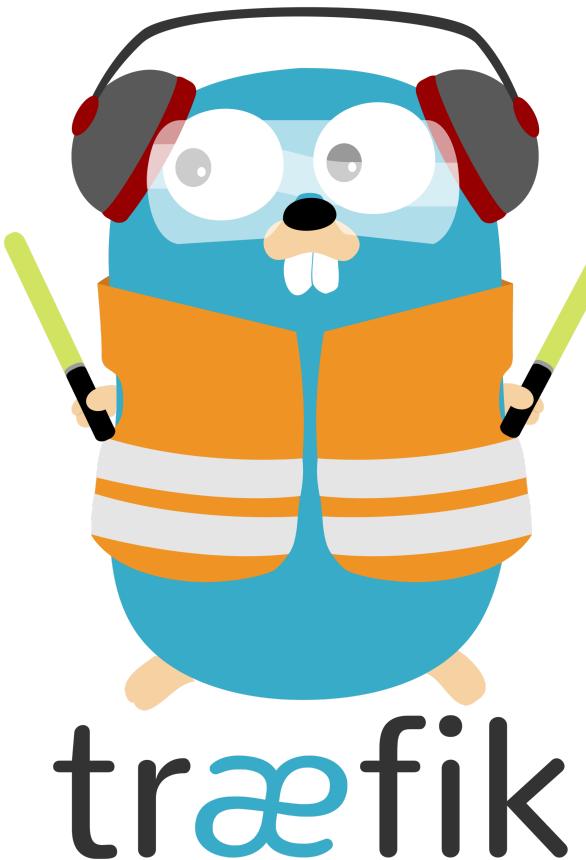


# Edge Routing And HTTPS For Everyone

## Traefik In Action!



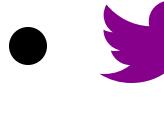
<https://containous.github.io/slides/riga-devdays-2019>

# 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

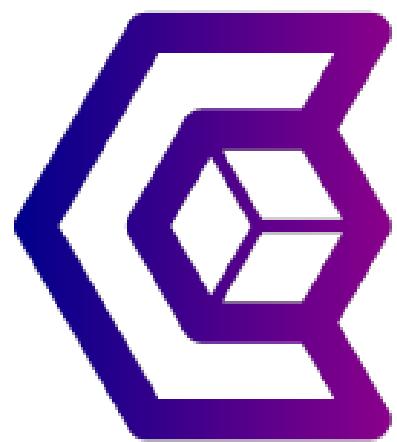
- Devops & Developer @ [Containous](#)
- Blacksmith on [Traefik](#)
-  [@michaelmatur](#)
-  [mmatur](#)



# Containous

<https://containo.us>

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

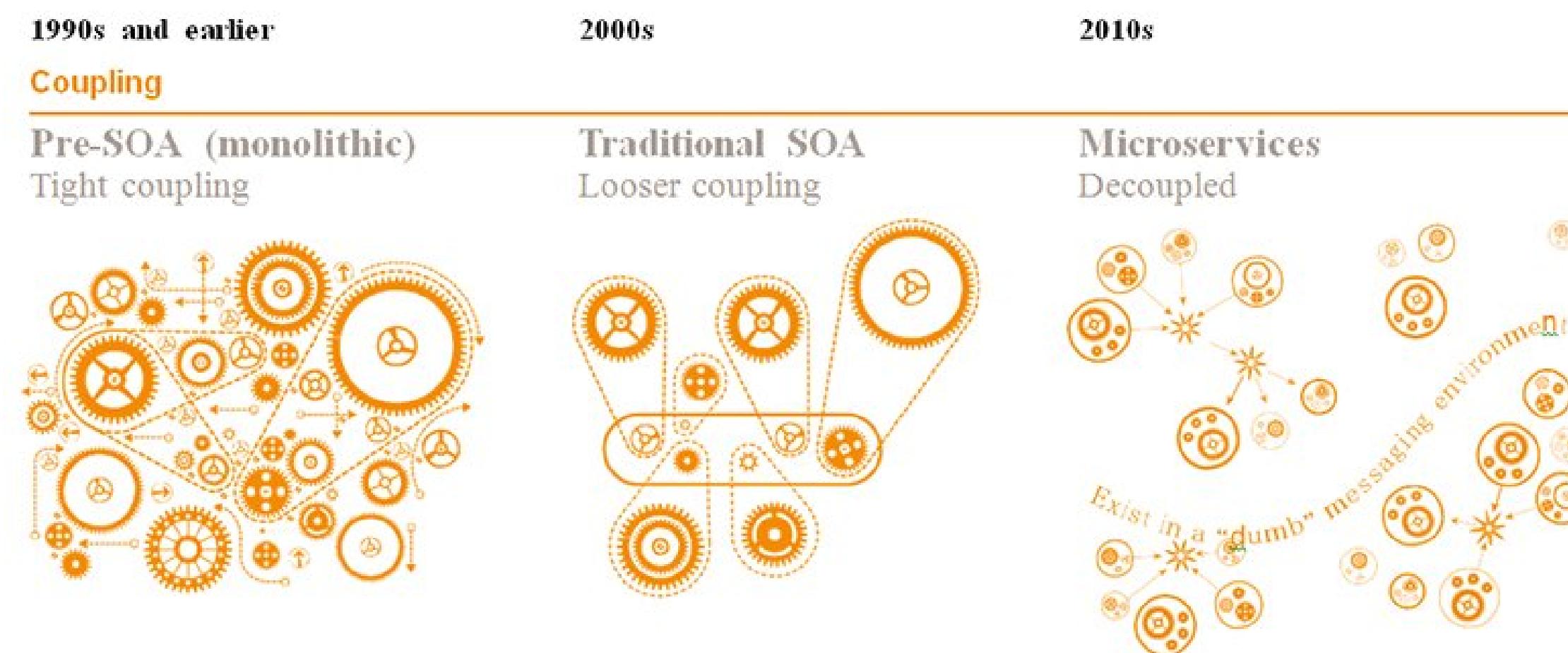


# Why Traefik?



Why, Mr Anderson?

# Evolution Of Software Design



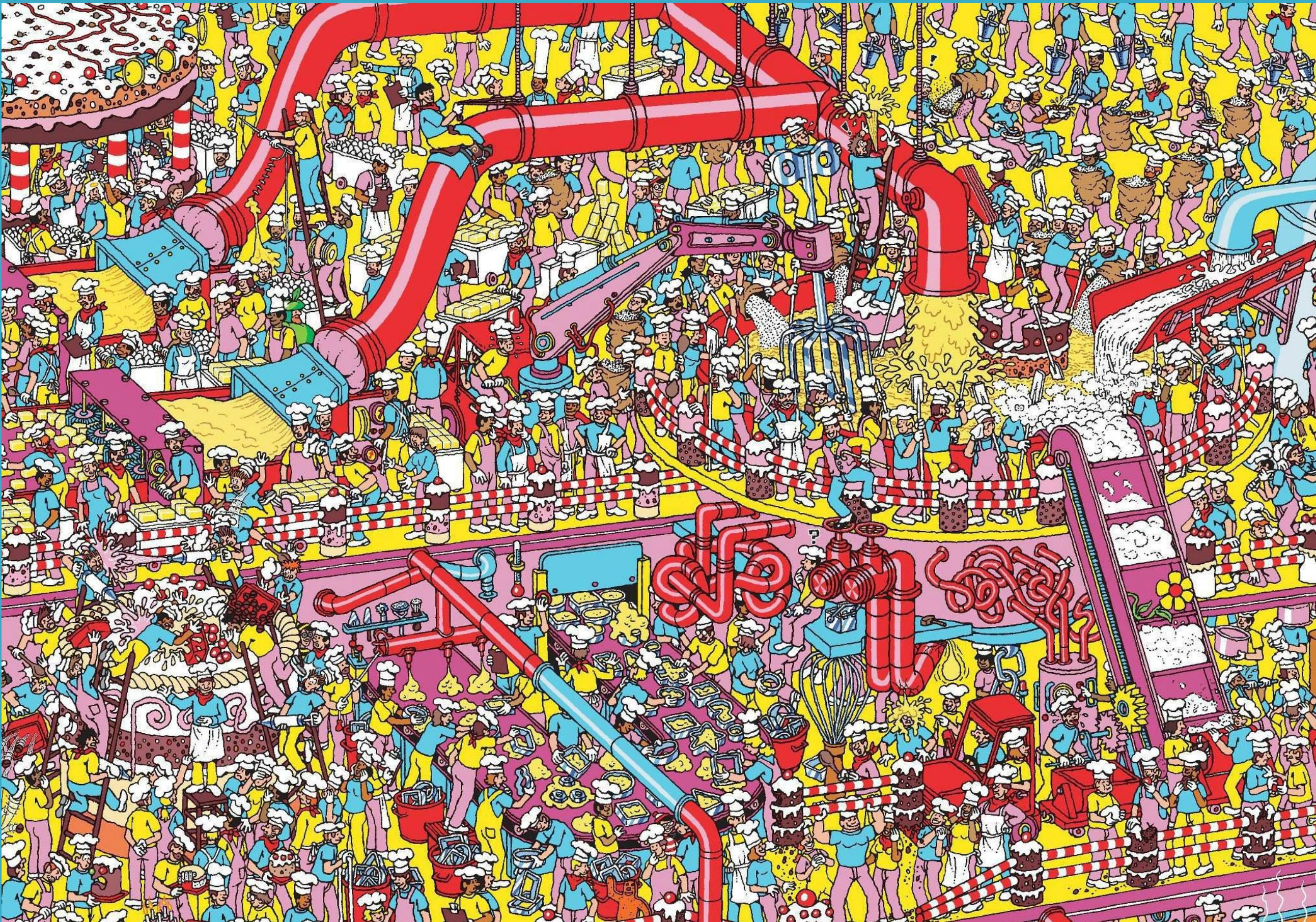
# The Premise Of Microservices...



