Best practices for debugging your Kubernetes clusters

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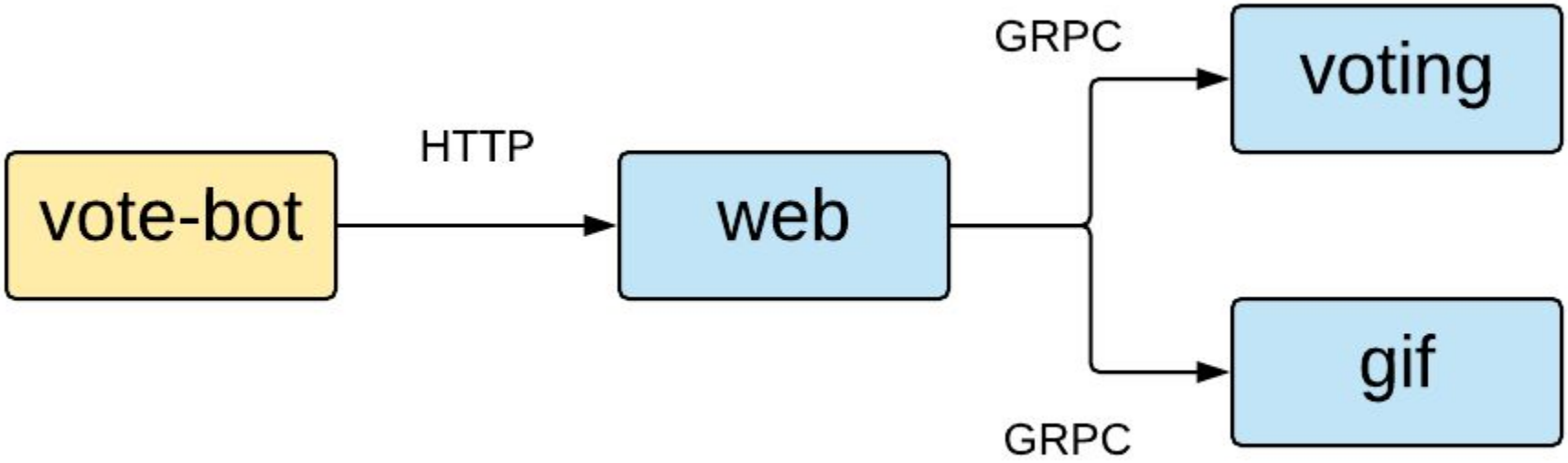
LINKERD

twitter

My application: nodevoto



iPod 2:28 PM

Back **Incident #36892**

Server on fire!

Today, 2:26 PM
Assigned to: Rachael Byrne
Service: PDT-RB

Incident Details | Timeline

SUBJECT

Server on fire!

DETAILS

INCIDENT SUMMARY

Server on fire!

! ACK | ✓ RESOLVE | ••• MORE

Honest Status Page
@honest_update

Follow

We replaced our monolith with micro services so that every outage could be more like a murder mystery.

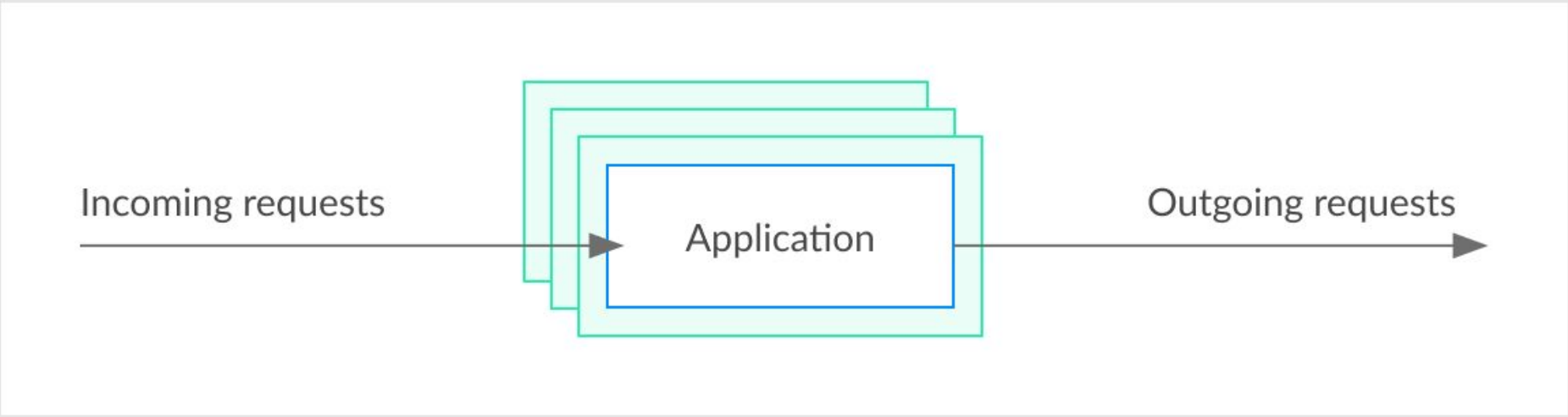
4:10 PM - 7 Oct 2015

How do we solve this mystery?

