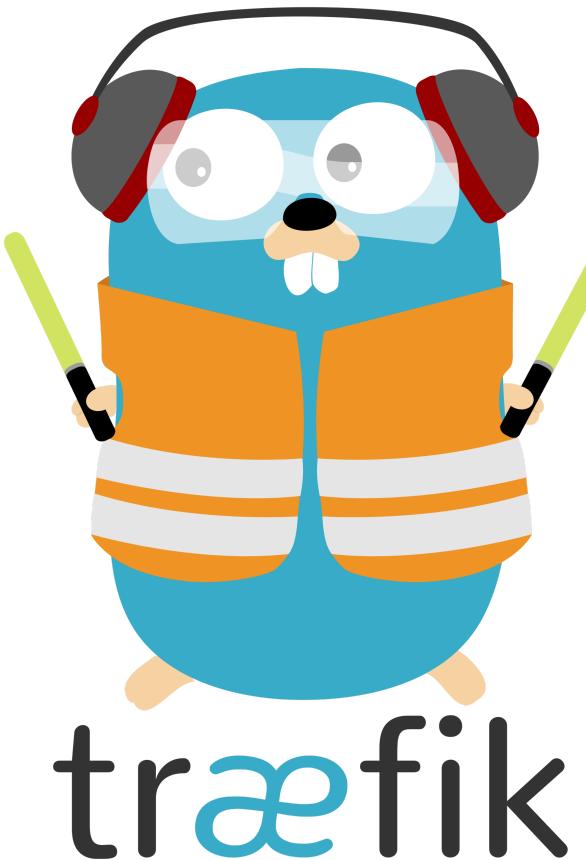


Edge Routing And HTTPS For Everyone

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

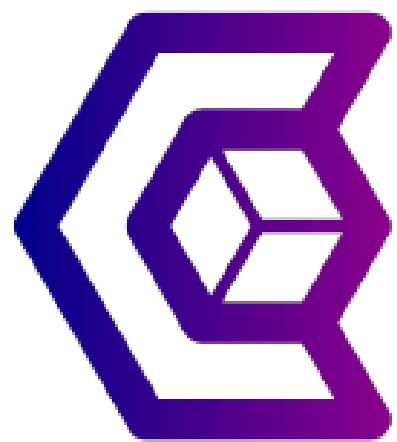
- Devops & Developer @ [Containous](#)
- Blacksmith on [Traefik](#)
-  [@michaelmatur](#)
-  [mmatur](#)



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



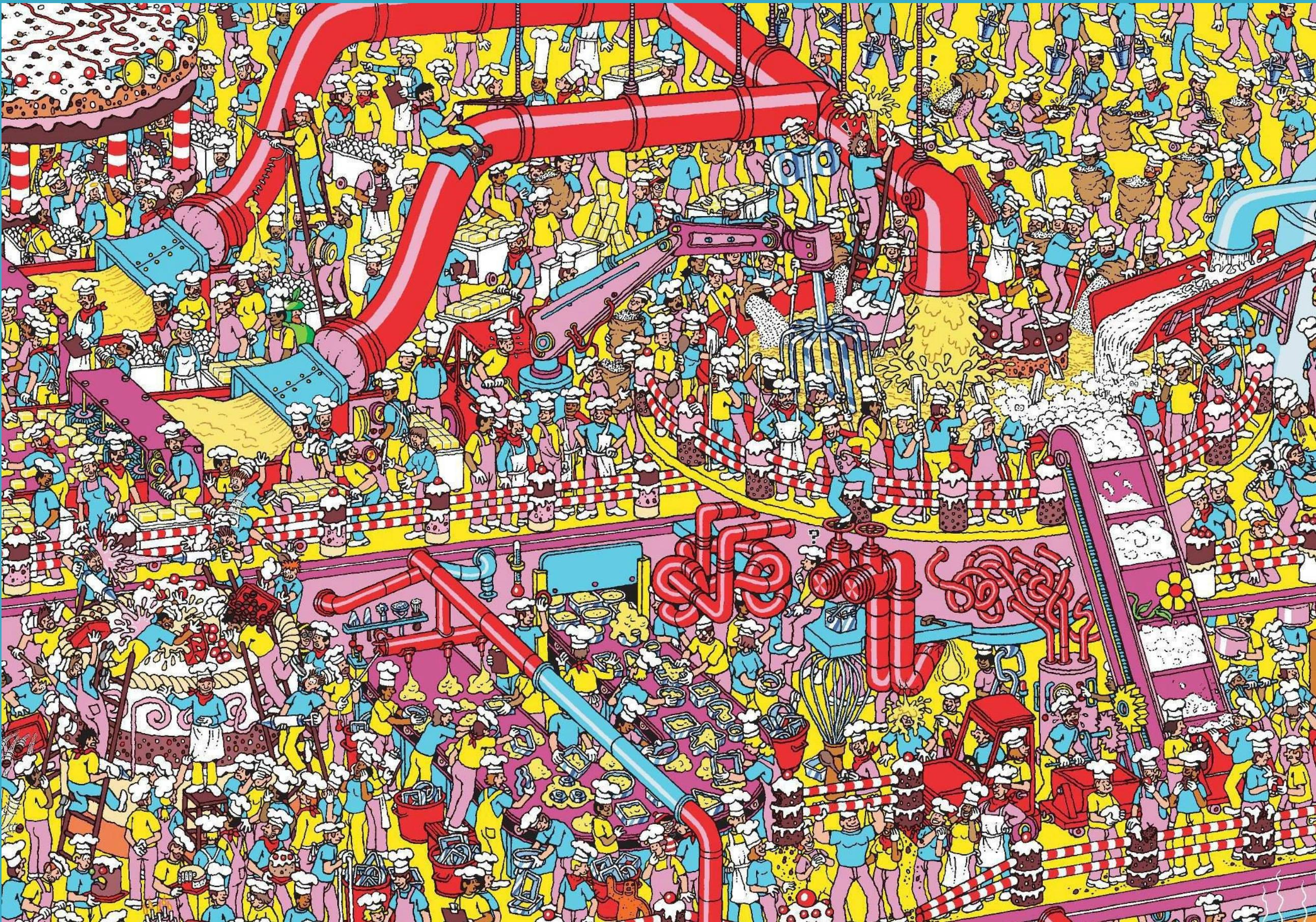
The Premise Of Microservices...