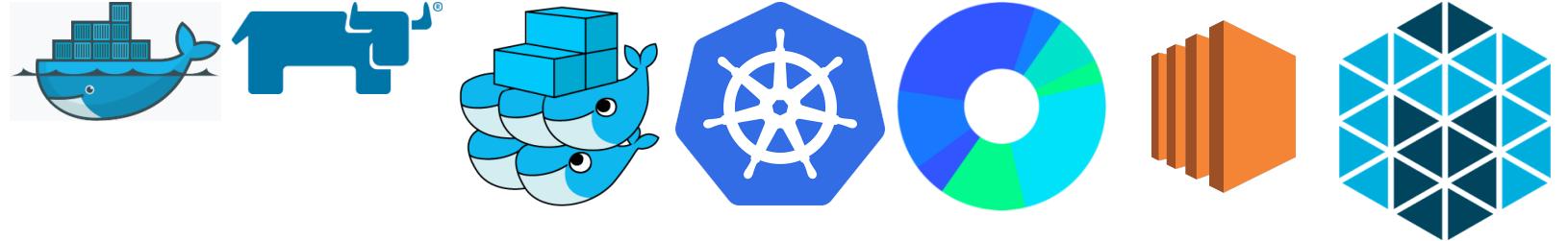
*...And What Happens*

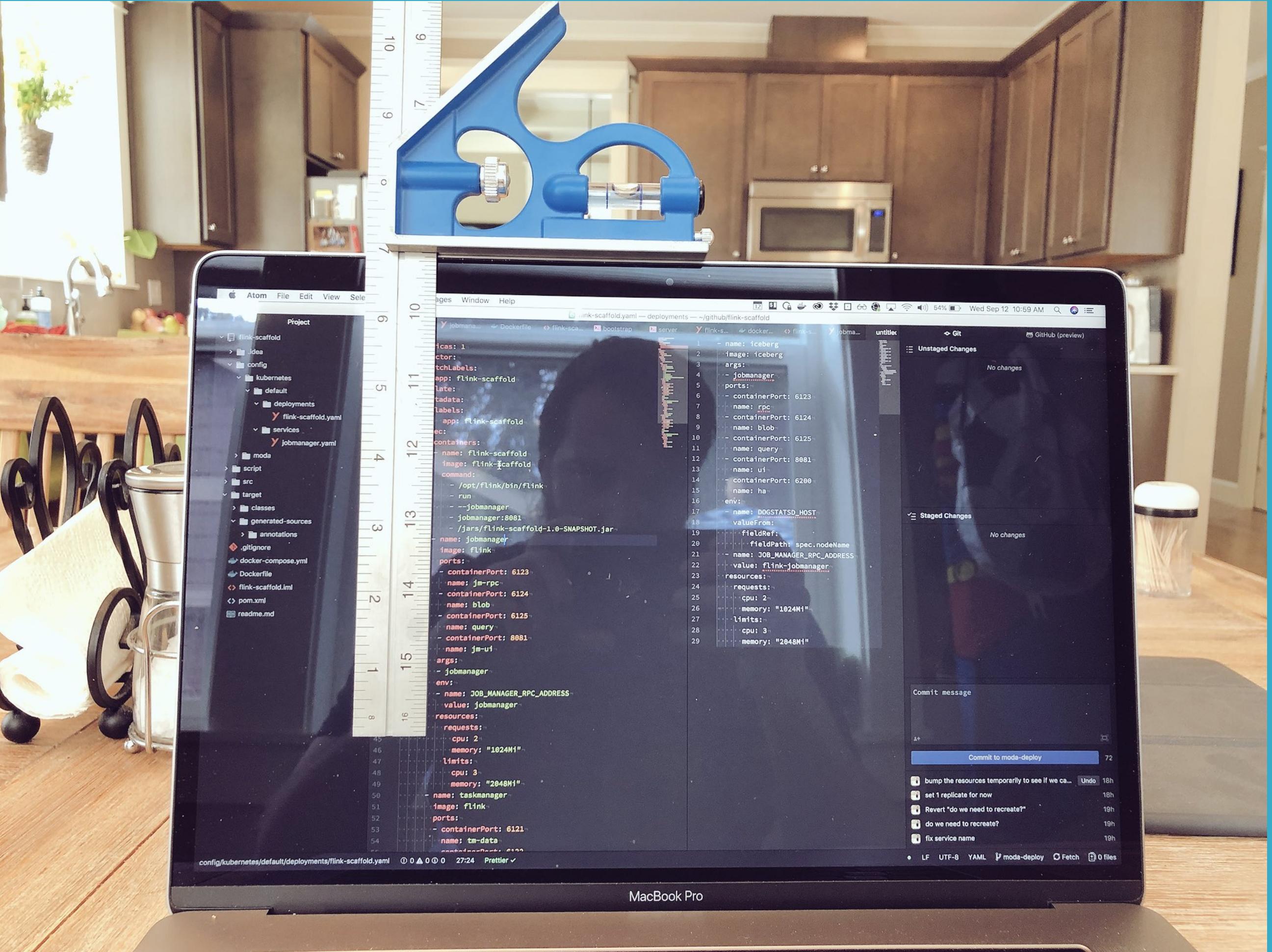


# Where Is The Service?



# 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...?

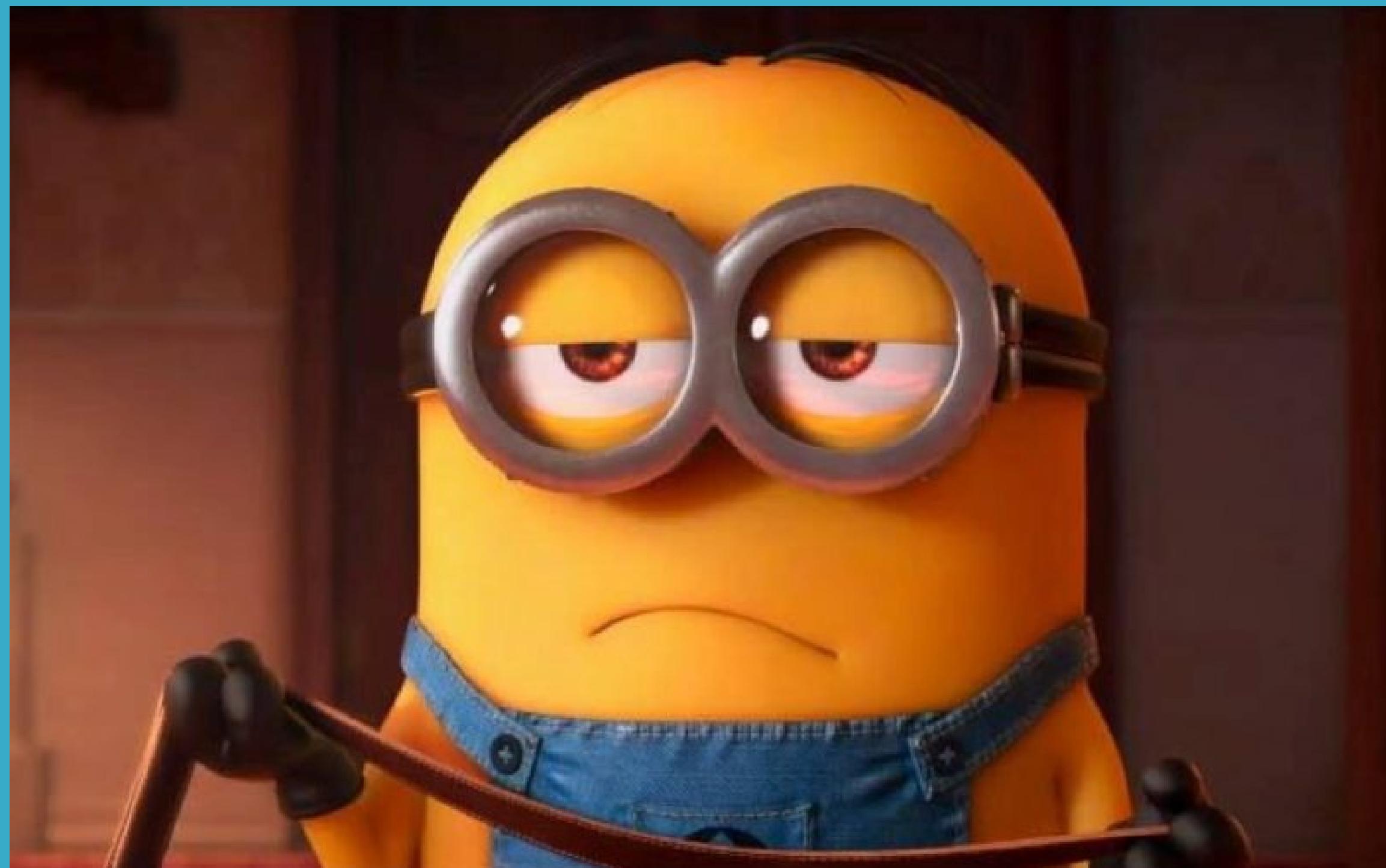
# Here Comes Traefik!



