proxies, ~2mb RSS, <1ms p99 latency
- Control plane: Go
- Supports: HTTP/2, HTTP, gRPC, and TCP
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Goals:
zero config reliability, security, and visibility for Kubernetes apps.

Demo Time

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Follow along at home!

```
$ curl https://run.conduit.io/install | sh
```

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Live debugging of a Kubernetes App

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7. Use Conduit to identify the failing endpoint.

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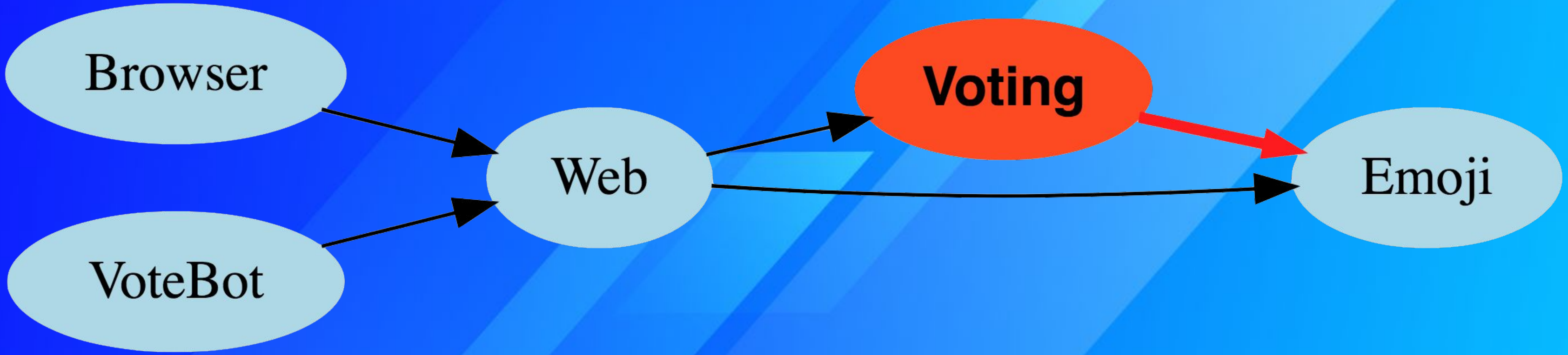
8. Profit.

Demo App



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Follow along (if you wish)

```
#GitHub repo: http://bit.ly/kubecondemo

$ curl https://run.conduit.io/install | sh
$ conduit install | kubectl apply -f -
$ curl http://bit.ly/emojivoto  |
     conduit inject - | kubectl apply -f -
```

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Live Demo Time

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Demo Review

— Installed Emojivoto App on K8S

— Saw errors, but saw nothing on the K8s dashboard

— Installed Conduit

— Used stat and tap commands to identify a failing call deep within the application's topology

— Yelled at the correct teams to fix their code!

All without modifying, or even taking down, the app.

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— 100% open source, Apache v2, works with Kubernetes 1.8+

Any Questions?

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