...And What Happens

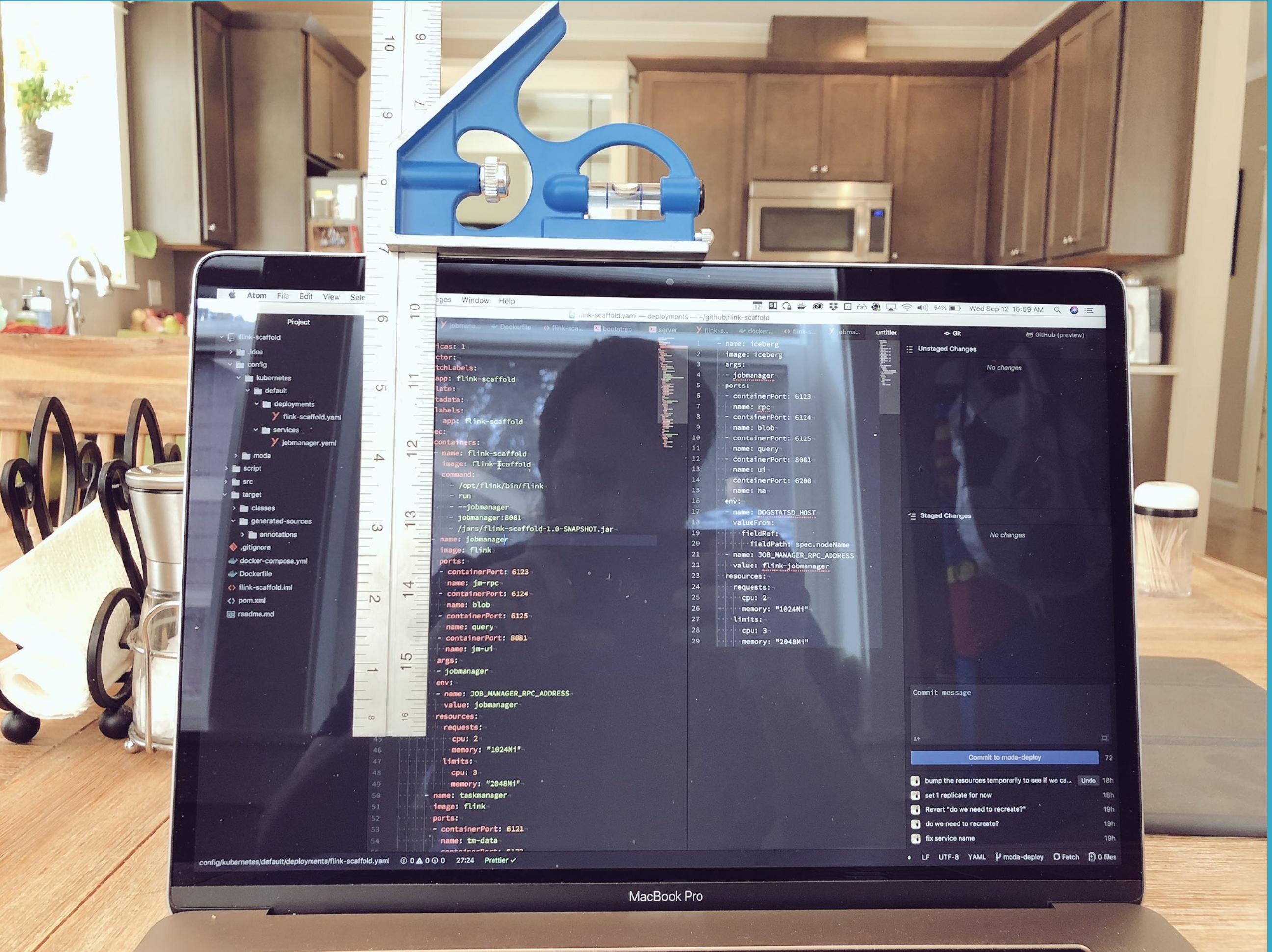


Where Is The Service?



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...?

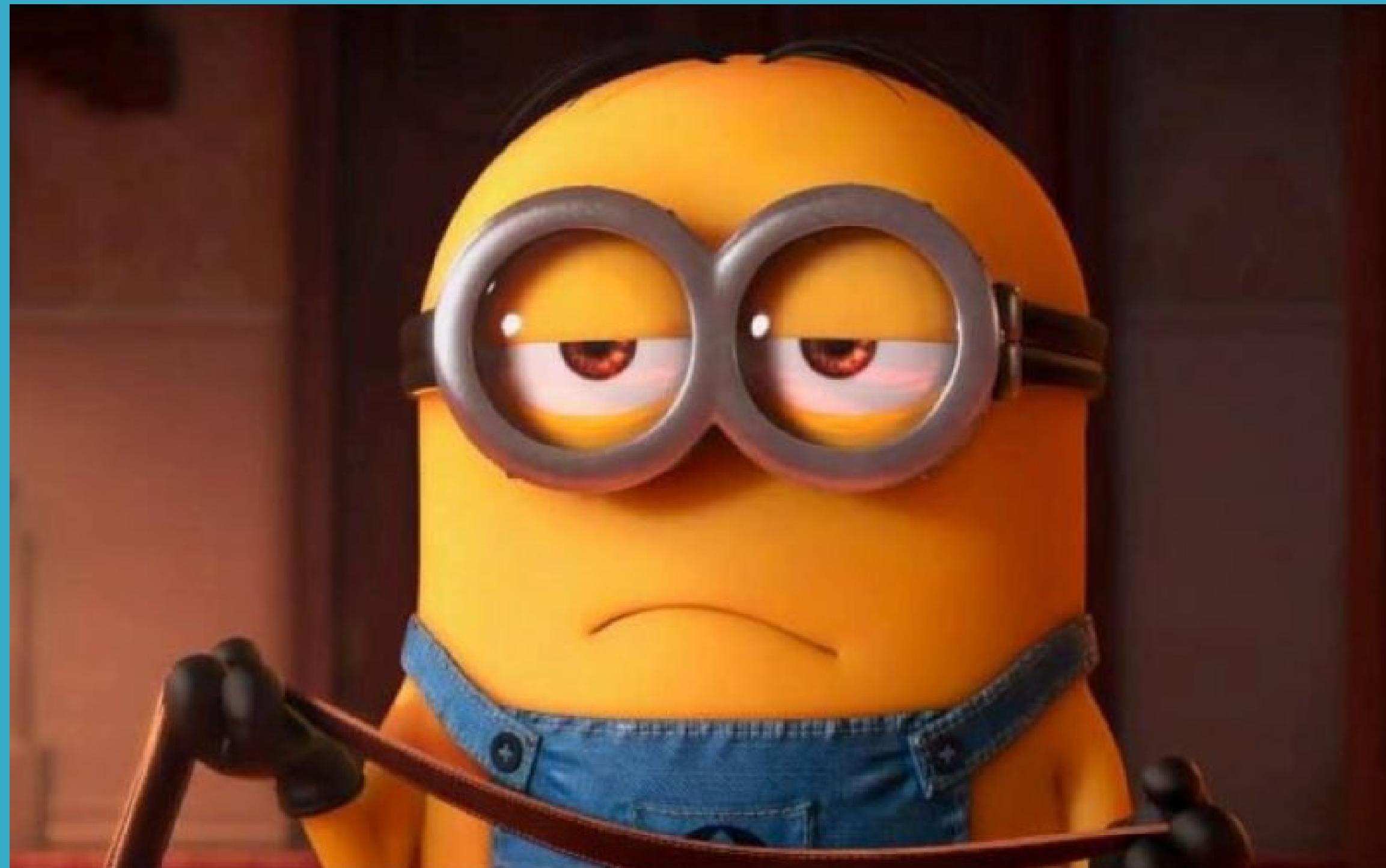
Here Comes Traefik!



