

Edge Routing And HTTPS For Everyone

Traefik In Action!



<https://containous.github.io/slides/riga-devdays-2019>

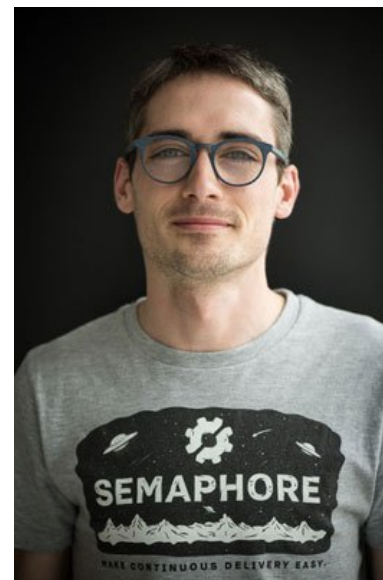
How To Use These Slides?

- **Browse the slides:** Use the arrows
 - Change chapter: Left/Right arrows
 - Next or previous slide: Top and bottom arrows
- **Overview of the slides:** keyboard's shortcut "o"
- **Speaker mode (and notes):** keyboard's shortcut "s"

Whoami

Michael Matur

- Devops & Developer @ [Containous](#)
- Blacksmith on [Traefik](#)
- [🐦 @michaelmatur](#)
- [🐙 mmatr](#)



Containous

<https://containo.us>

- We Believe in Open Source
- We Deliver Traefik
- Commercial Support for Traefik
- 22 people, 80% technical experts



Why Traefik?



Why, Mr Anderson?

Evolution Of Software Design

1990s and earlier

2000s

2010s

Coupling

Pre-SOA (monolithic)
Tight coupling



Traditional SOA
Looser coupling



Microservices
Decoupled



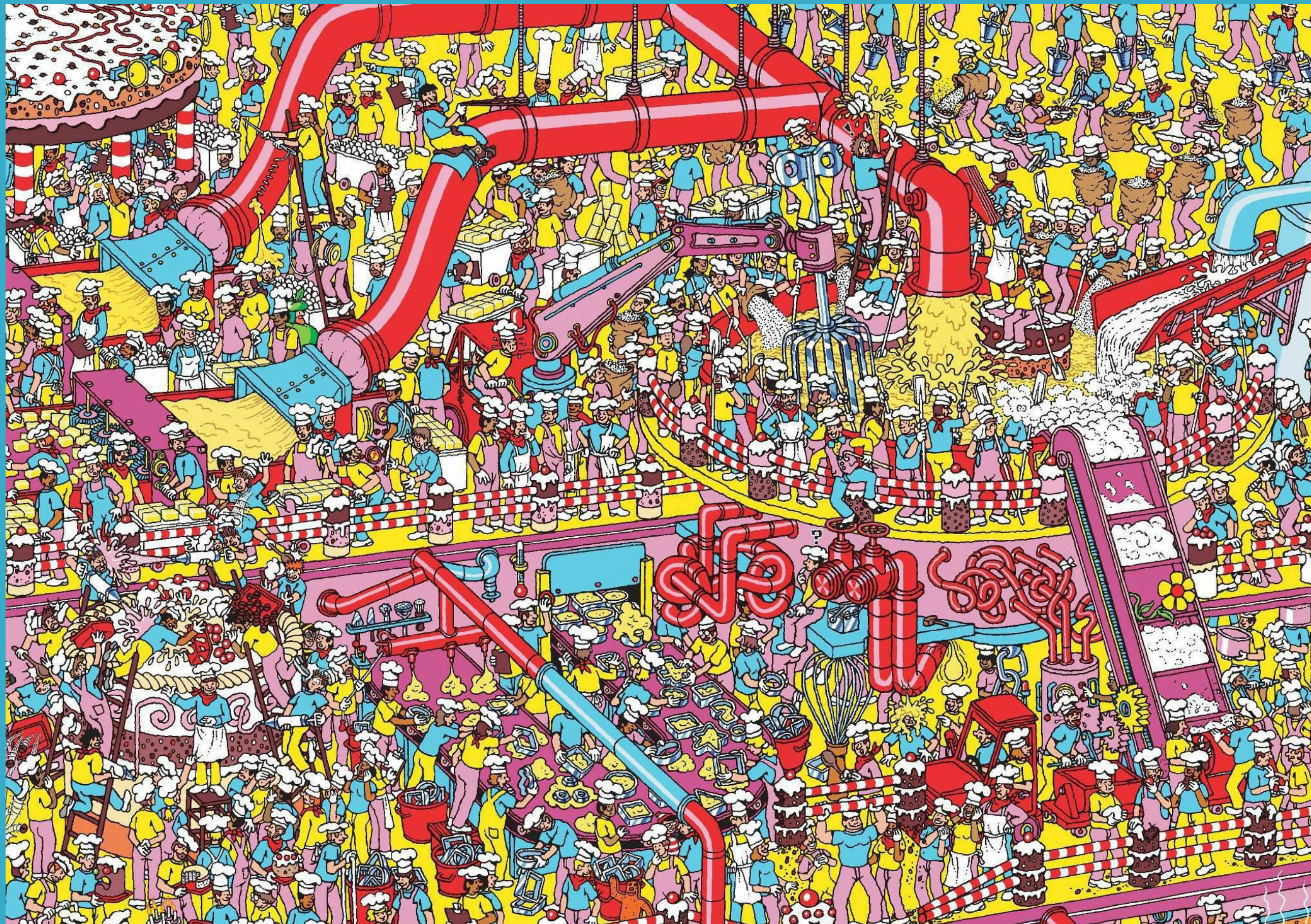
The Premise Of Microservices...