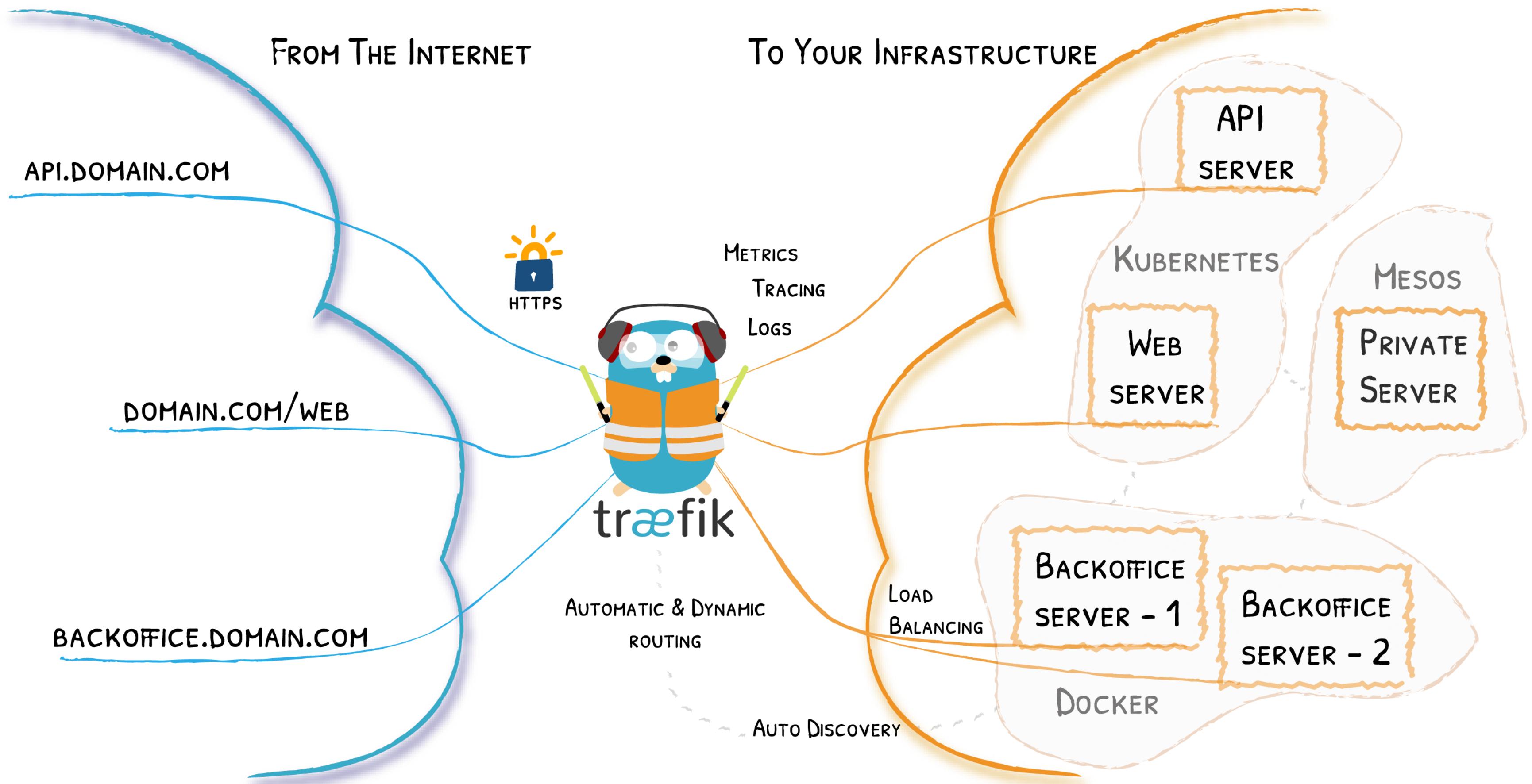
# Traefik Project

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

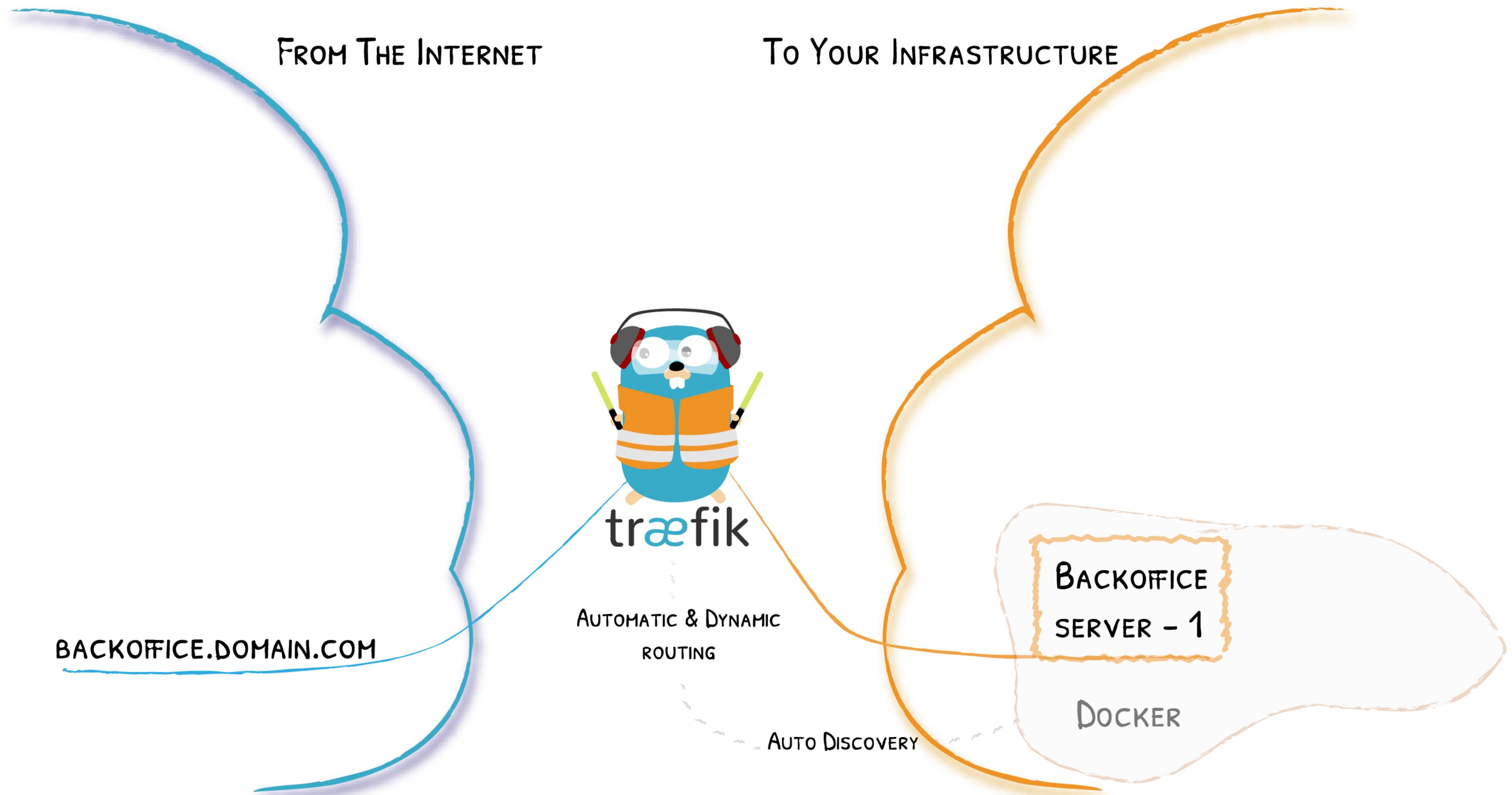
# Traefik Core Concepts



# Remember The Diagram?



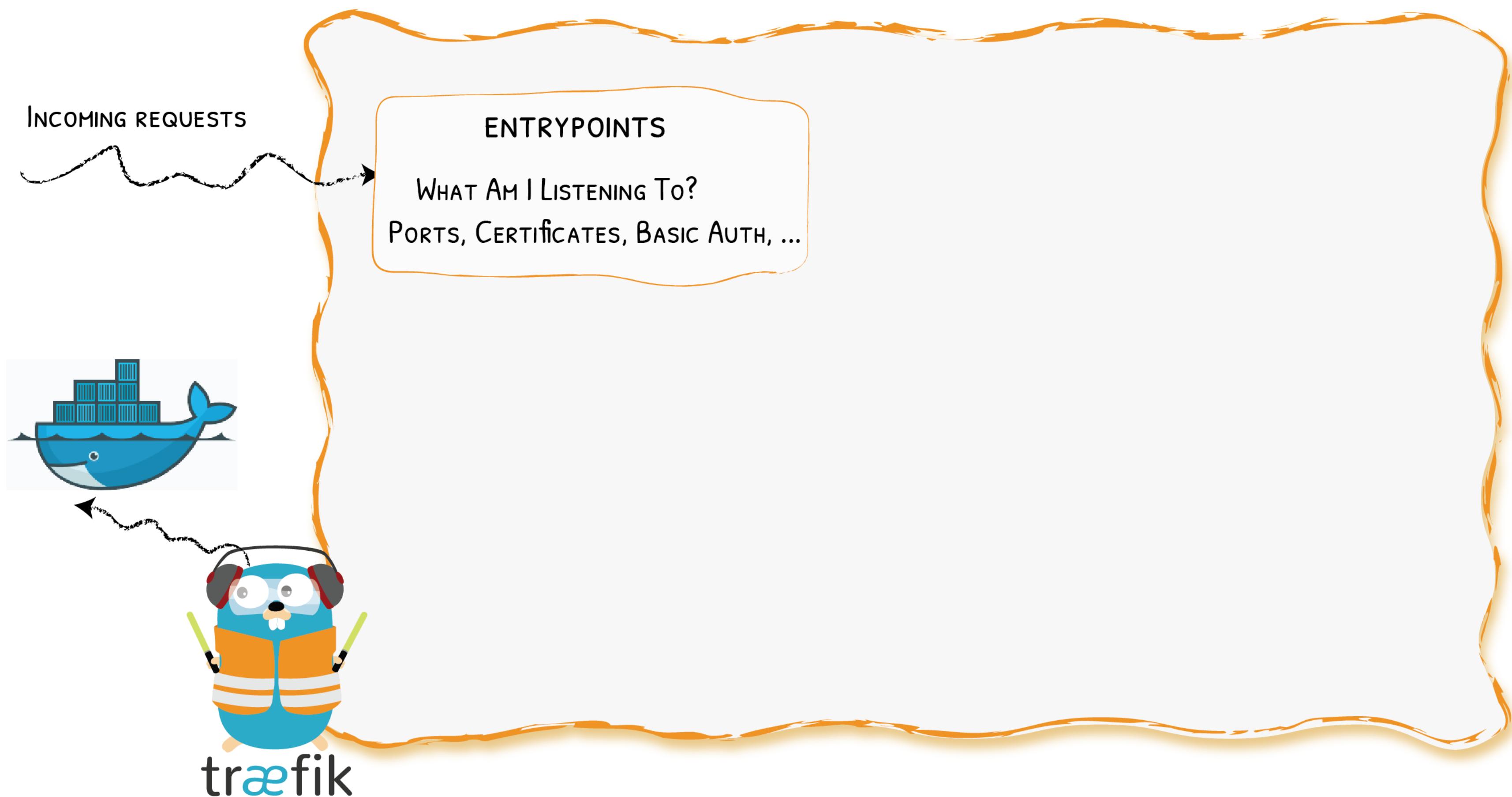
# Let's Simplify



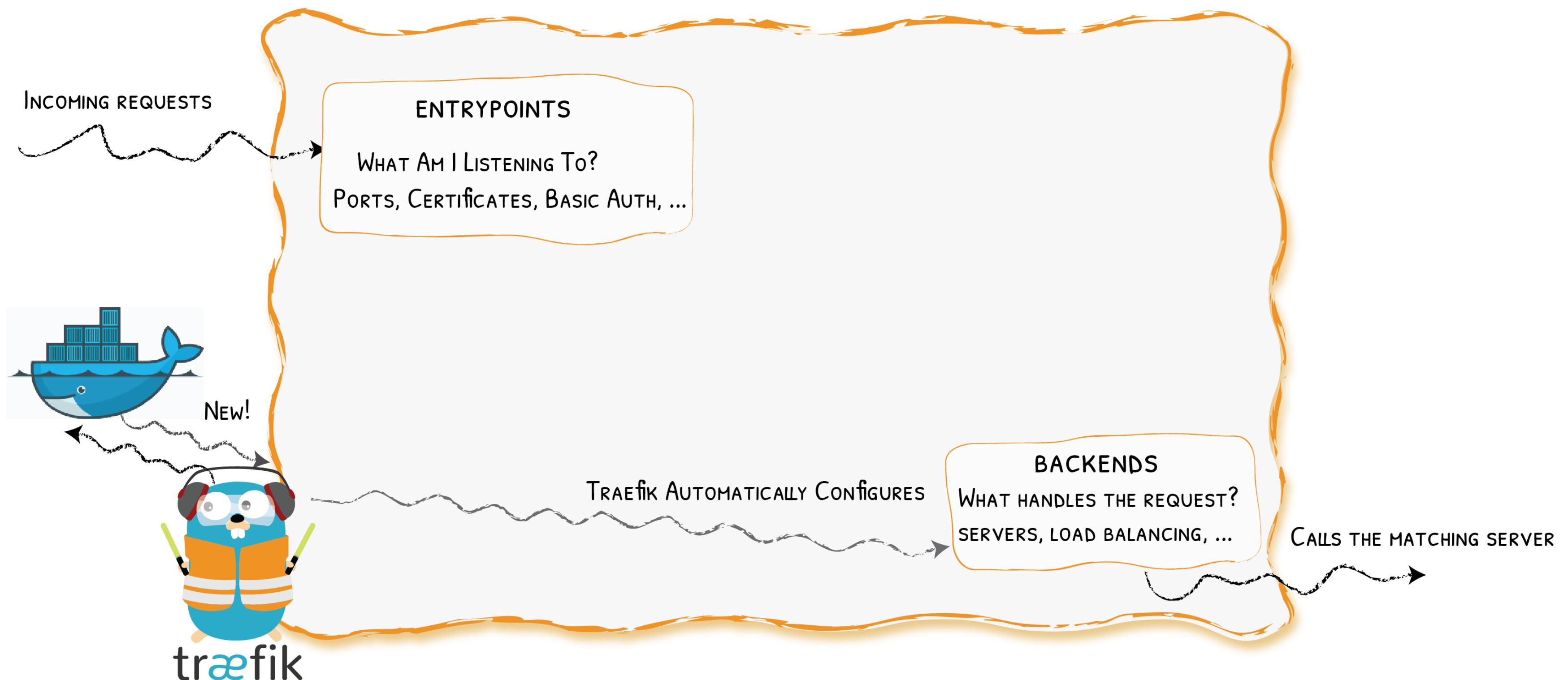