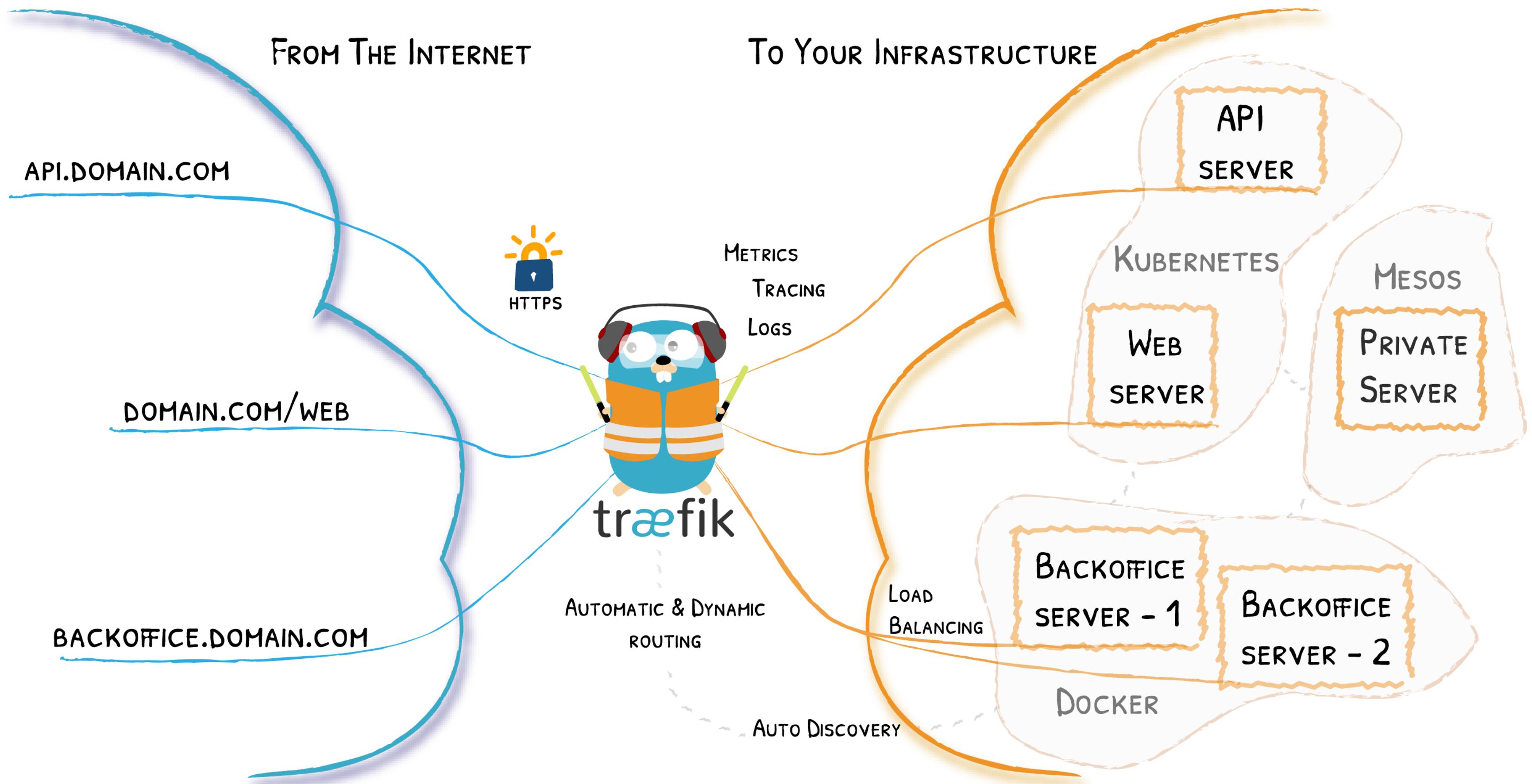
Traefik Project

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

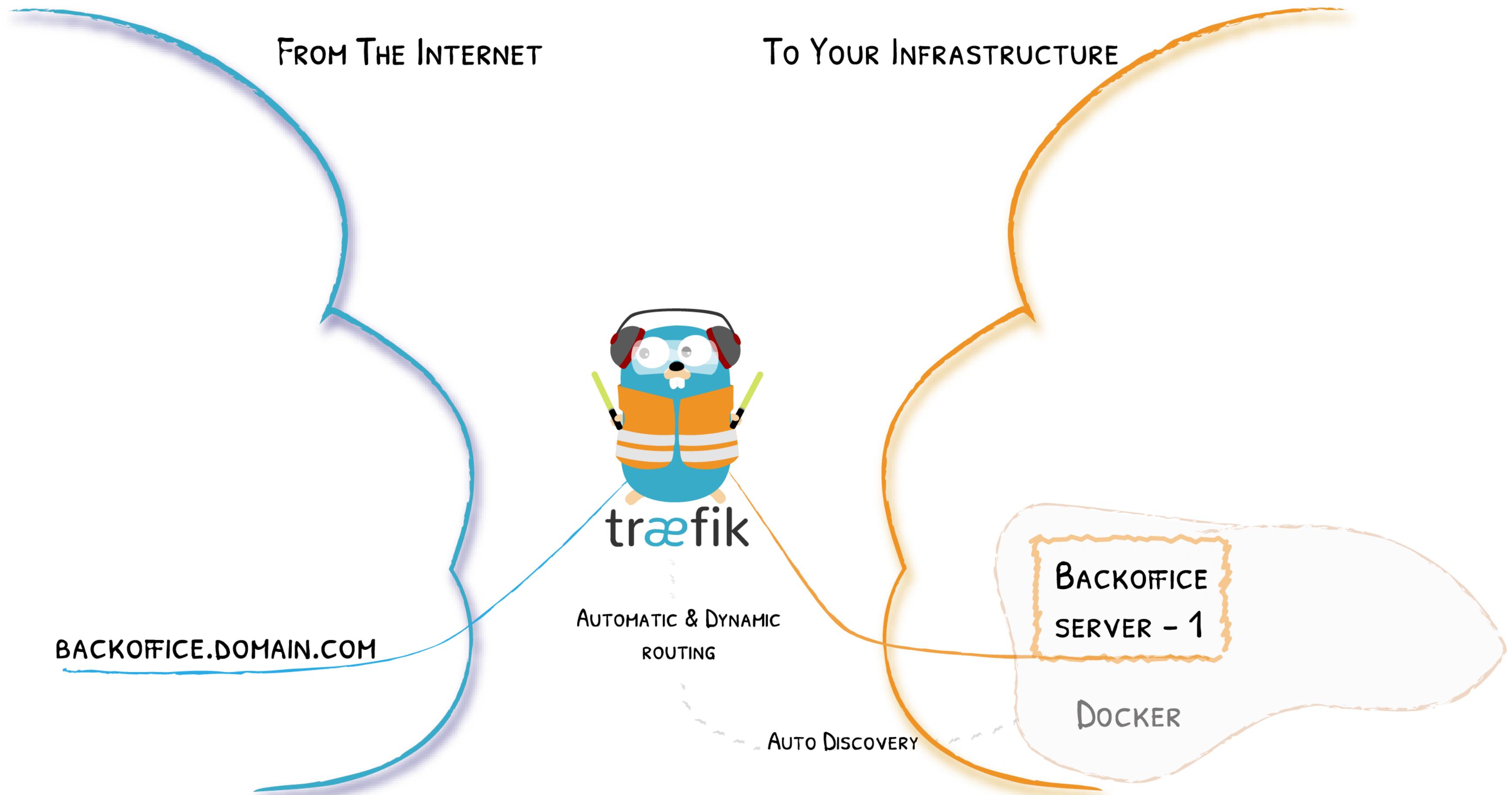
Traefik Core Concepts



Remember The Diagram?