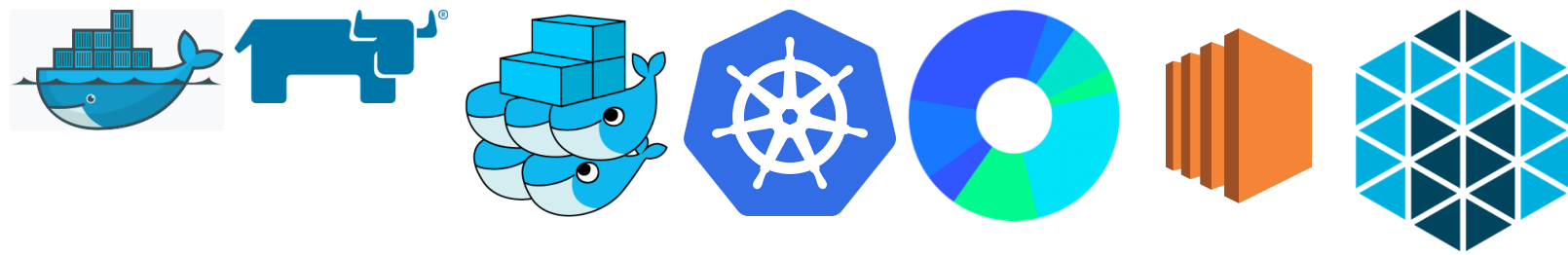
...And What Happens

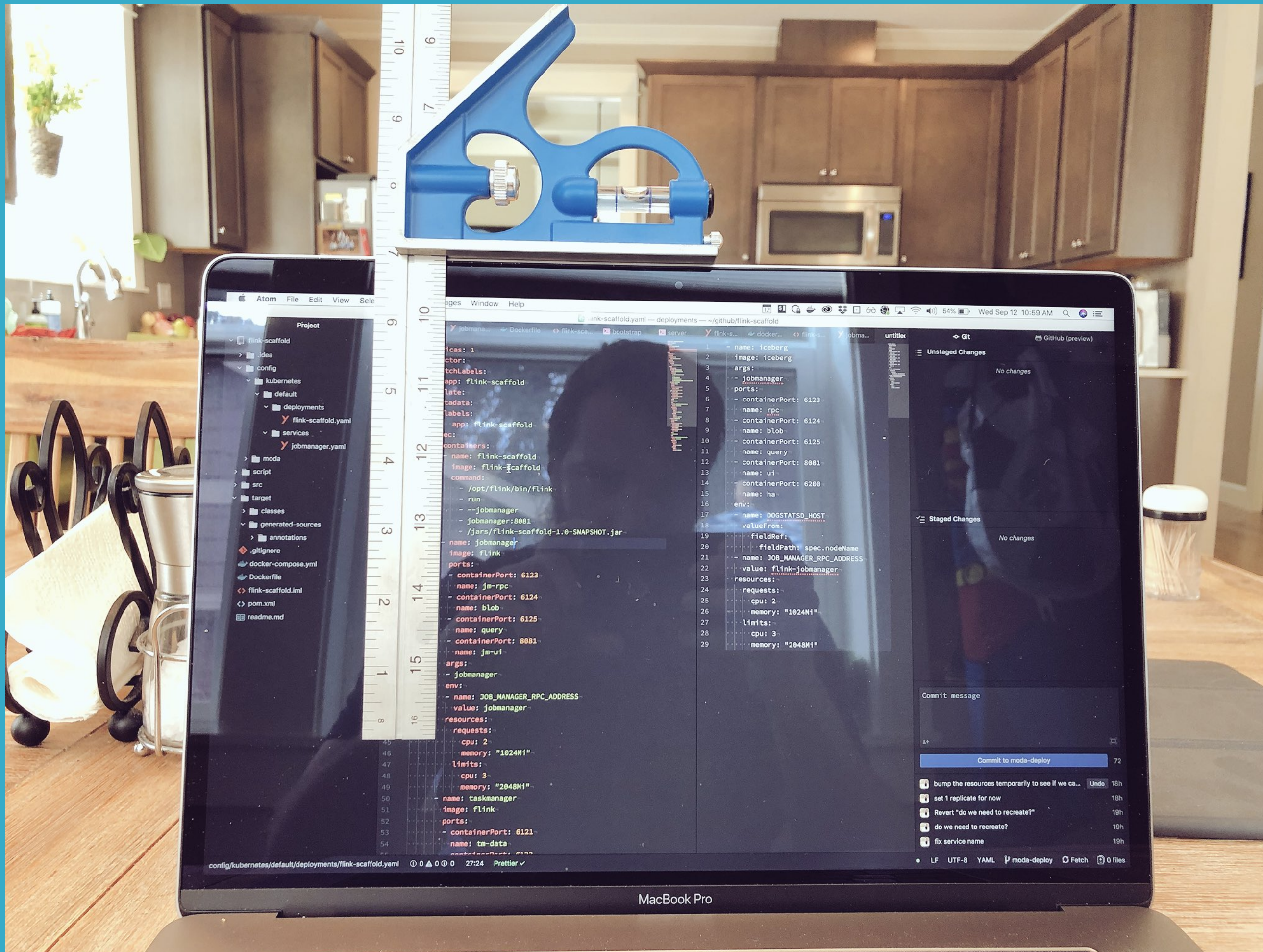


Where Is The Service?



Tools Of The Trade





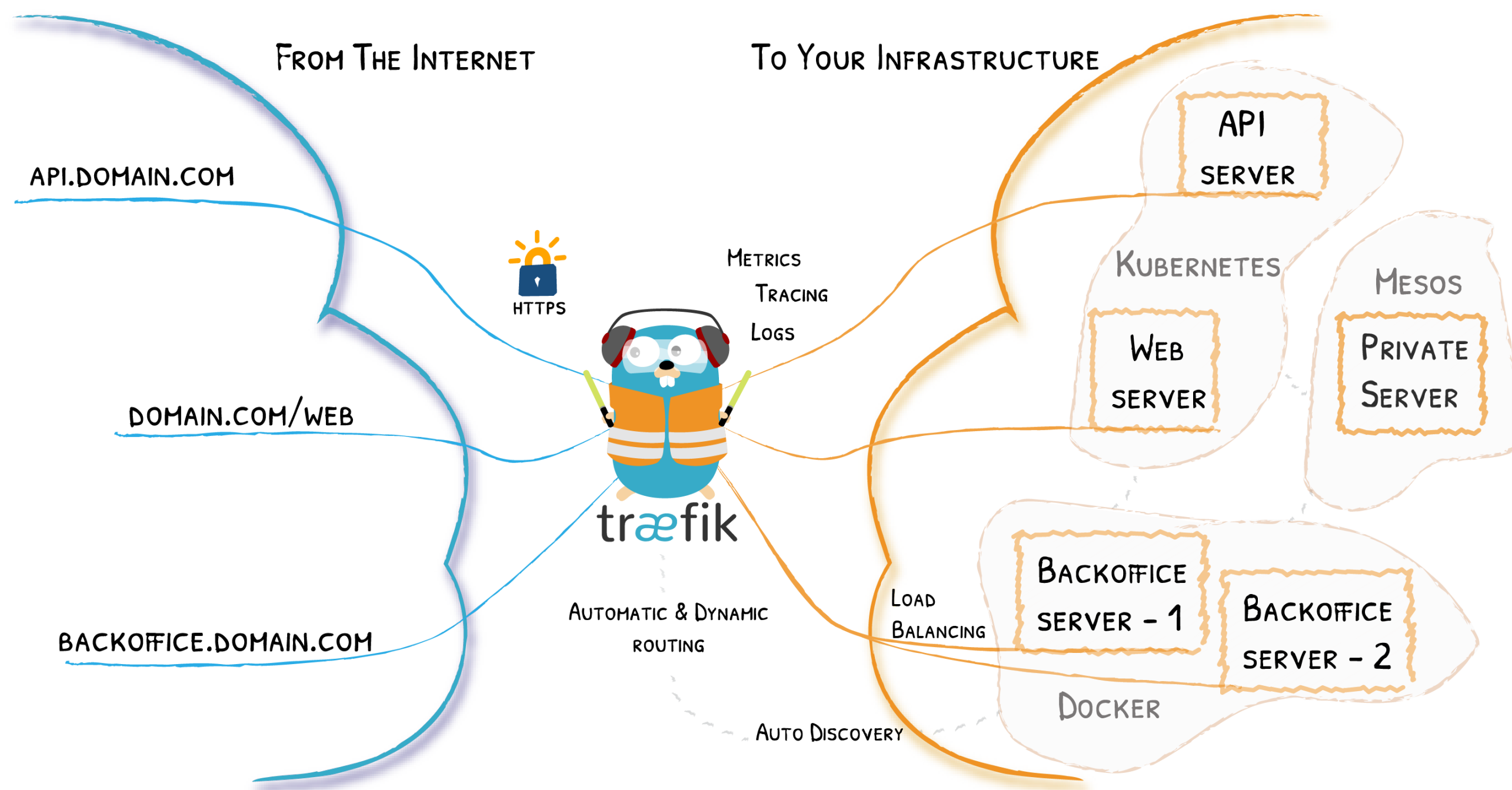
Source: <https://twitter.com/Caged/status/1039937162769096704>

What If I Told You?



That You Don't Have to Write This Configuration File...?