# Providers



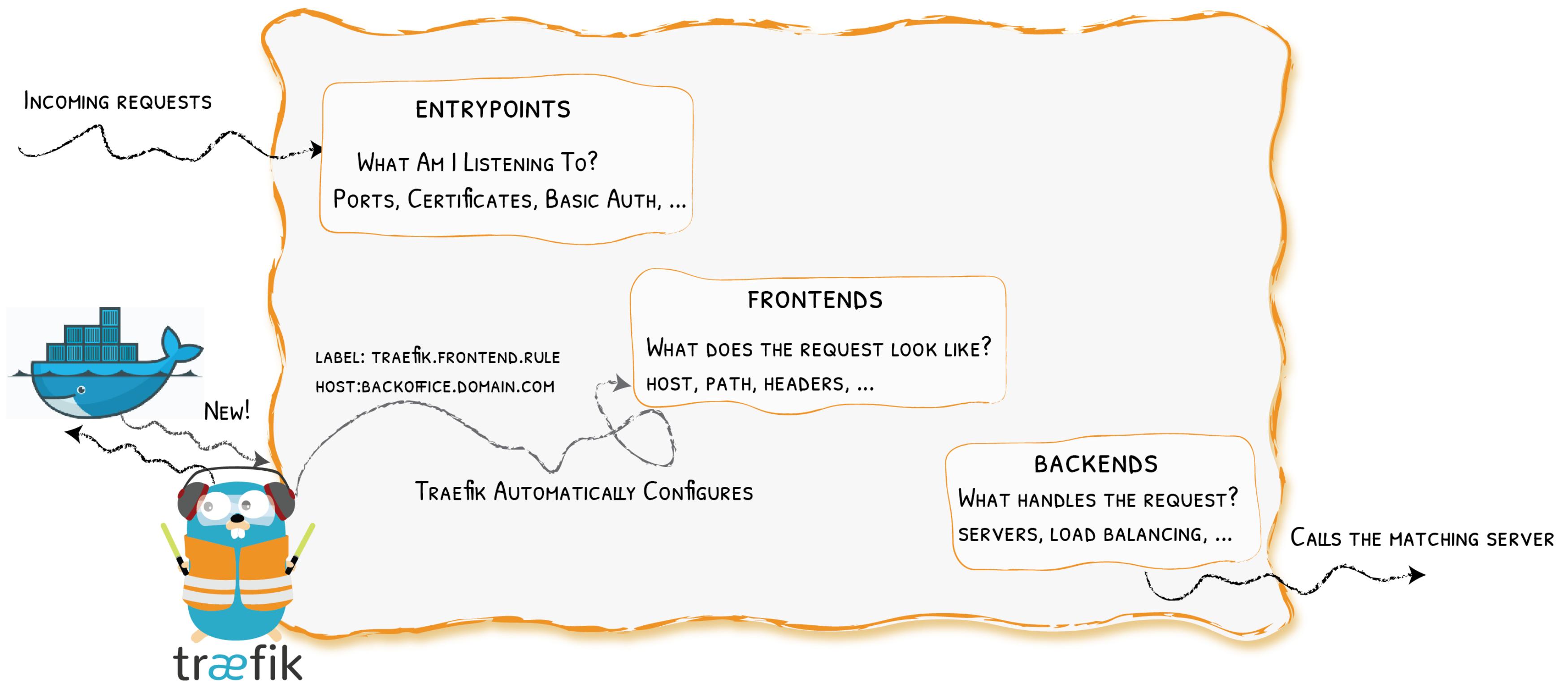
# Entrypoints



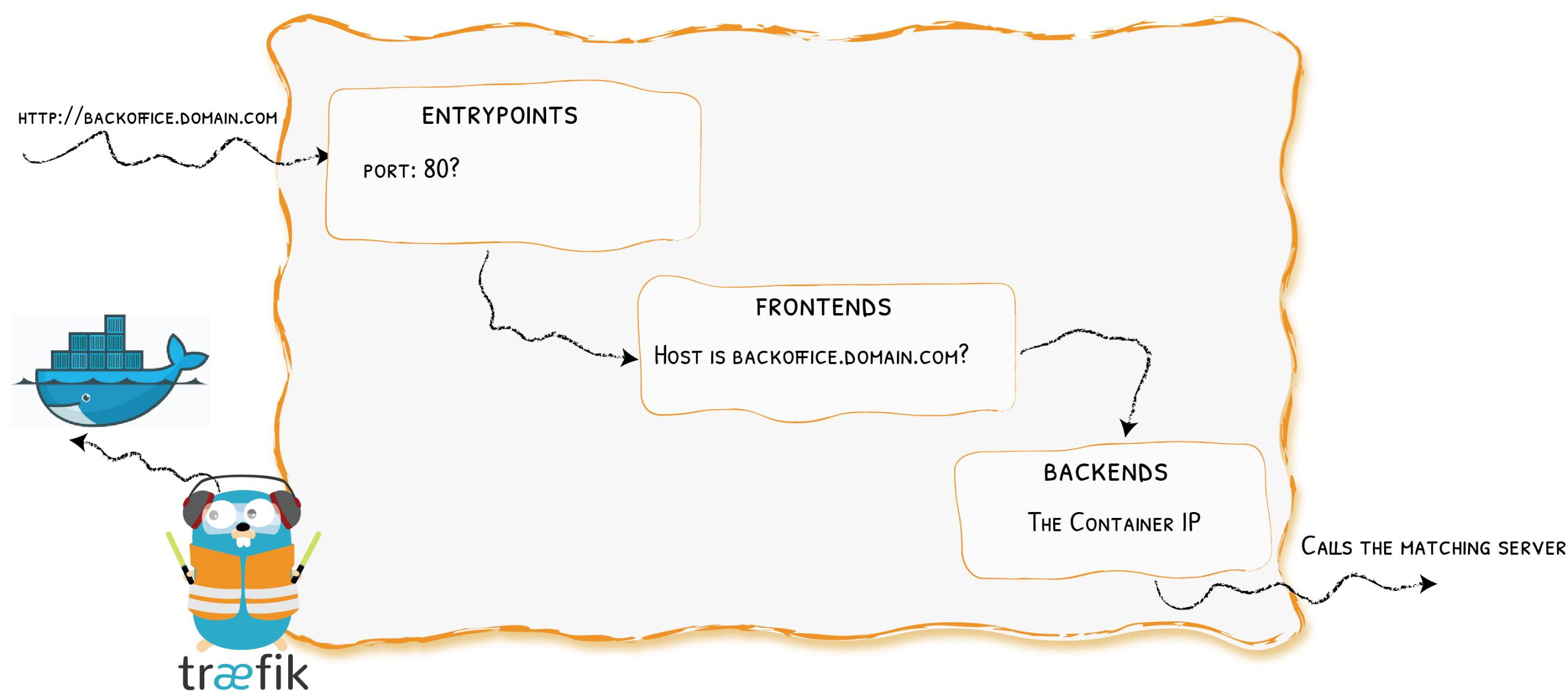
# Backends



# Frontends



# In Practice



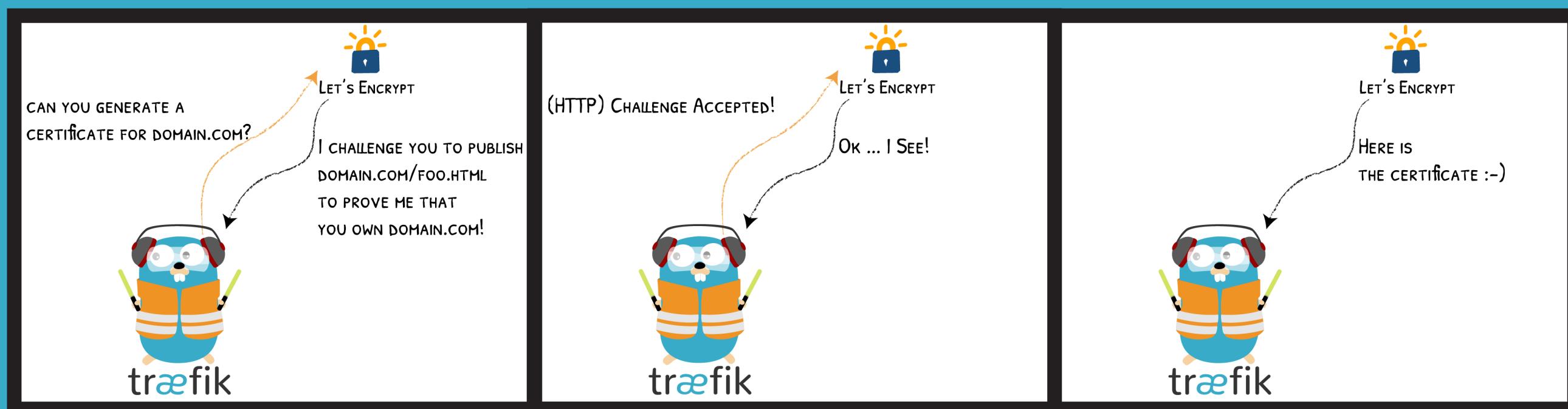
Show Me The Configuration!

# 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 ⚓

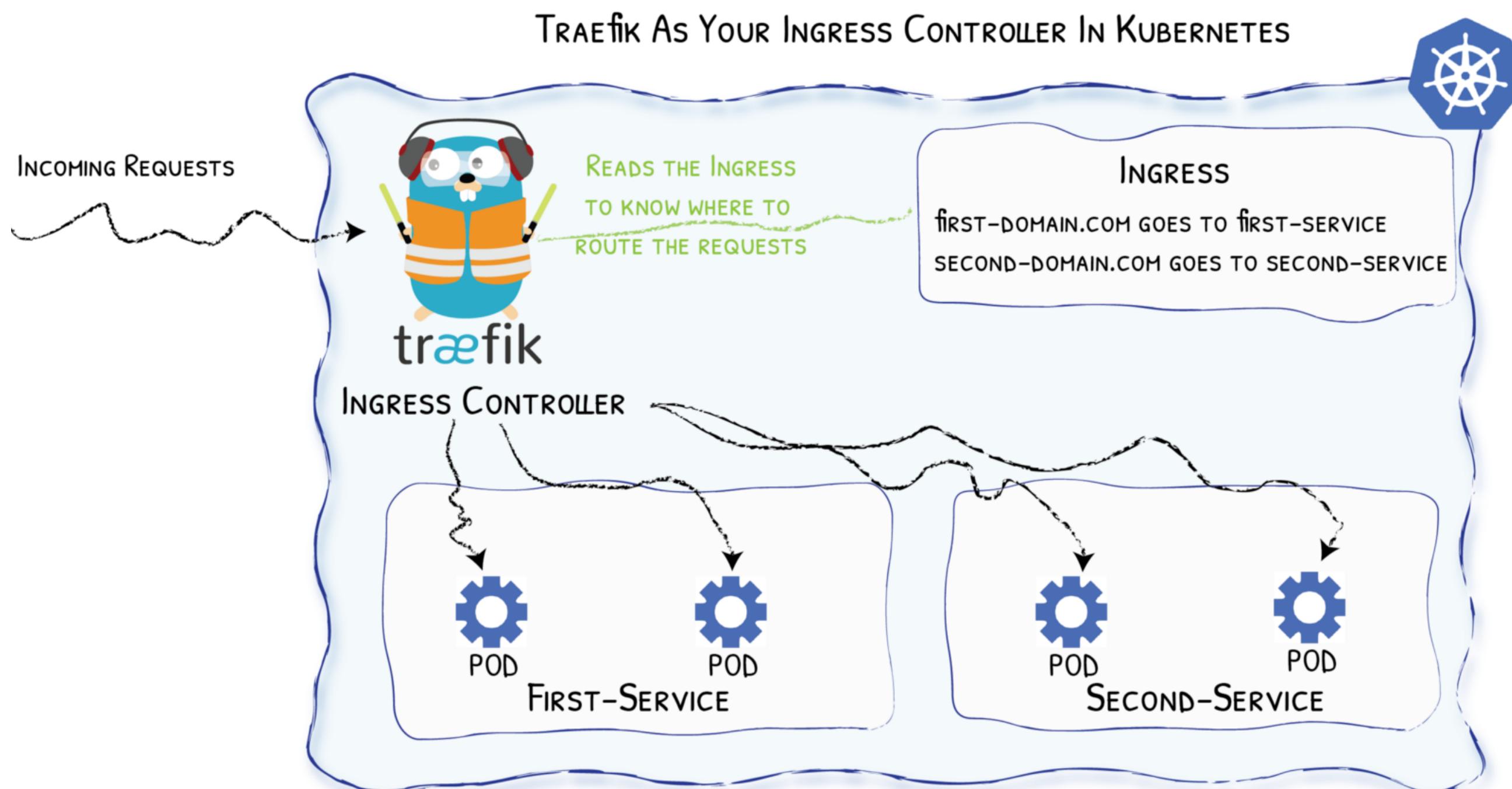