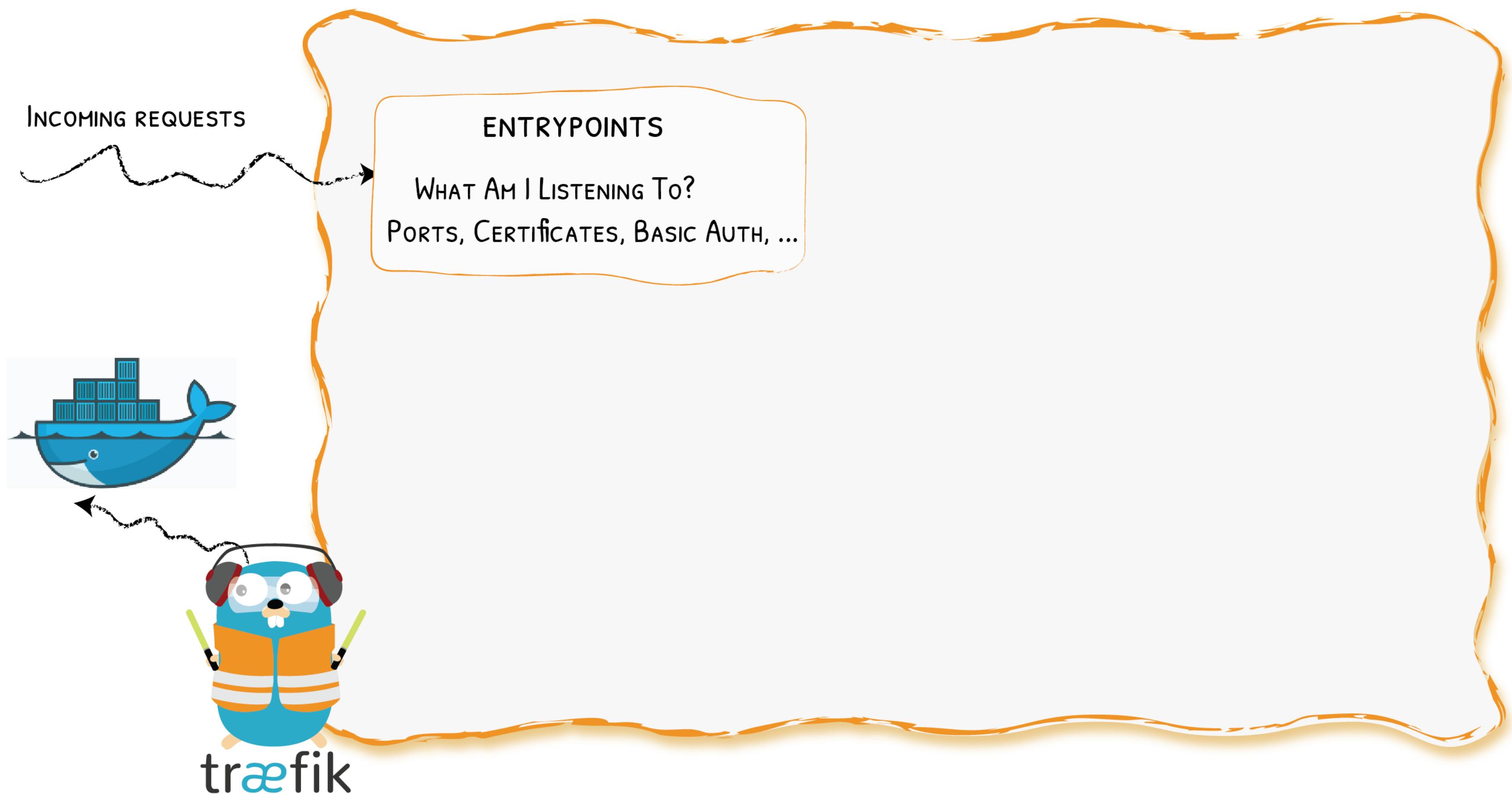
Let's Simplify



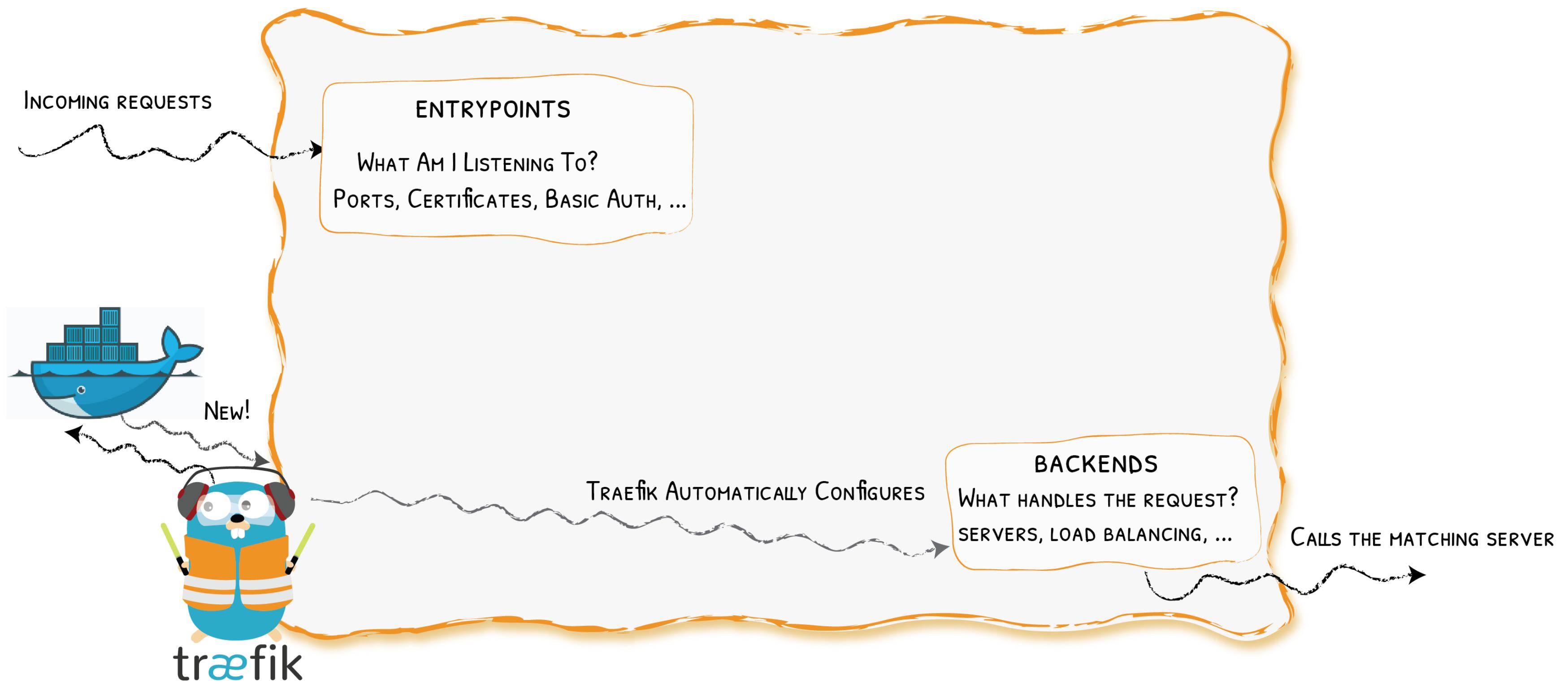
Providers



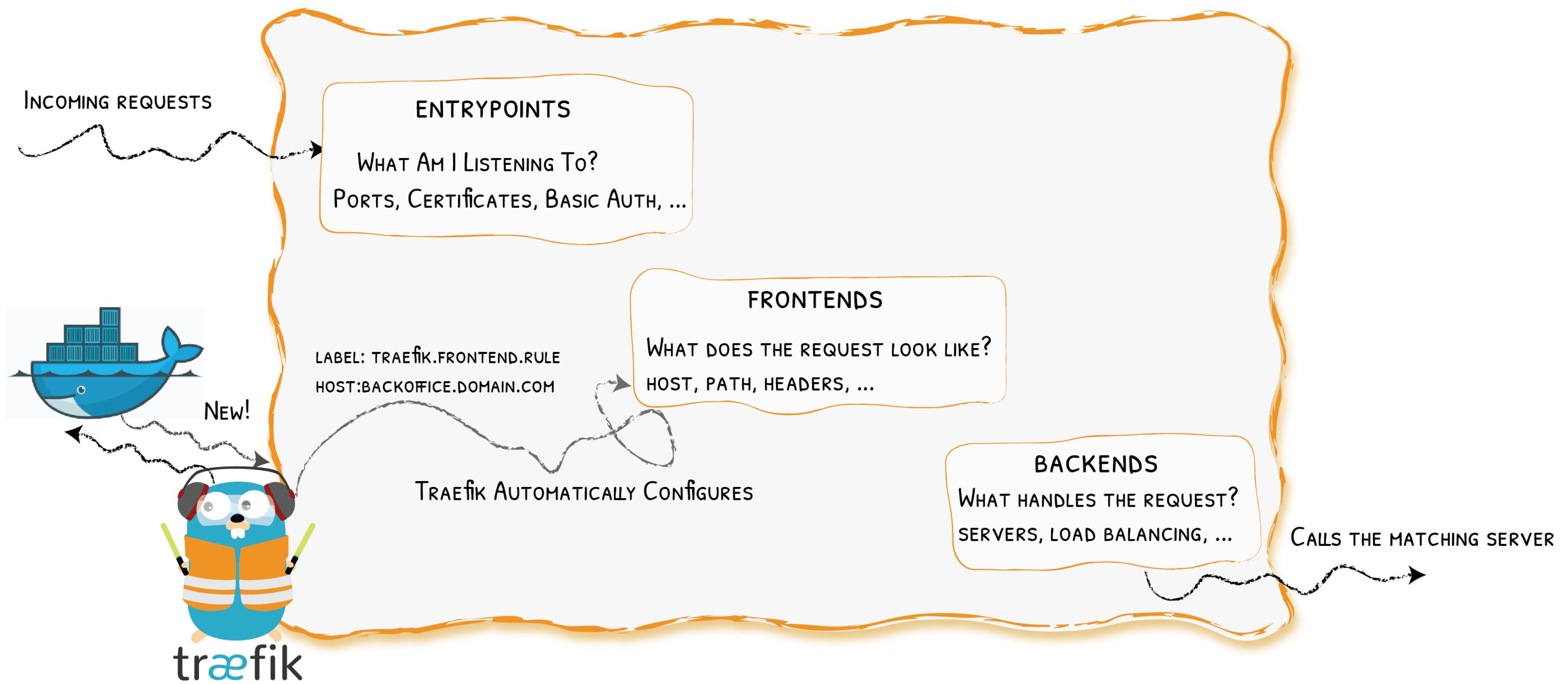