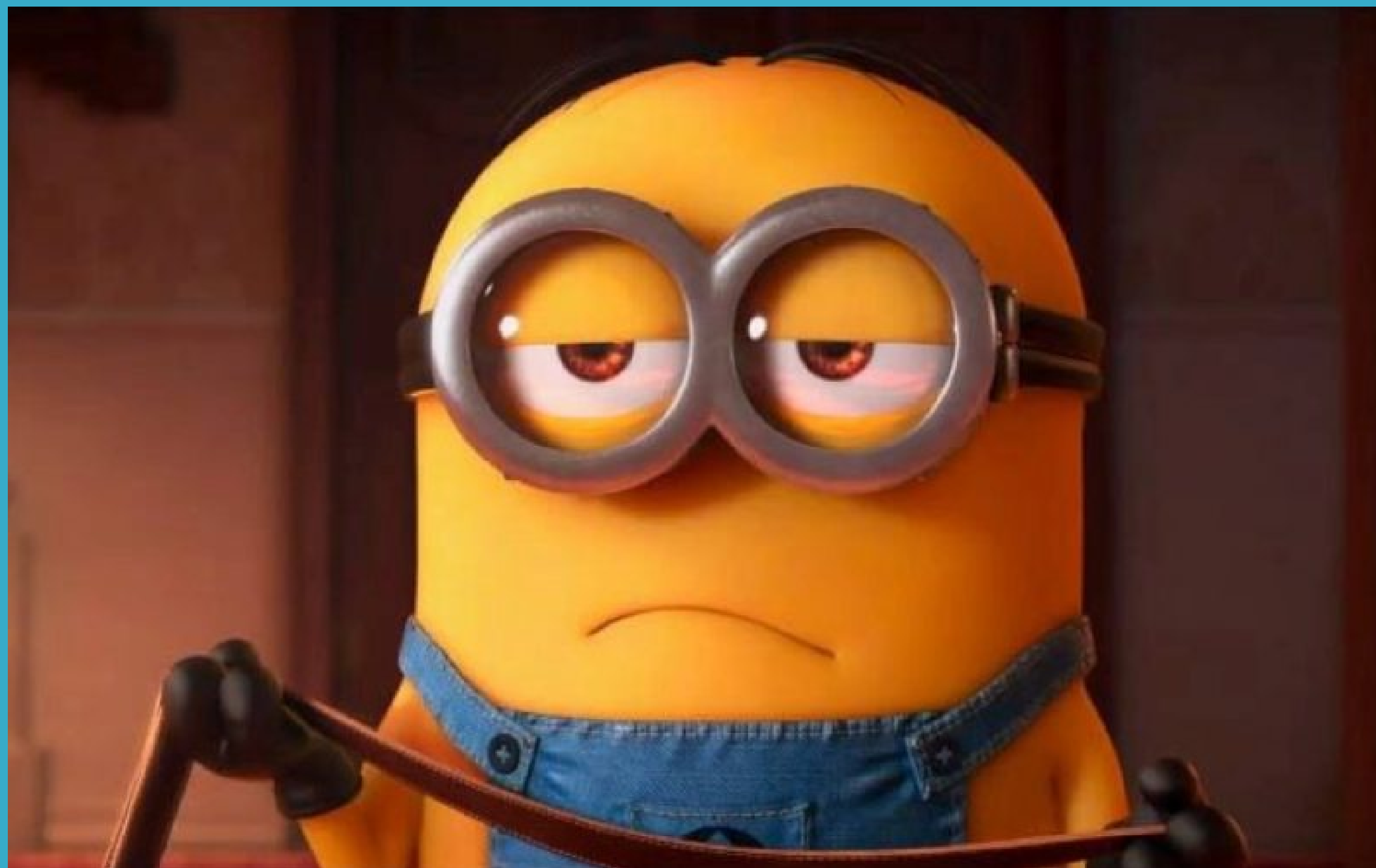
Here Comes Traefik!



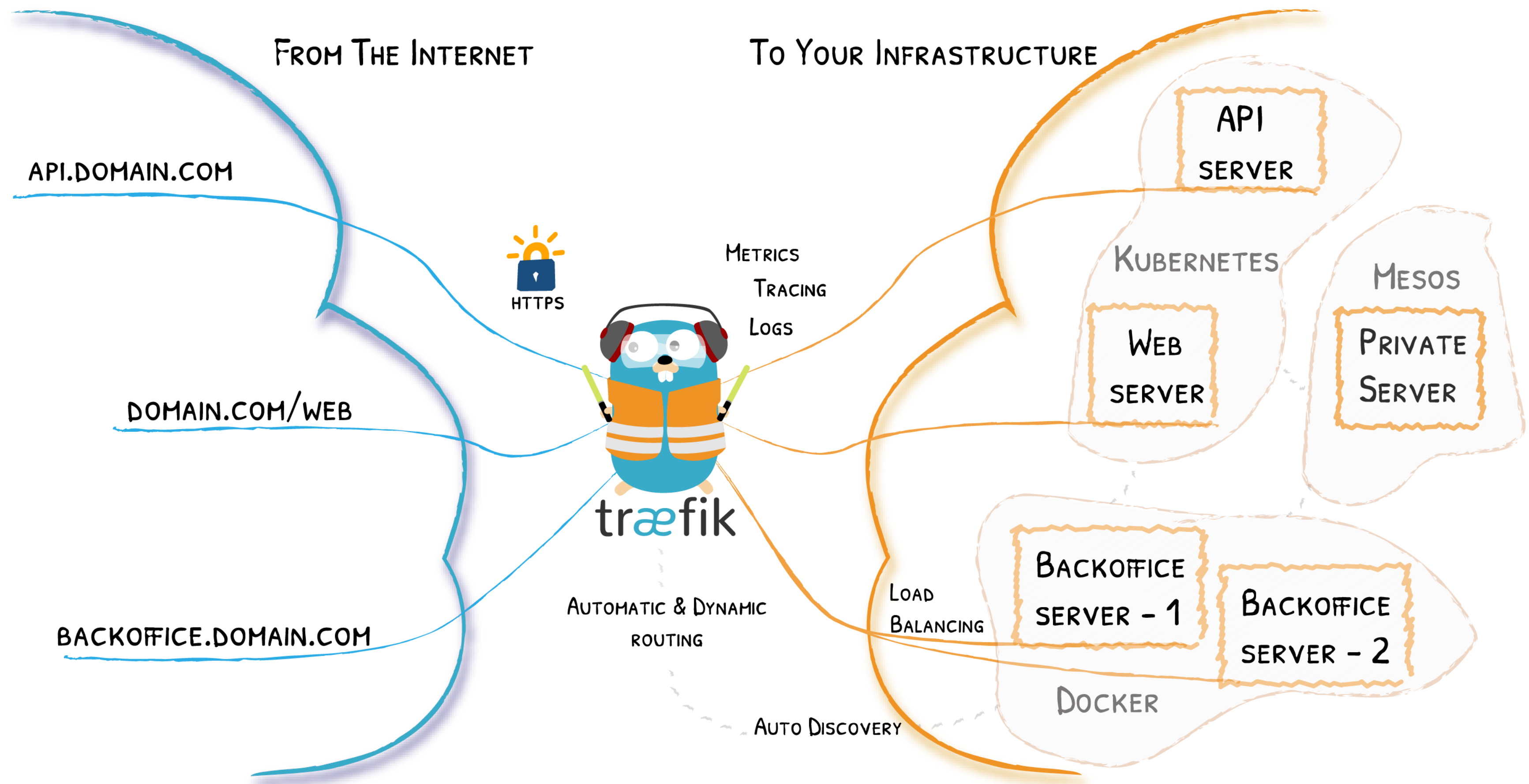
Traefik Project

-  <https://github.com/containous/traefik>
- MIT License
- Written in Go, a popular language
- 22,000+ 
- 700M+ 
- 350+ 

