

# Smart Routing Et HTTPS Pour Tous

Traefik en action !

<https://containous.github.io/slides/bbl-decathlon-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

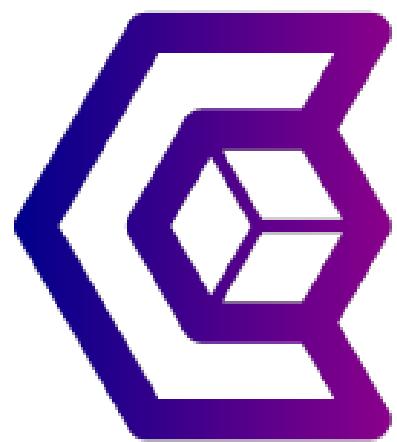
- Damien DUPORTAL:
  - Træfik's Developer  Advocate @ Containous
-  @DamienDuportal
-  dduortal



# Containous

<https://containo.us>

- We Believe in Open Source
- We Deliver Traefik
- Commercial Support for Traefik
- 20 people, 90% tech

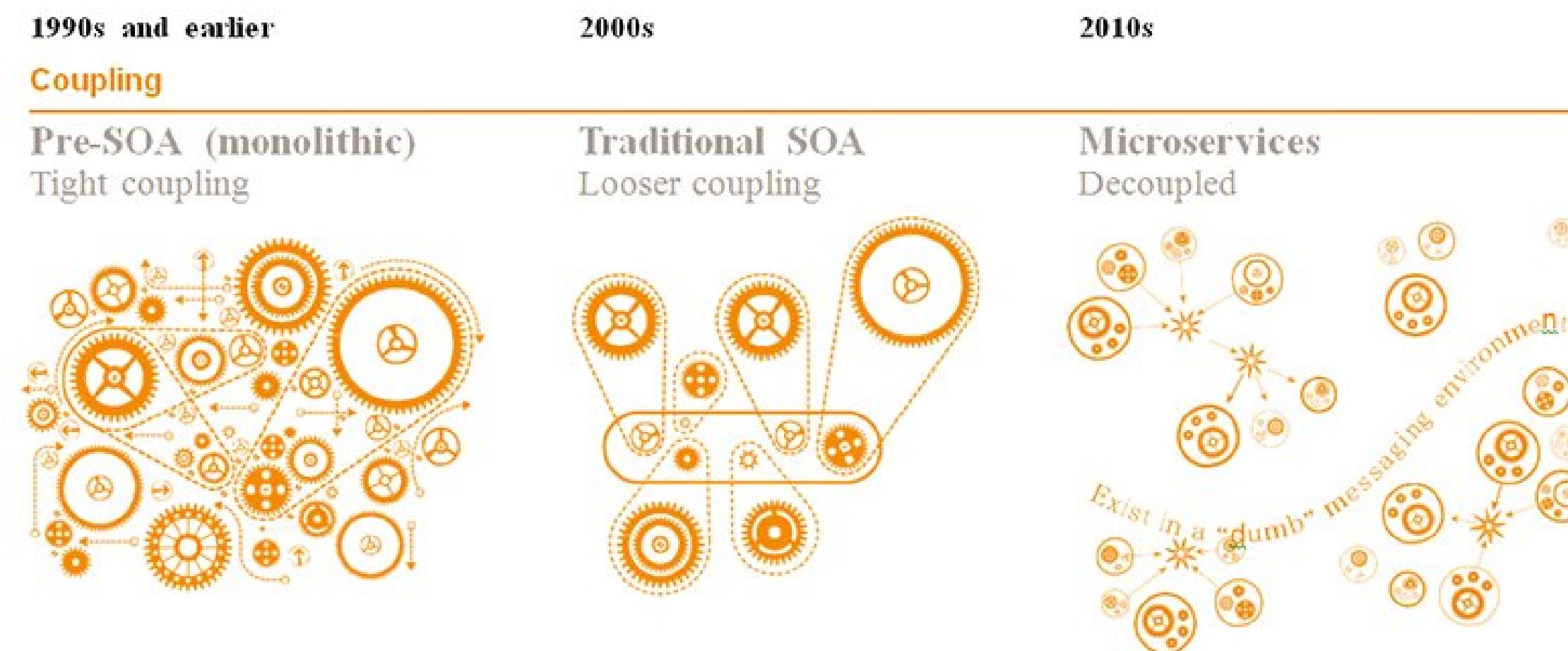


# Why Traefik?



Why, Mr Anderson?