Entrypoints



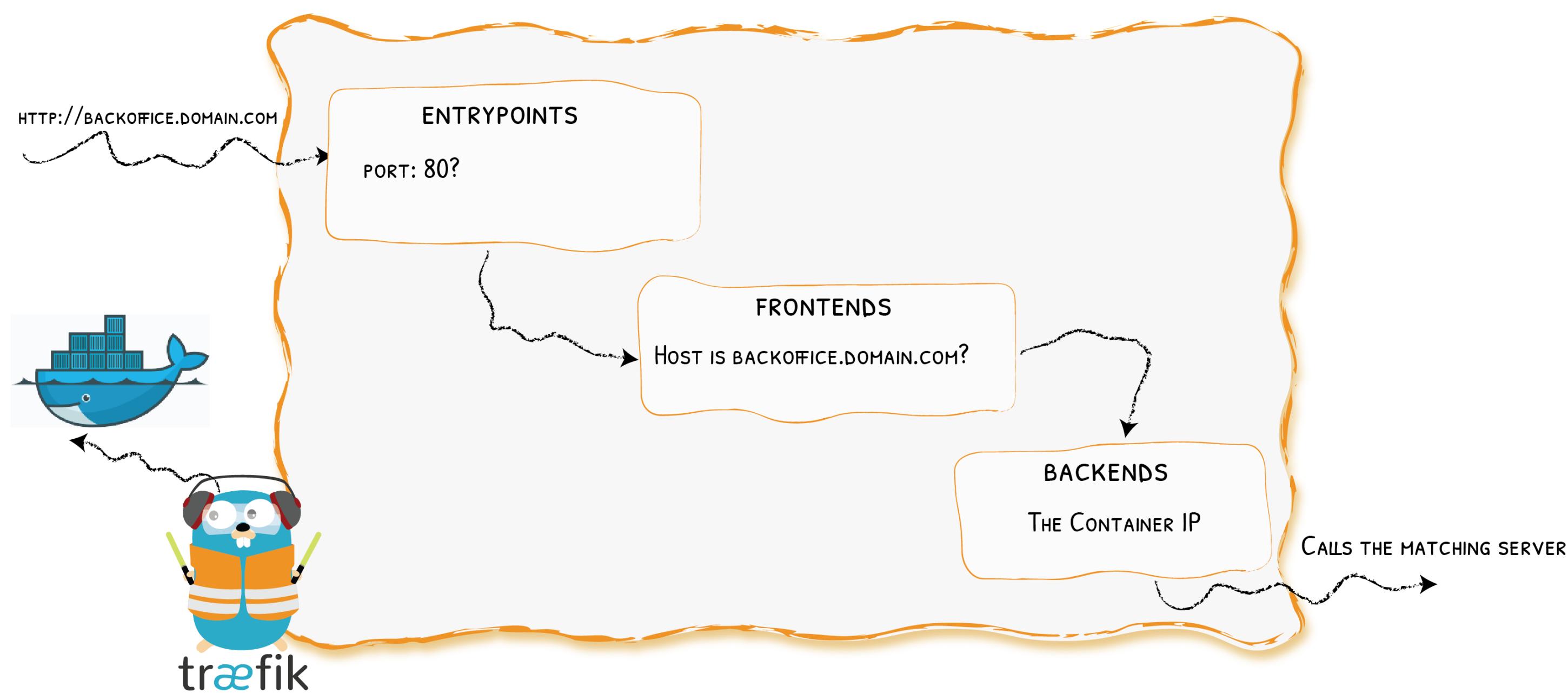
Backends



Frontends



In Practice



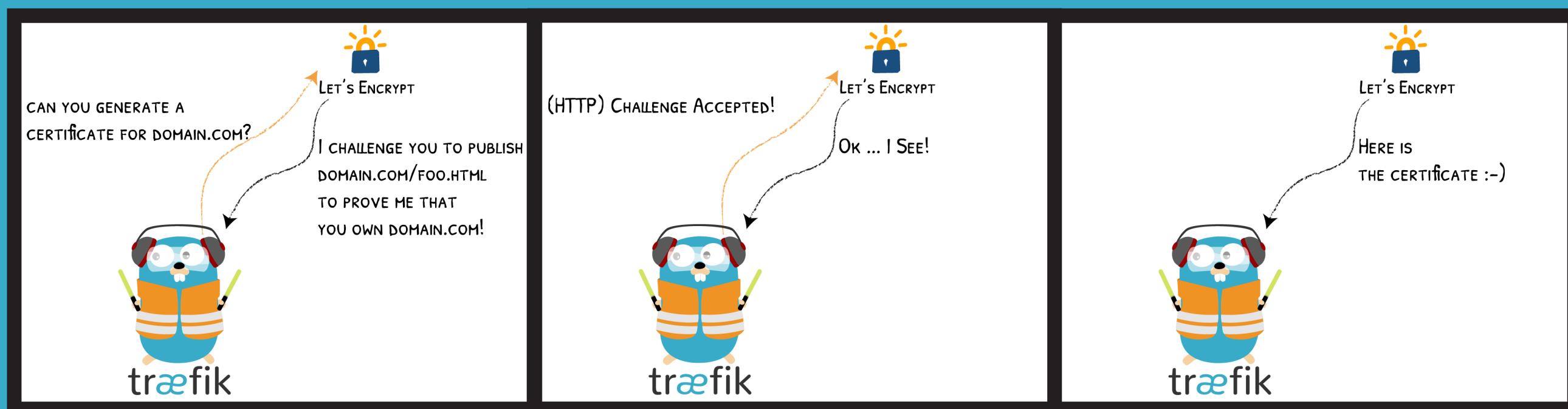
Show Me The Configuration!