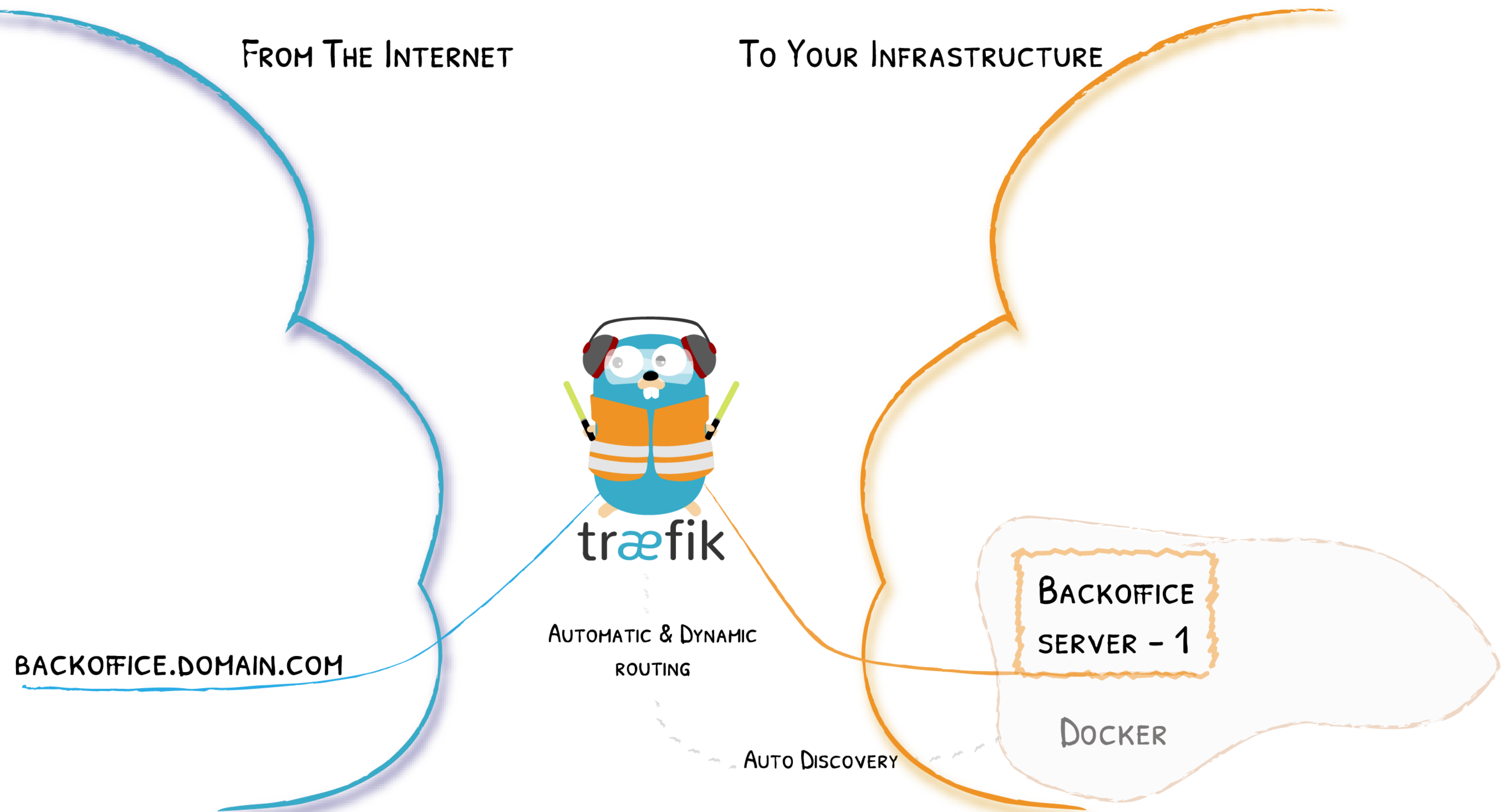
Traefik Core Concepts



Remember The Diagram?



Let's Simplify



Providers



trafik

Entrypoints

INCOMING REQUESTS



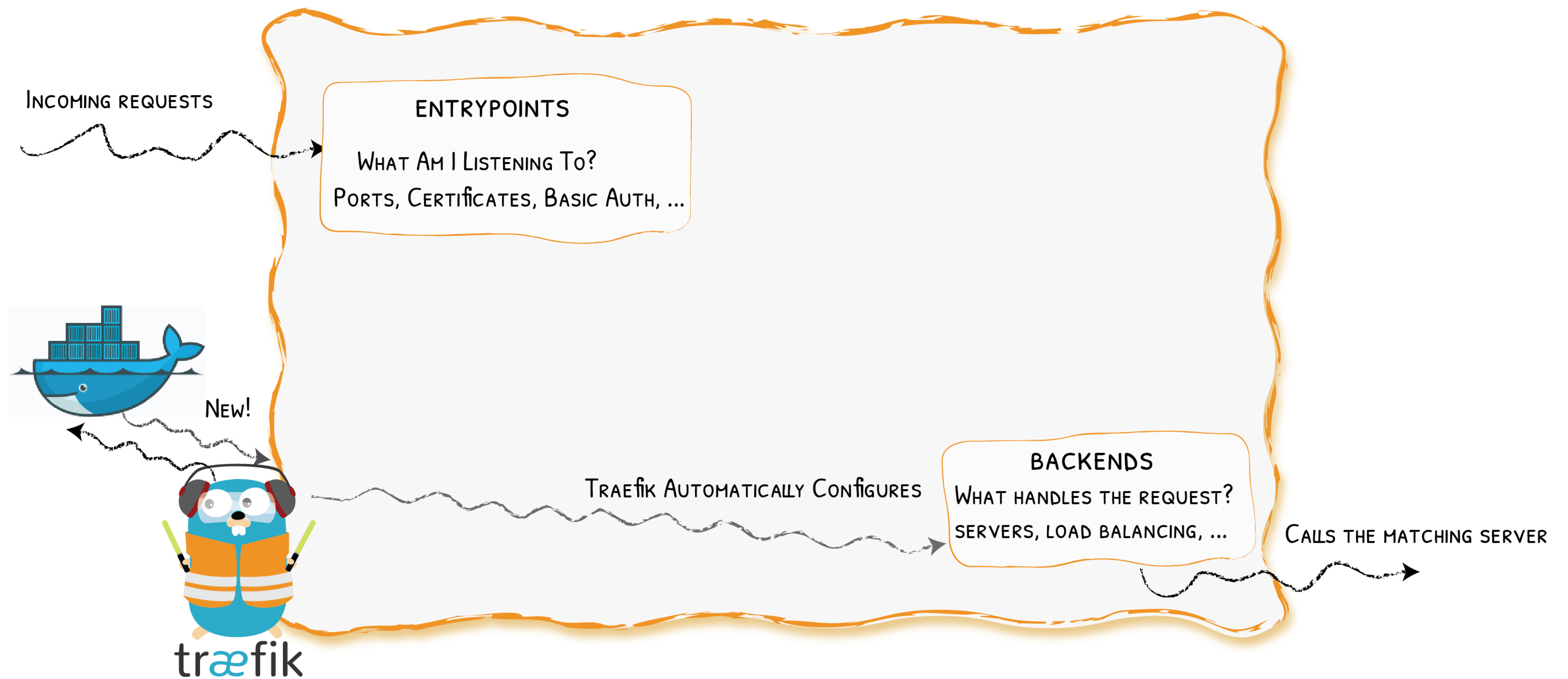
ENTRYPPOINTS

WHAT AM I LISTENING TO?
PORTS, CERTIFICATES, BASIC AUTH, ...