Diagram from <https://medium.com/@geraldcroes>

# 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...

A cloud of network and infrastructure terms in various colors, including:

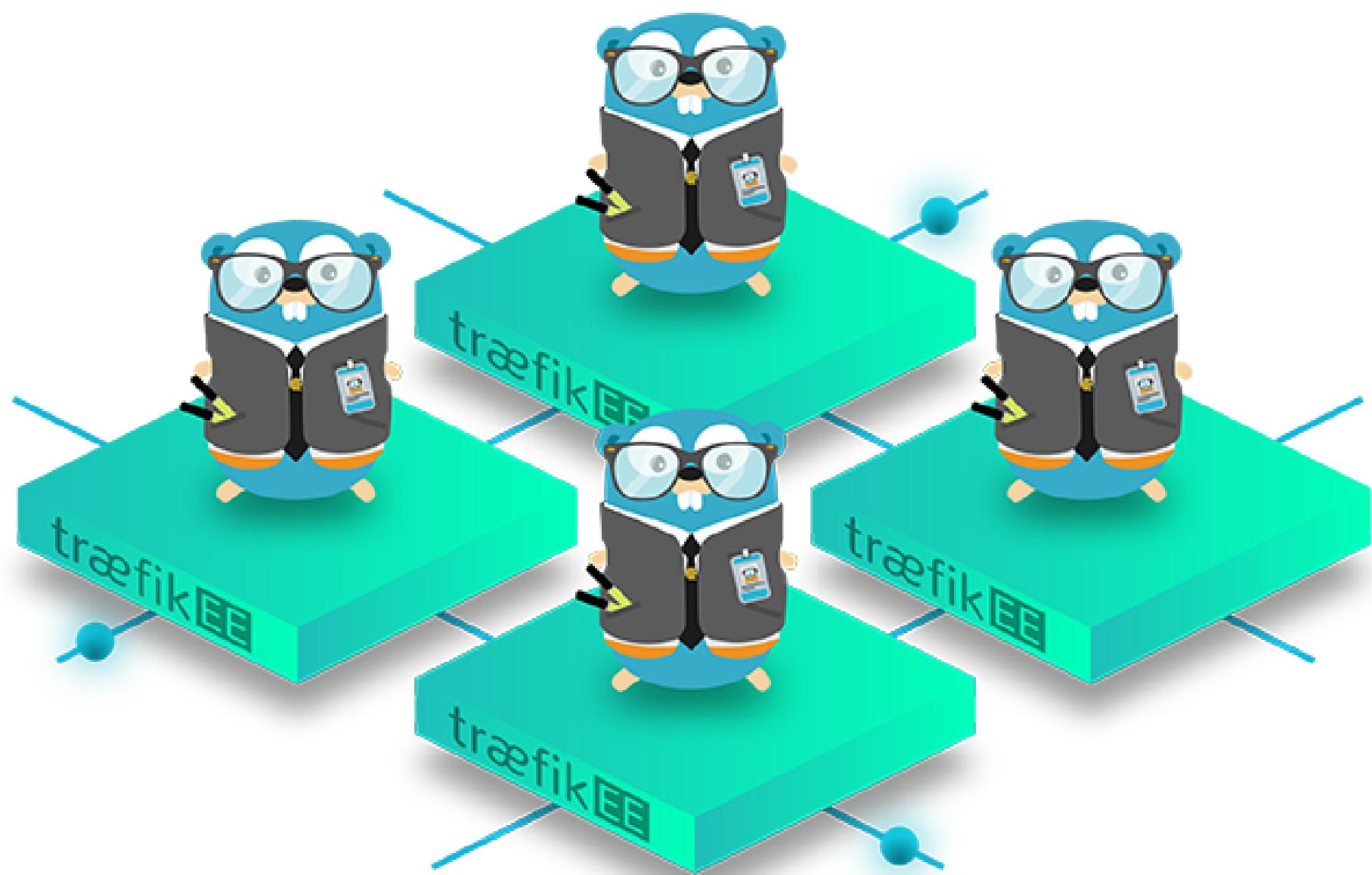
- MESOS
- ZIPKIN
- LIMITING
- KUBERNETES
- Dynamic Metrics
- HTTP ERROR
- CERTIFICATE
- TLS Reverse-Proxy
- HEADERS
- GRPC
- S3 BUCKET
- CIRCUIT BREAKERS
- DYNAMIC/WILDCARD
- Security Configurations
- Tracing PROXY
- SECRETS
- PROMETHEUS
- JAEGER
- WEBSOCKETS
- SSL
- FORWARDING
- REDIRECTS
- DOCKER
- PROTOCOL
- CHECKS
- CLUSTER AUTH
- HSTS
- RATE
- CONSUL
- SWARM MODE
- HEALTH