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 ⚓

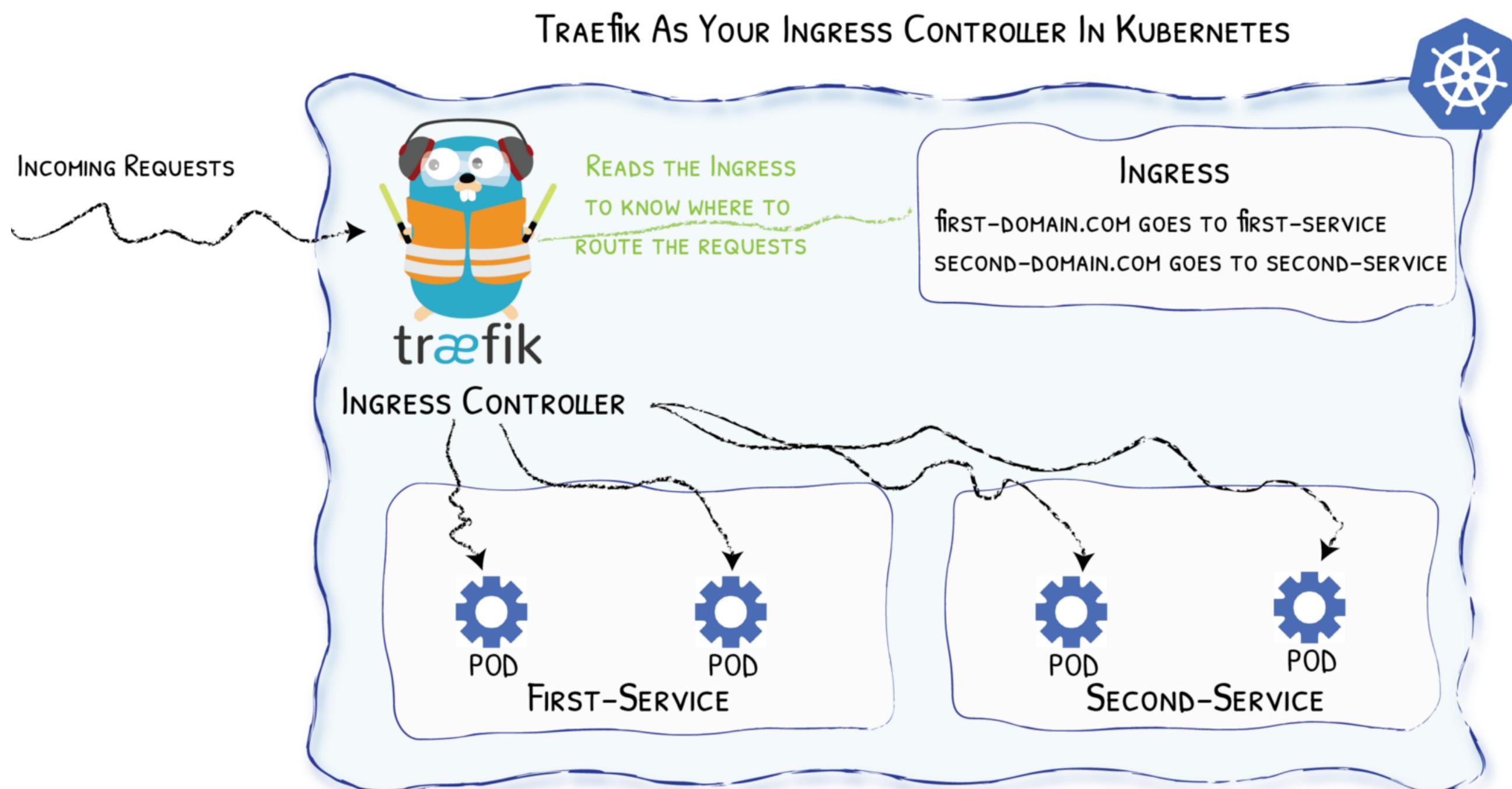


Diagram from <https://medium.com/@geraldcroes>

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:

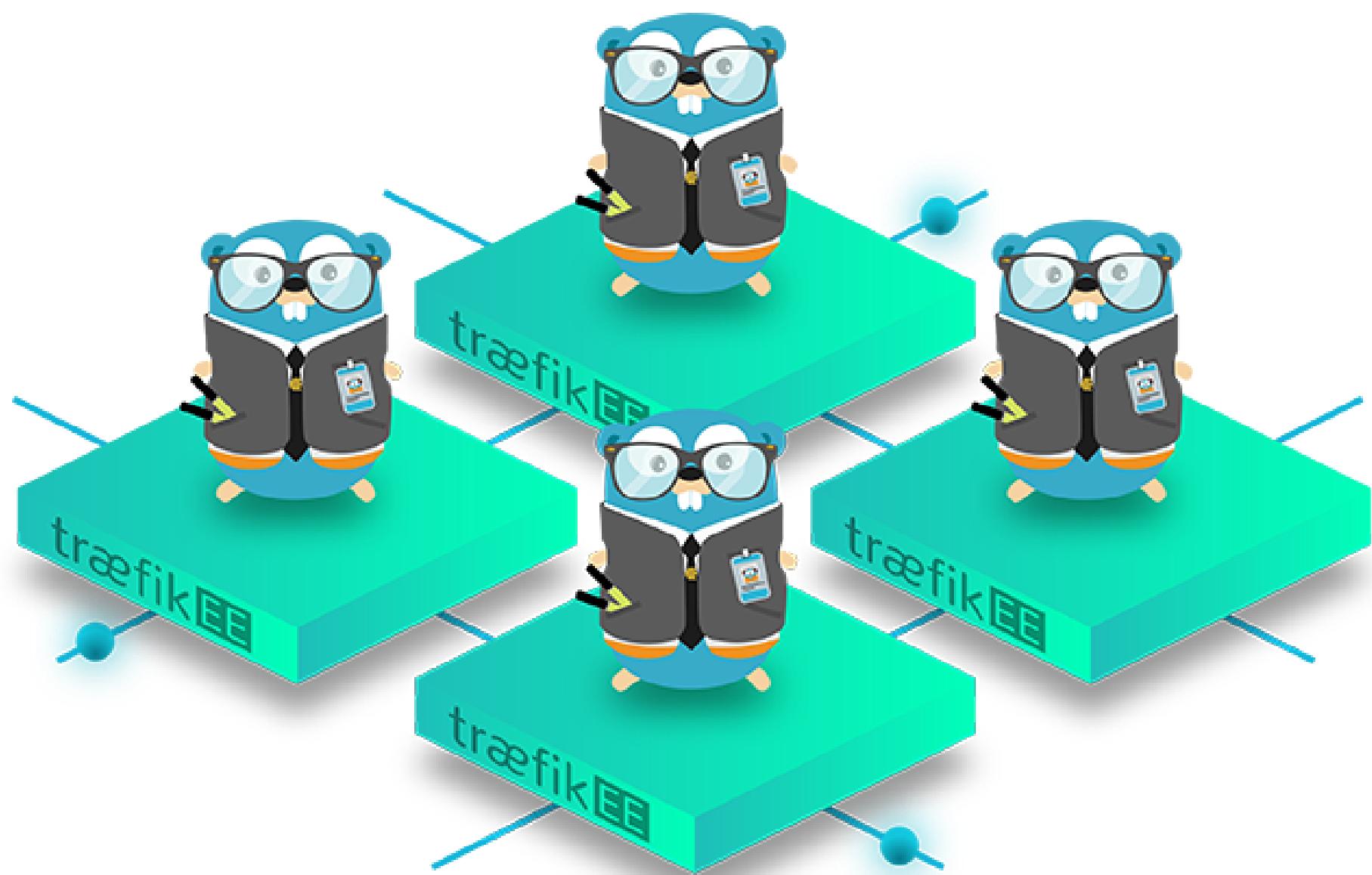
- MESOS
- ZIPKIN
- LIMITING
- KUBERNETES
- Dynamic Metrics
- HTTP ERROR
- CERTIFICATE
- TLS Reverse-Proxy
- HEADERS
- GRPC
- DYNAMIC/WILDCARD
- Security Configurations
- Tracing PROXY
- SECRETS
- PROMETHEUS
- JAEGER
- WEBSOCKETS
- SSL
- FORWARDING
- REDIRECTS
- DOCKER
- PROTOCOL
- CHECKS
- CLUSTER AUTH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