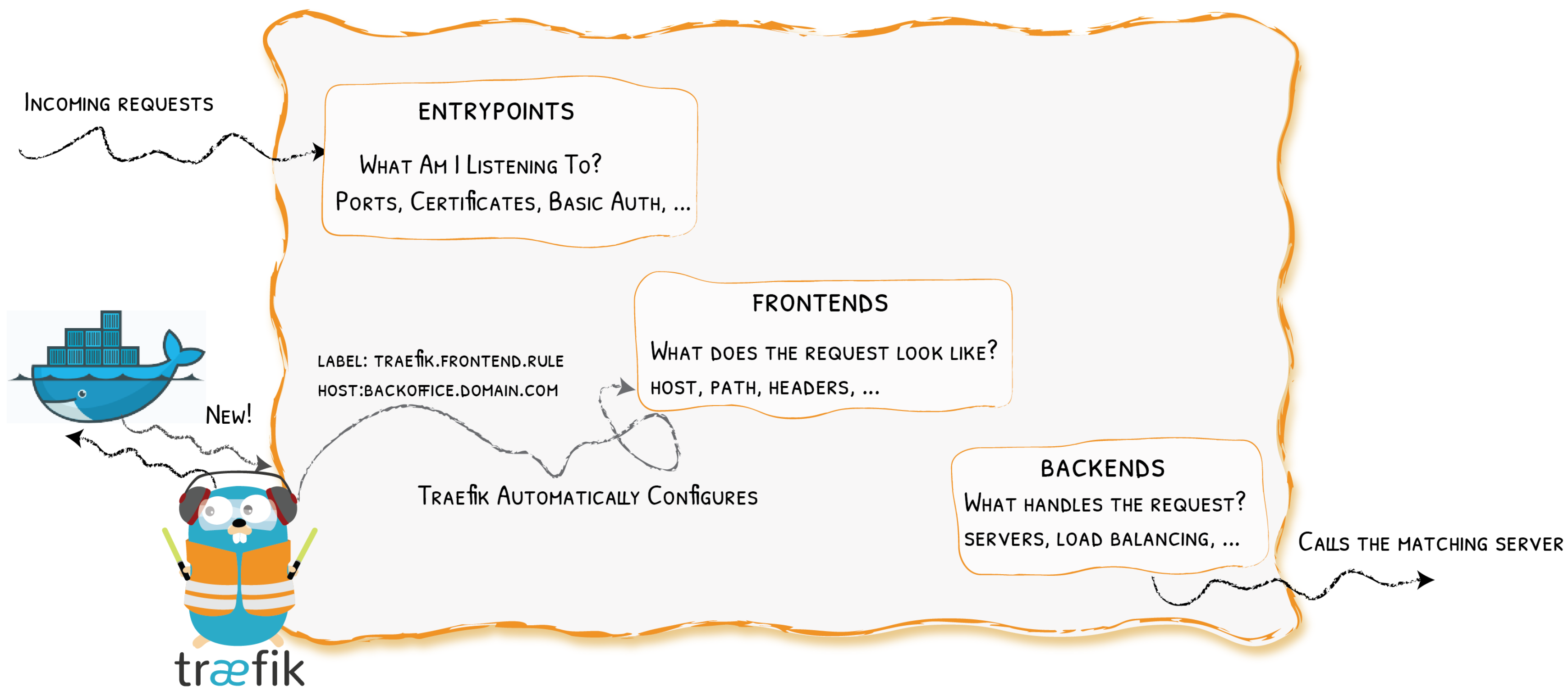


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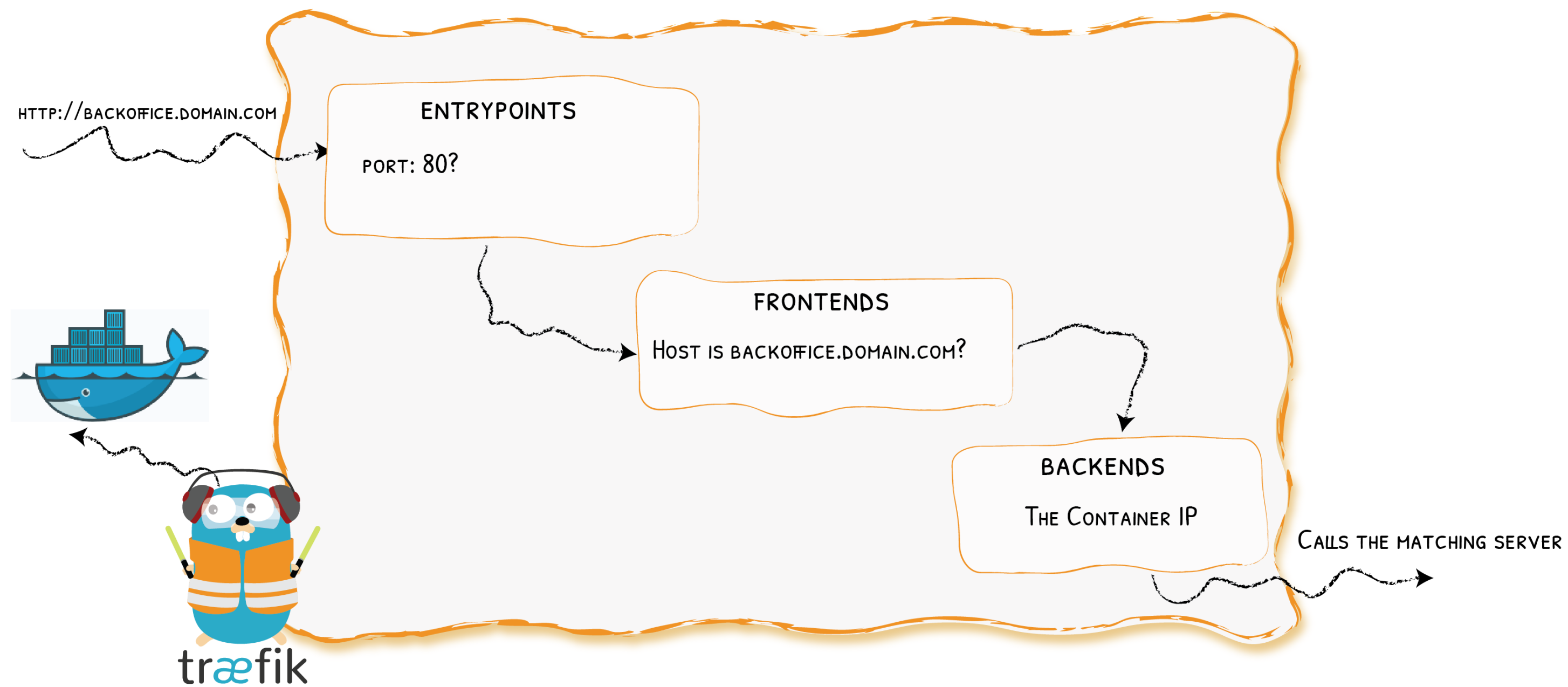
Backends



Frontends



In Practice



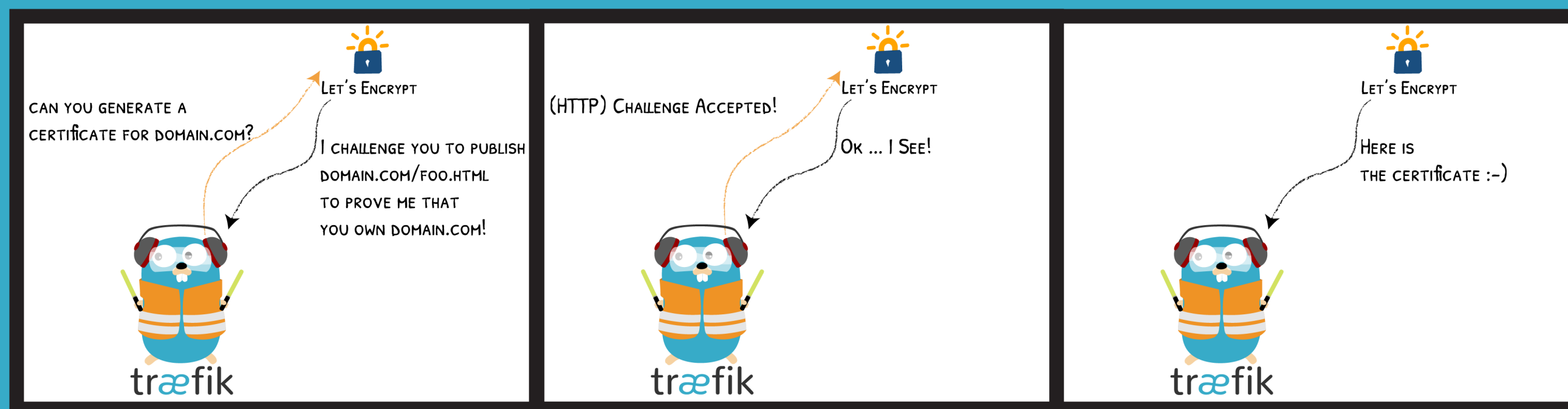
Show Me The Configuration!