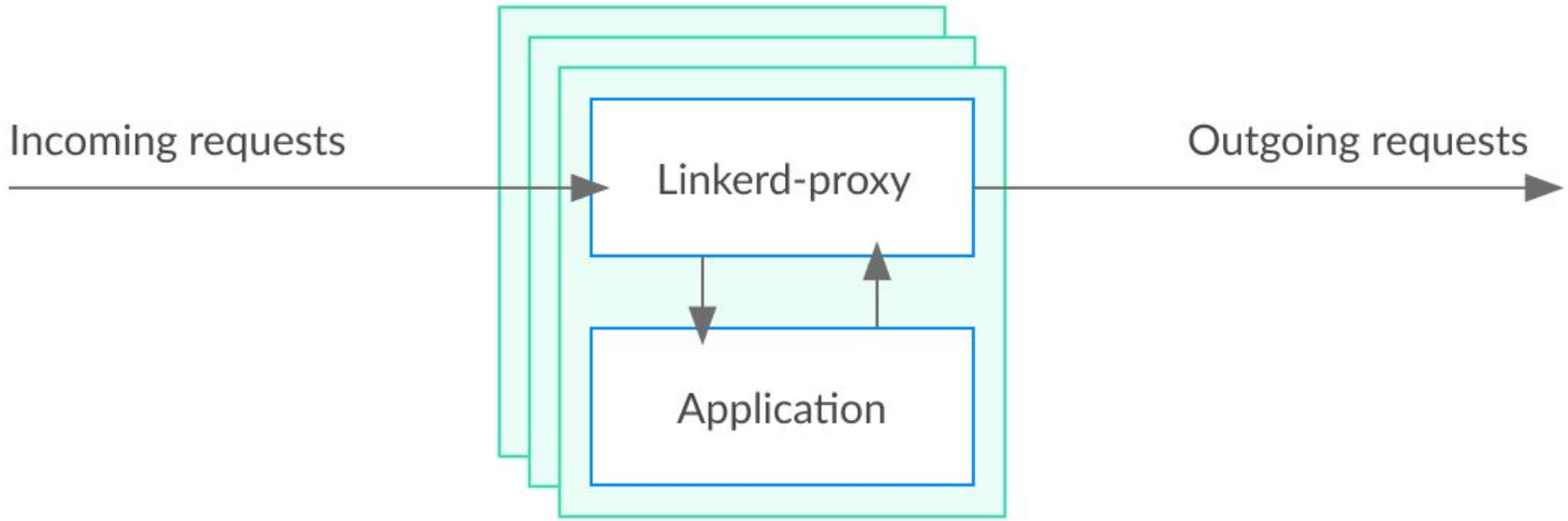
- Improve our logging
  - What if it’s a service we don’t control?
- We need visibility into our app!
  - Add instrumentation libraries to the code
  - Add monitoring (e.g. Prometheus)
  - Set up dashboard (e.g. Grafana)
- Is there an easier way?