The Herd



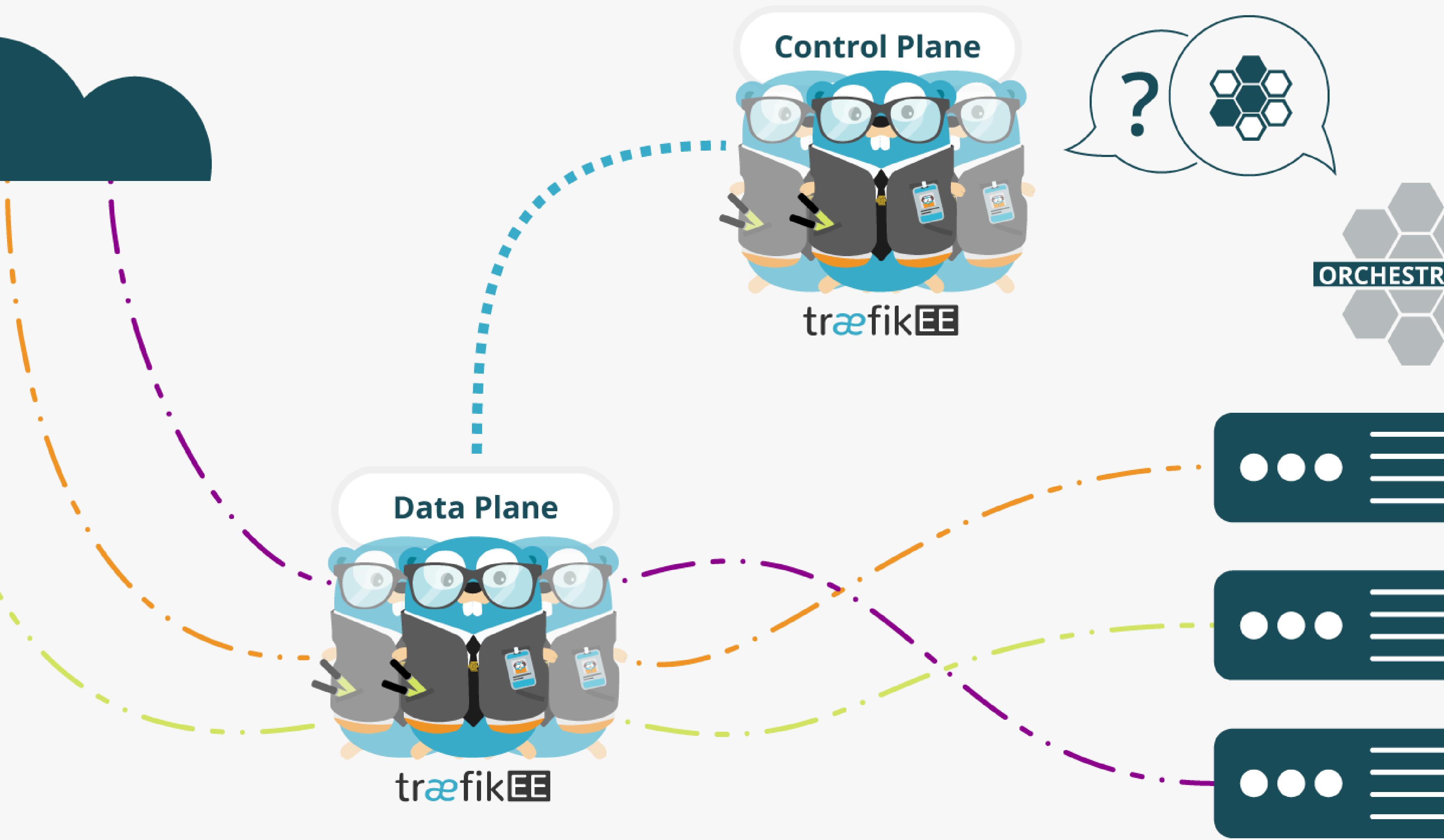
You came to the wrong neighbour

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. At the top, there's a navigation bar with a search bar, a GitHub link (21k Stars - 2.1k Forks), and a logo. On the left, a sidebar lists navigation links: Welcome, Getting Started, Configuration Discovery, Routing & Load Balancing, HTTPS & TLS, Middlewares, Operations, Observability, Contributing, and Glossary. The main content area features a large, colorful diagram titled "Welcome". The diagram illustrates Traefik's role as an "Edge Router" that receives requests from the internet (e.g., API.DOMAIN.COM, DOMAIN.COM/WEB, BACKOFFICE.DOMAIN.COM) and routes them to various infrastructure components like Kubernetes, Mesos, Docker, and Backoffice servers. It highlights features such as automatic and dynamic routing, load balancing, auto-discovery, metrics tracing, and logs. Below the diagram, a text block describes Traefik as an open-source Edge Router.