Keep It Simple

- With 🐳:

```
entrypoint:
  image: traefik:v1.7
  command:
    - "--docker"
    - "--docker.domain=mycompany.org"
    - "--acme.email=ssl-admin@mycompany.org"
    - "--acme.httpChallenge.entryPoint=http"
    # Or you could use a TOML file with "--configFile=/etc/traefik/traefik.toml"
volumes:
  - /var/run/docker.sock:/var/run/docker.sock
```

HTTPS For Everyone With Let's Encrypt



- TLS, DNS and HTTP challenges supported

Demo



Traefik With

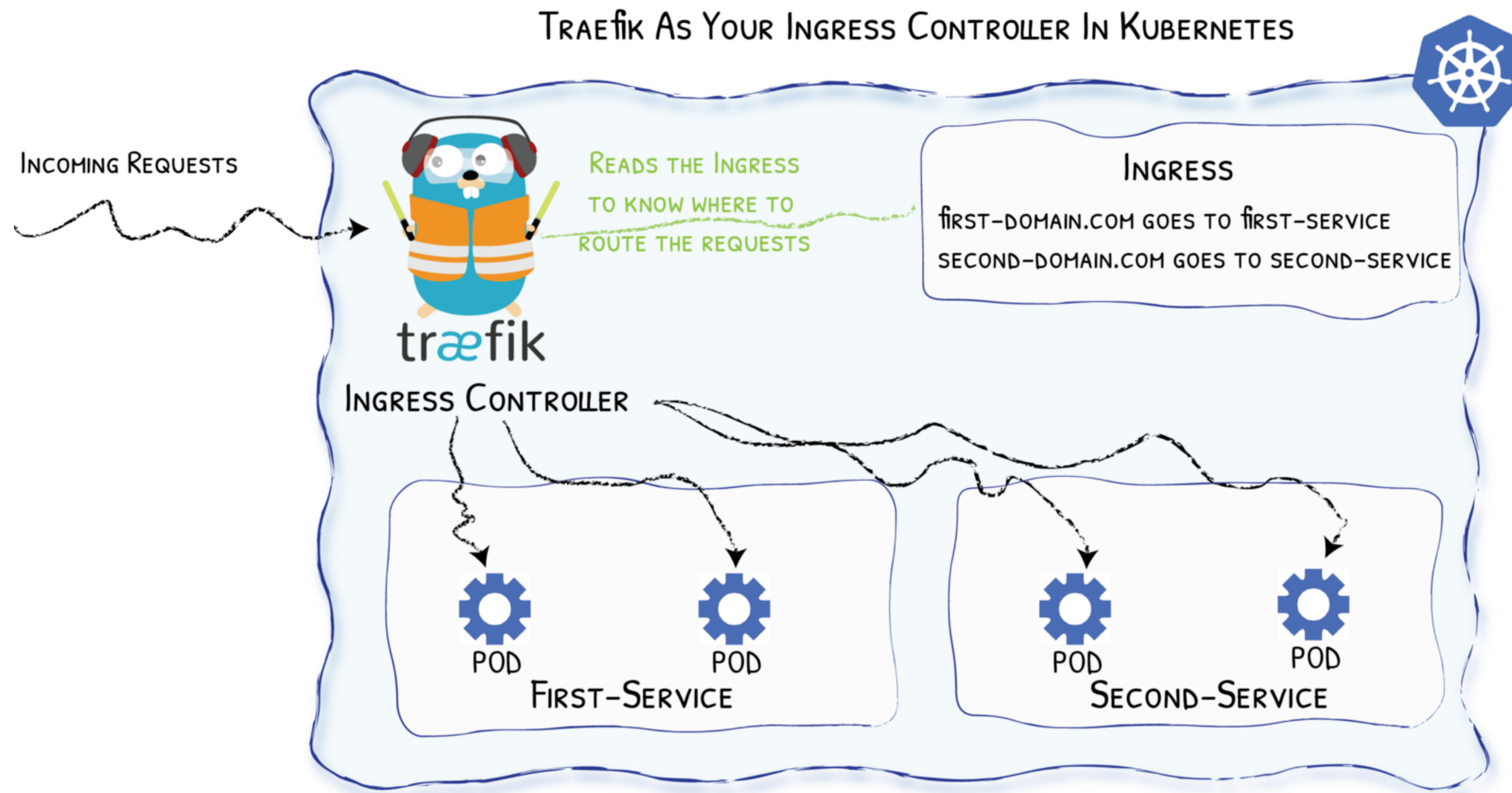


Diagram from <https://medium.com/@geraldcroes>

Did You Say YAML?

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  annotations:
    # kubernetes.io/ingress.class: 'nginx'
    kubernetes.io/ingress.class: 'traefik'
spec:
  rules:
  - host: mycompany.org
    http:
      paths:
      - path: "/whoami"
        backend:
          serviceName: whoami
          servicePort: 80
```

We Missed Talking About...

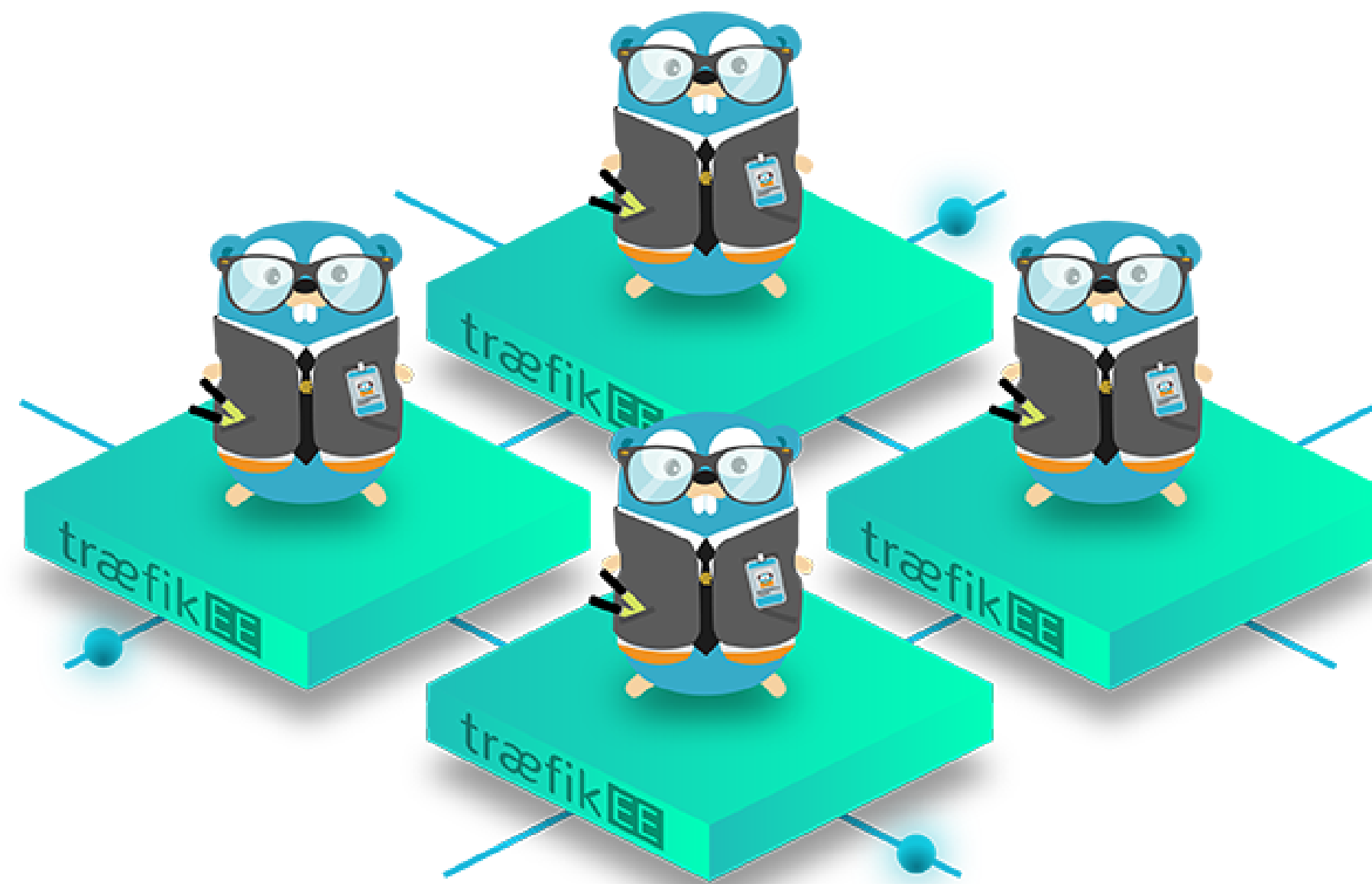


The Herd



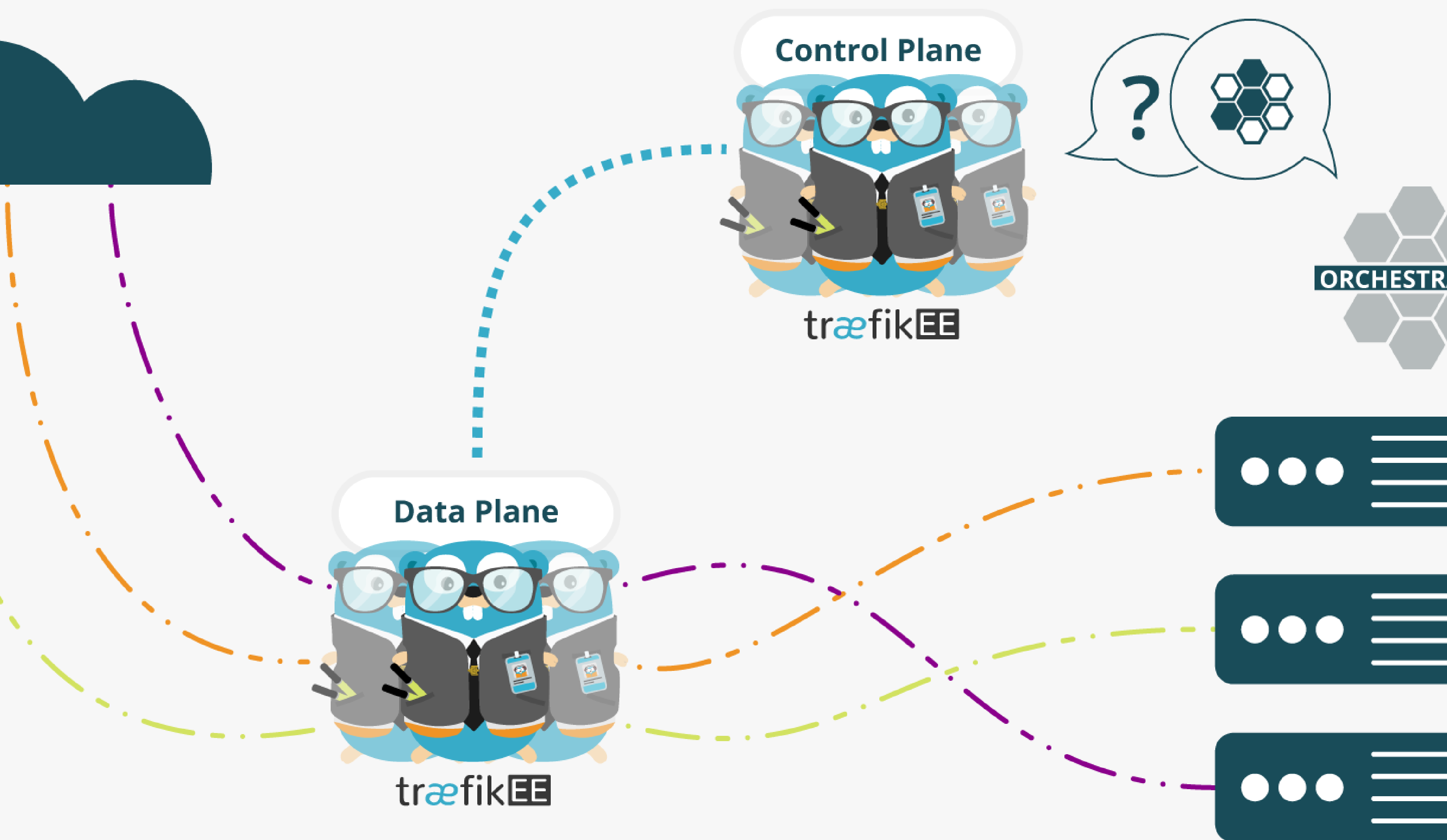
You came to the wrong neighbour

Traefik Comes In Herd



INTERNET

TO YOUR INFRA



HIGH AVAILABILITY

træfik ENTERPRISE EDITION

SECURITY

traefik ENTERPRISE EDITION

SCALABILITY

træfik ENTERPRISE EDITION

As Simple As Traefik

- Install it:

```
# Cluster Installation
traefikeectl install \
  --licensekey="SuperSecretLicence" \
  --dashboard \
  --kubernetes # Or --swarm
```

- Configure it:

```
# Routing Configuration, same as Traefik's
traefikeectl deploy \
  --acme.email=ssl-admin@mycompany.org
  --acme.tlsChallenge
  ...
```

Free Trial

<https://containo.us/traefikee>

BACK *TO TRAEFIK* 2.0

 PART



Revamped Documentation

Traefik

Search or enter website name

Search

GitHub
21k Stars · 2.1k Forks

Traefik

Welcome

Getting Started ▾

Configuration Discovery ▾

Routing & Load Balancing ▾

HTTPS & TLS ▾

Middlewares ▾

Operations ▾

Observability ▾

Contributing ▾

Glossary

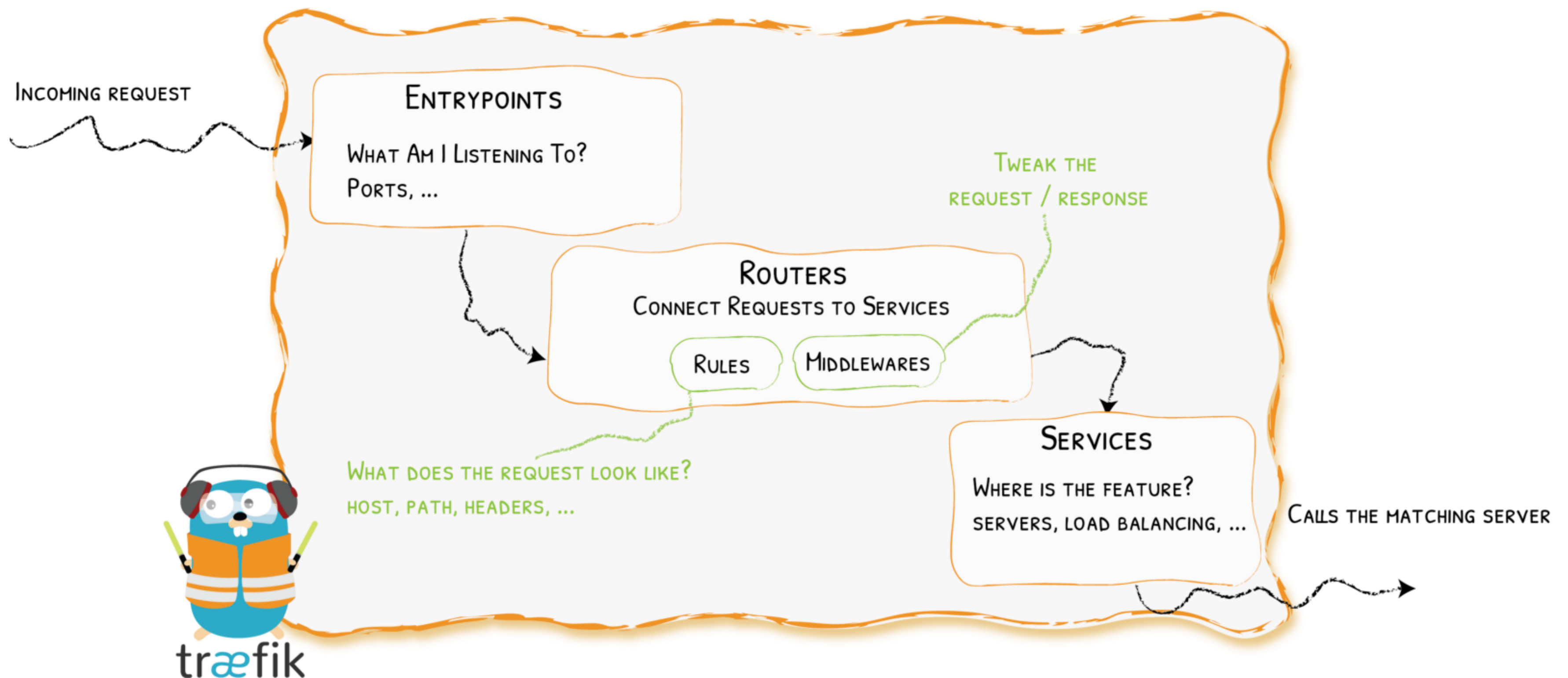
Welcome

The diagram illustrates Traefik's role as an Edge Router. On the left, 'FROM THE INTERNET' shows three domains: `API.DOMAIN.COM`, `DOMAIN.COM/WEB`, and `BACKOFFICE.DOMAIN.COM`. These domains point to a central Traefik icon (a blue and orange bee) which is labeled 'traefik'. Above the icon is a sun icon with 'HTTPS'. To the right, 'TO YOUR INFRASTRUCTURE' shows various services: 'API SERVER', 'WEB SERVER', 'BACKOFFICE SERVER - 1', and 'BACKOFFICE SERVER - 2'. These services are grouped under 'KUBERNETES', 'MESOS', and 'DOCKER'. Traefik connects to these services via 'LOAD BALANCING'. Below the Traefik icon, it lists 'METRICS', 'TRACING', 'LOGS', 'AUTOMATIC & DYNAMIC ROUTING', and 'AUTO DISCOVERY'.

Traefik is an [open-source Edge Router](#) that makes publishing your services a fun and easy experience. It receives requests on behalf of your system and finds out which components are responsible for handling them.

Clarified Concepts

TRAEFIK ARCHITECTURE AT A GLANCE



Expressive Routing Rule Syntax