Linkerd

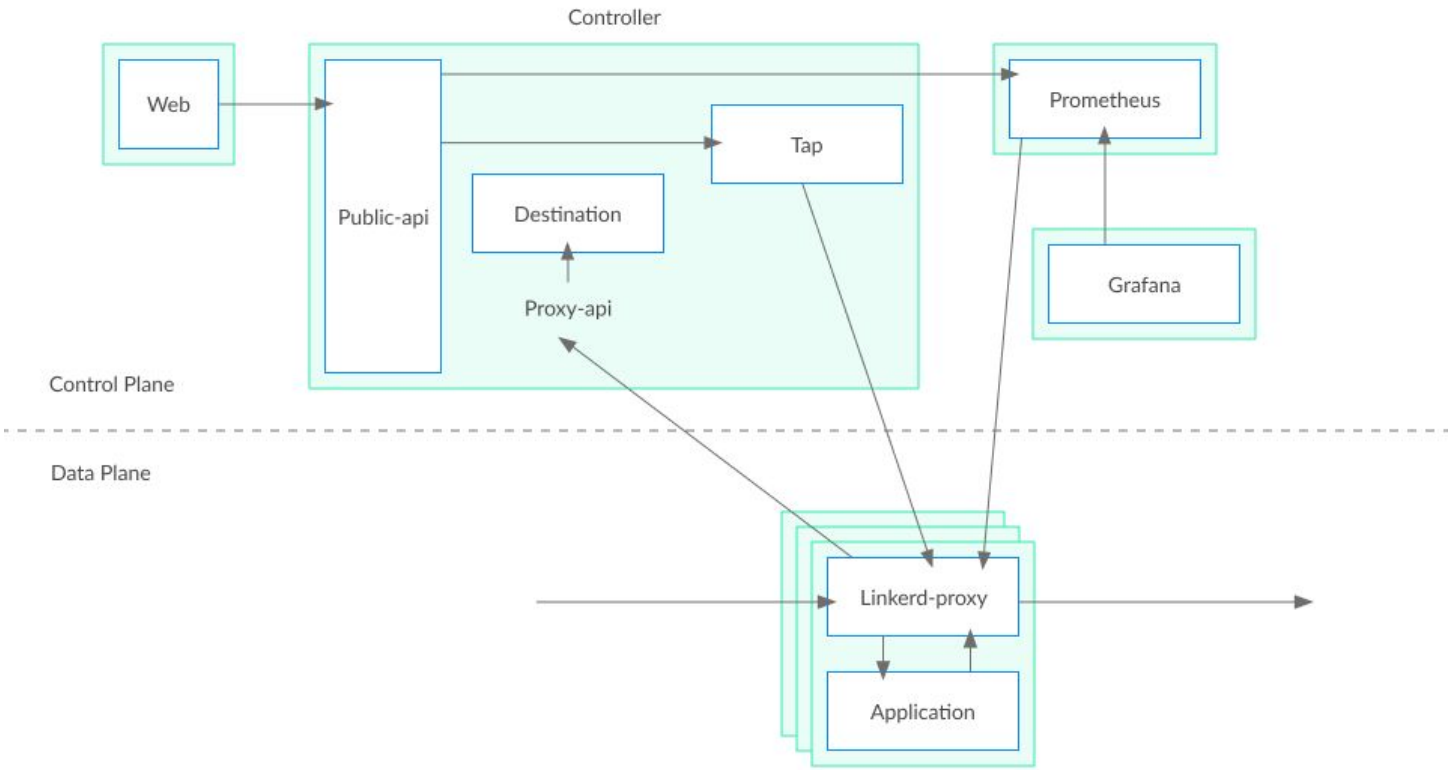
Linkerd 2.0: a service sidecar



Linkerd 2.0: a service sidecar



Linkerd 2.0 architecture



Mystery solved!

What did we do? ✅

- Installed linkerd control plane
- Added web to the linkerd data plane
- Got the observability we needed! 🎉
  - Used dashboard to find problematic endpoint
  - Inspected Grafana dashboards
  - Viewed live requests through the system

What did we NOT do? 🚫

- No code changes!
- No config changes!
- No bothering of other service owners!
- No bothering of ops / platform owners!

Linkerd 2.x design goals

- **Zero-config "just works".** It should work with any K8s app
- **Really, really, really fast**: proxies should introduce the bare minimum perf (and resource!) hit
- **Understandable**: no magic.

Data plane: linkerd2-proxy. Written in Rust. <10ms RSS, <1ms p99. **(!!!!)**

Control plane: linkerd2**.** Written in Go. Includes small Prometheus (6 hour window), Grafana, etc.

Features

- Latency-aware load balancing
- Retries and timeouts
- Ingress
- Service Profiles (per route metrics)
- TCP proxying, protocol detection
- Telemetry, monitoring
- HTTP, HTTP/2, gRPC proxying
- Automatic TLS

Try it yourself!

https://bit.ly/linkerd-get-started

LINKERD

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COMCAST

monzo

Expedia

hush.

Studyo

credit karma

planet.

CHASE

http://github.com/linkerd

Currently, two parallel branches of development:

- Linkerd 1.x: powerful, highly configurable, multi-platform (K8s, ECS, Mesos, Consul/Nomad)
- Linkerd 2.x: ultralight, zero-config, Kubernetes-only.

https://github.com/linkerd

Contribute!

http://github.com/linkerd

Golang, Javascript, Rust, Scala

Learn more!

Slides: https://github.com/rmars/talks

Try it yourself!

- https://bit.ly/linkerd-get-started

Ask questions!

- https://slack.linkerd.io/

Contribute!

- https://github.com/linkerd/linkerd2

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Questions!?