# The Herd



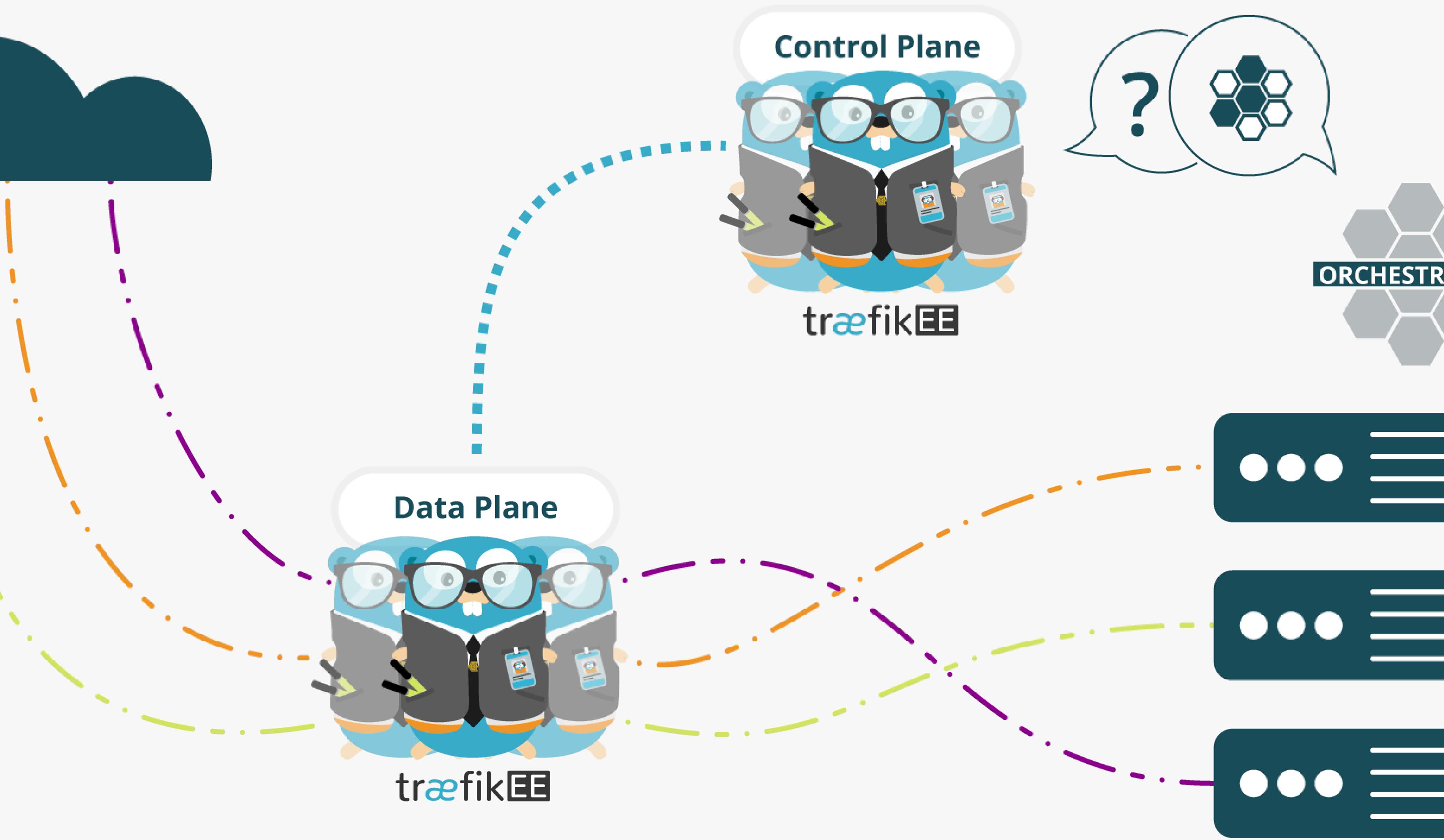
You came to the wrong neighbour

# Traefik Comes In Herd



INTERNET

TO YOUR INFRA





# HIGH AVAILABILITY

traefik ENTERPRISE EDITION



# SECURITY

traefik ENTERPRISE EDITION



# SCALABILITY

traefik 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 toTRAEFIK 2.0

Part →



# Revamped Documentation

The screenshot shows the Traefik documentation website. The header features a search bar, a GitHub link with 21k stars and 2.1k forks, and a logo. The left sidebar contains a navigation menu with links like Welcome, Getting Started, Configuration Discovery, Routing & Load Balancing, HTTPS & TLS, Middlewares, Operations, Observability, Contributing, and Glossary. The main content area has a large title "Welcome" and a central diagram illustrating Traefik's role as an "Edge Router". The diagram shows requests from the internet (API.DOMAIN.COM, DOMAIN.COM/WEB, BACKOFFICE.DOMAIN.COM) being received by Traefik, which then routes them to various infrastructure components like Kubernetes, Mesos, Docker, and Backoffice servers. Traefik is also shown receiving Metrics, Tracing, and Logs. The bottom text describes Traefik as an open-source Edge Router.