```
Host(`api.dom`) || (Host(`dom`) && Path(`/api`))
```

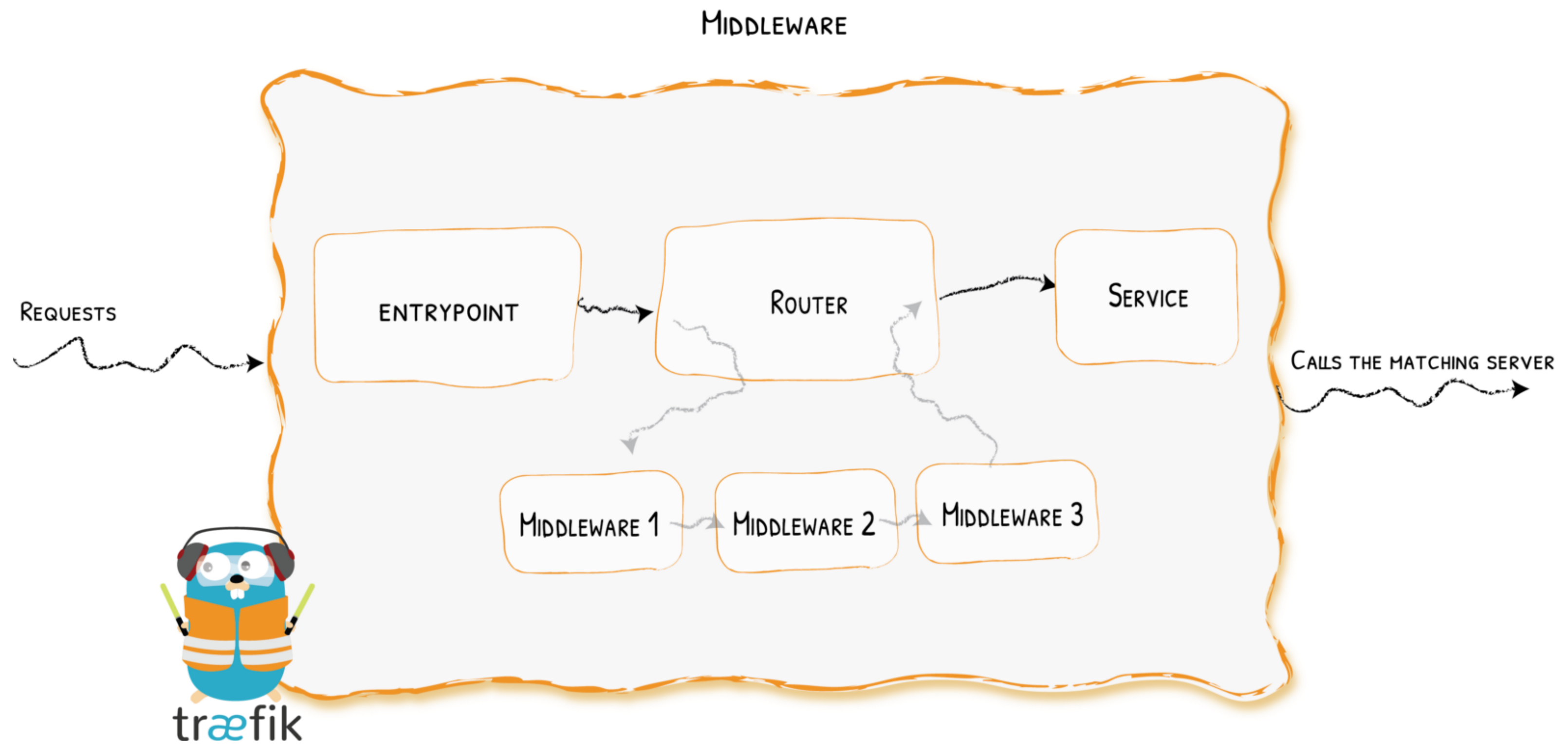
```
# Send both requests to backend service:
```

```
#   https://api.mycompany.com/v2
```

```
#   https://api-v2.mycompany.com
```

```
rule=(Host('api.mycompany.com') && PathPrefix('/v2')) || Host('api-v2.mycompany.com')
```

Middlewares





træfik



HTTP
&
TCP

Quick Glance

```
[entrypoints]
  [entrypoints.web-secure]
    address = ":443"
```

```
[http]
  [http.routers.to-service-1]
    rule = "Host(`demo.containous.cloud`)"
    service = "service-1"
    [http.routers.to-service-1.tls] # terminates the tls connection at HTTP
```

```
[tcp]
  [tcp.routers.to-service-2]
    rule = "HostSNI(`demo.containous.cloud`)"
    service = "service-2"
    [tcp.routers.to-service-2.tls] # terminates the tls connection at TCP
```

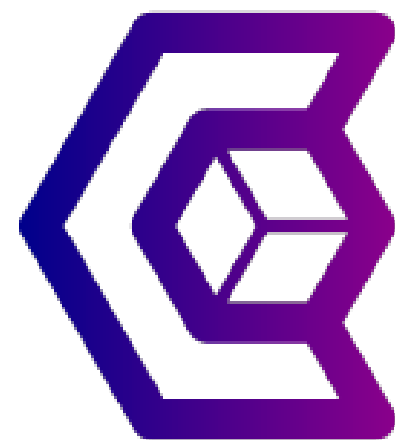
```
[tcp.routers.to-service-3]
  rule = "HostSNI(`demo.containous.cloud`)"
  service = "service-3"
  [tcp.routers.to-service-3.tls]
    passthrough = true # sends encrypted data "as is" to service-3
```

And So Much More...

- Learn more on the [blog post](#)
- Call for contribution: Grab it, Try it, and give us your feedback!



We Are Hiring!

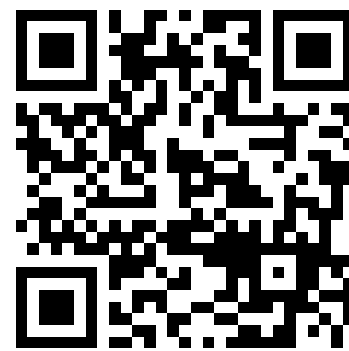


```
docker run -it containous/jobs
```

Thank You!

🐦 @michaeltatur

🐙 mmatur



- Slides (HTML): <https://containous.github.io/slides/riga-devdays-2019>
- Slides (PDF): <https://containous.github.io/slides/riga-devdays-2019/slides.pdf>
- Source on 🐙: <https://github.com/containous/slides/tree/riga-devdays-2019>