Welcome

FROM THE INTERNET

API.DOMAIN.COM
DOMAIN.COM/WEB
BACKOFFICE.DOMAIN.COM

træfik

To Your Infrastructure

KUBERNETES
MESOS
PRIVATE SERVER

BACKOFFICE SERVER - 1
BACKOFFICE SERVER - 2

DOCKER

Metrics
Tracing
Logs

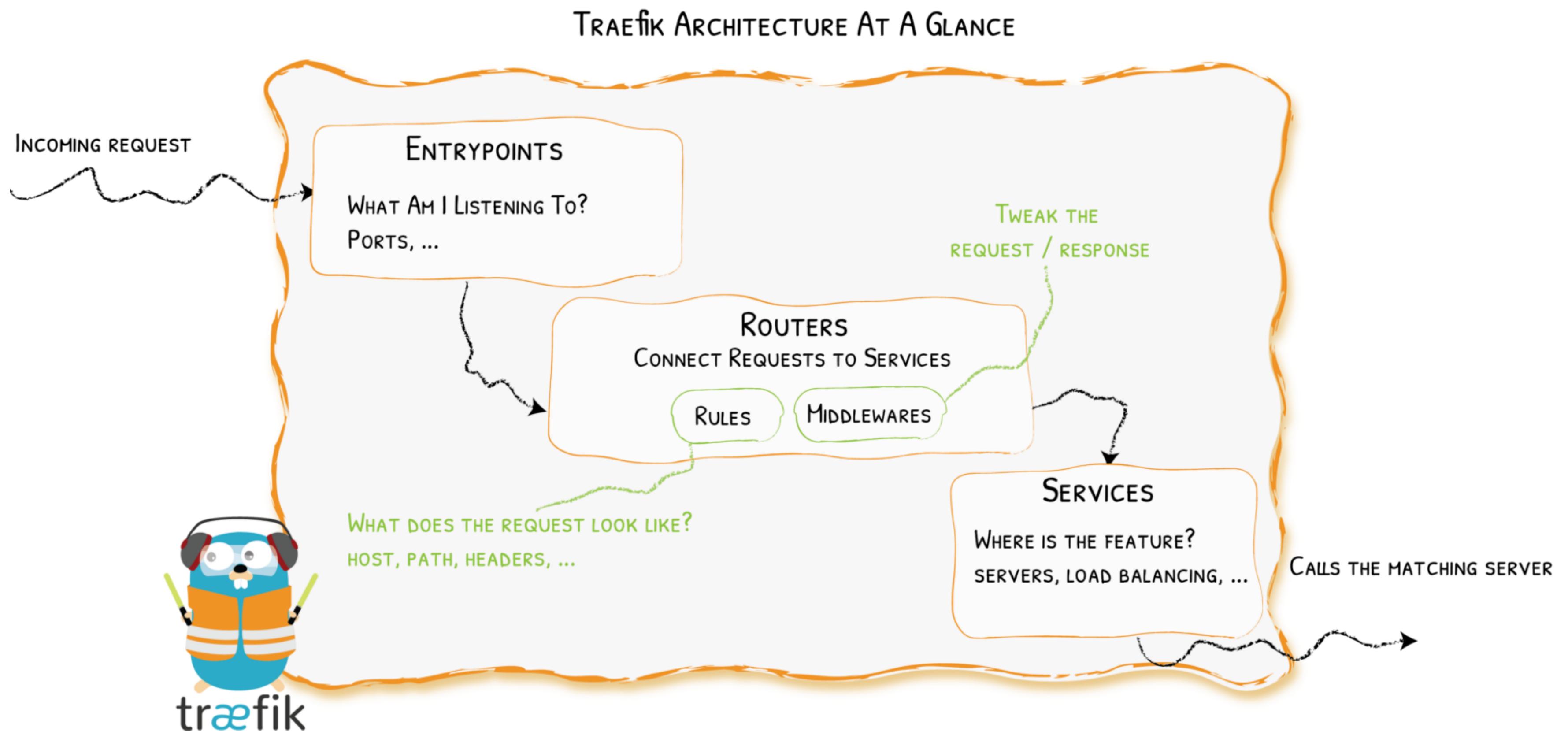
AUTOMATIC & DYNAMIC ROUTING

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



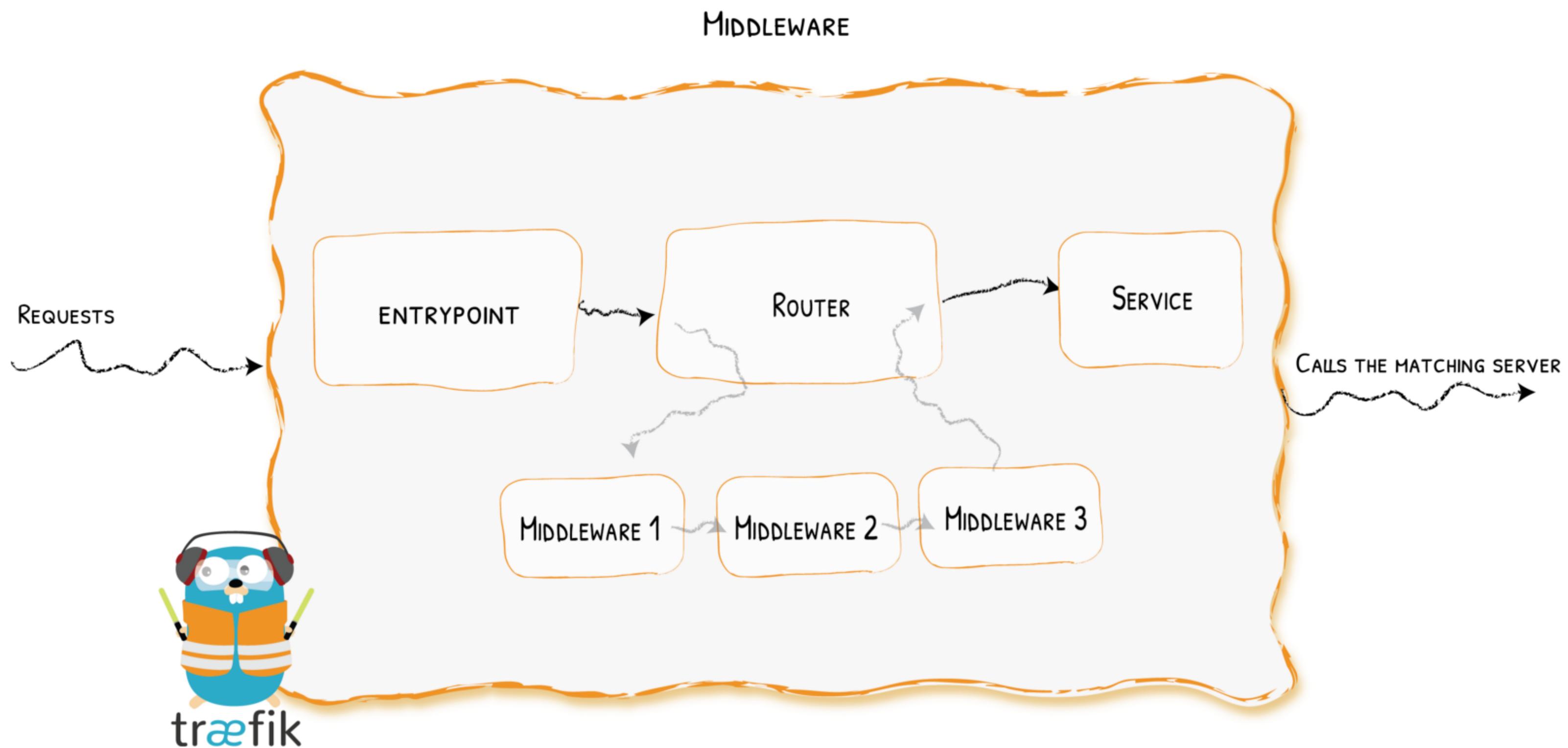
Expressive Routing Rule Syntax



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
```

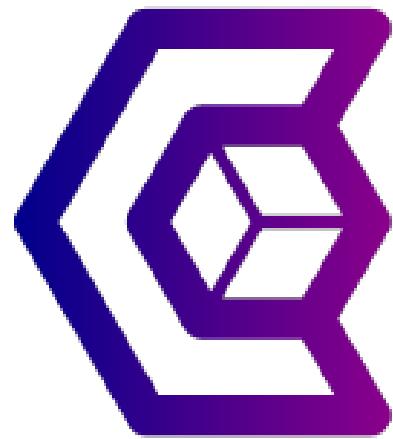
```
[tcp.routers.to-service-3]
  rule = "HostSNI(`demo.containous.cloud`)"
  service = "service-3"
  [tcp.routers.to-service-3.tls]
    passthrough = true # sends encrypted data "as is" to service-3
```

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!

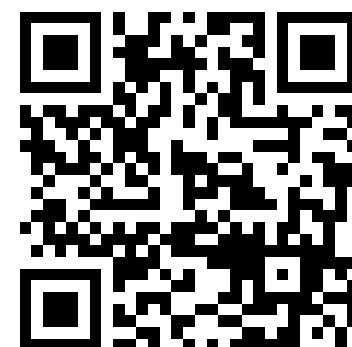


```
docker run -it containous/jobs
```

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>