**Welcome**

FROM THE INTERNET

API.DOMAIN.COM

DOMAIN.COM/WEB

BACKOFFICE.DOMAIN.COM

HTTPS

træfik

To Your Infrastructure

KUBERNETES

MESOS

PRIVATE SERVER

BACKOFFICE SERVER - 1

BACKOFFICE SERVER - 2

DOCKER

Metrics  
Tracing  
Logs

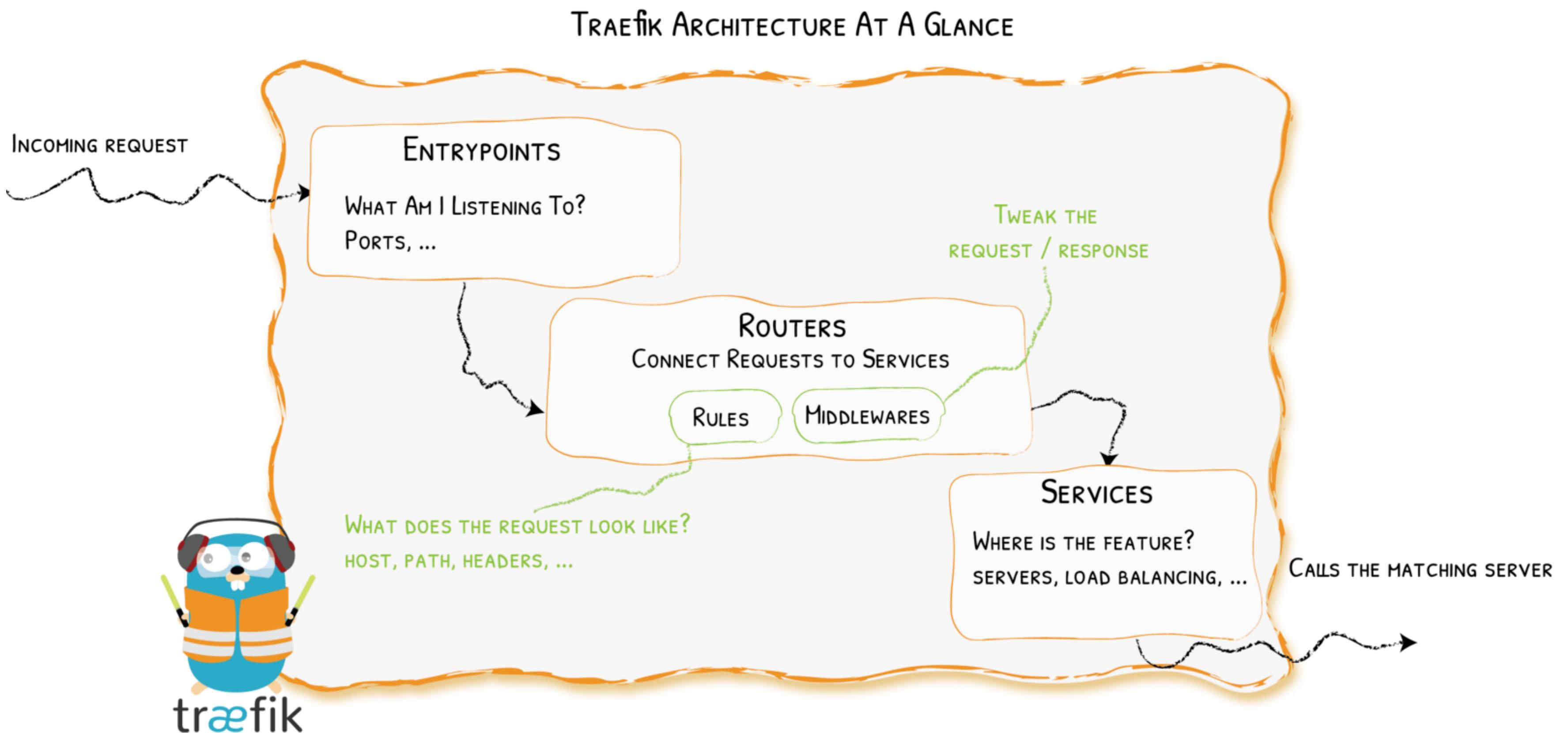
AUTOMATIC & DYNAMIC ROUTING

Load Balancing

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



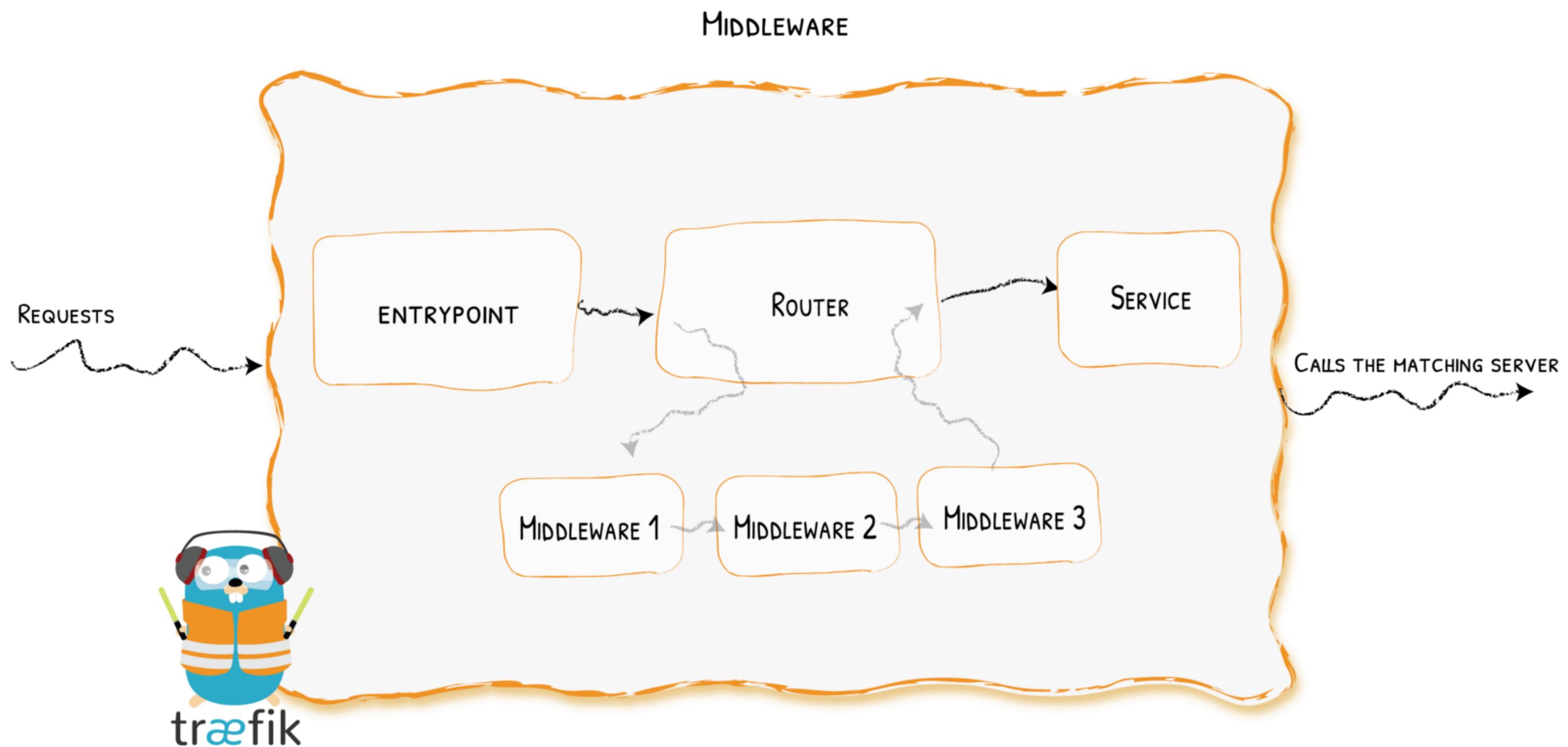
# Expressive Routing Rule Syntax



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





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
```

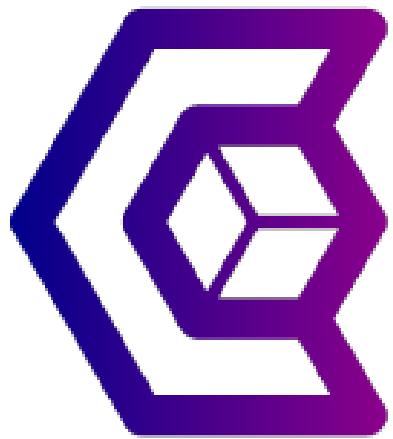
```
[tcp.routers.to-service-3]
  rule = "HostSNI(`demo.containous.cloud`)"
  service = "service-3"
  [tcp.routers.to-service-3.tls]
    passthrough = true # sends encrypted data "as is" to service-3
```

## *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!

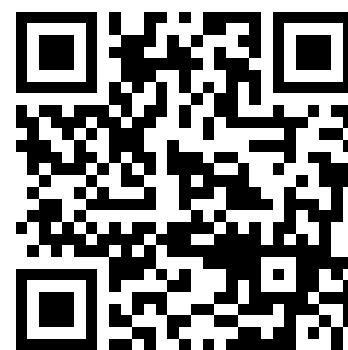


```
docker run -it containous/jobs
```

# Thank You!

 @michaelmatur

 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>