# Evolution Of Software Design



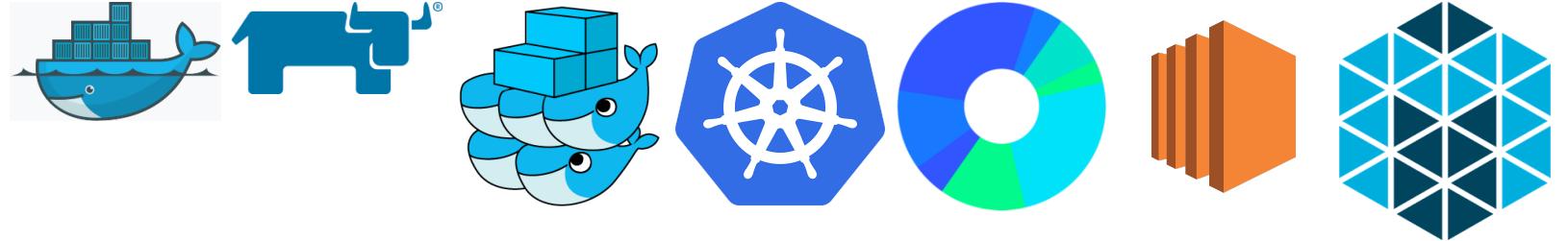
# The Premise Of Microservices...



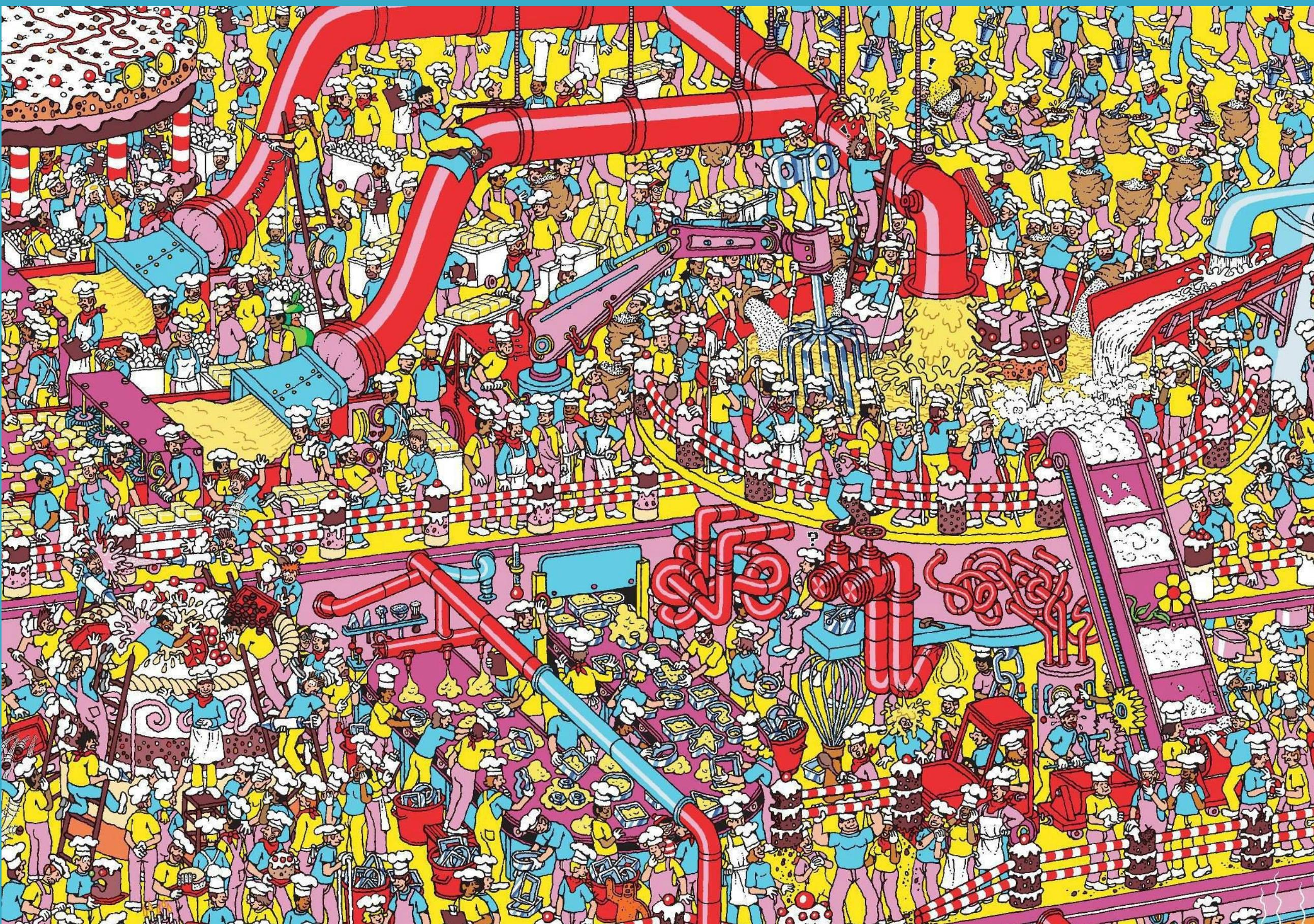
*...And What Happens*

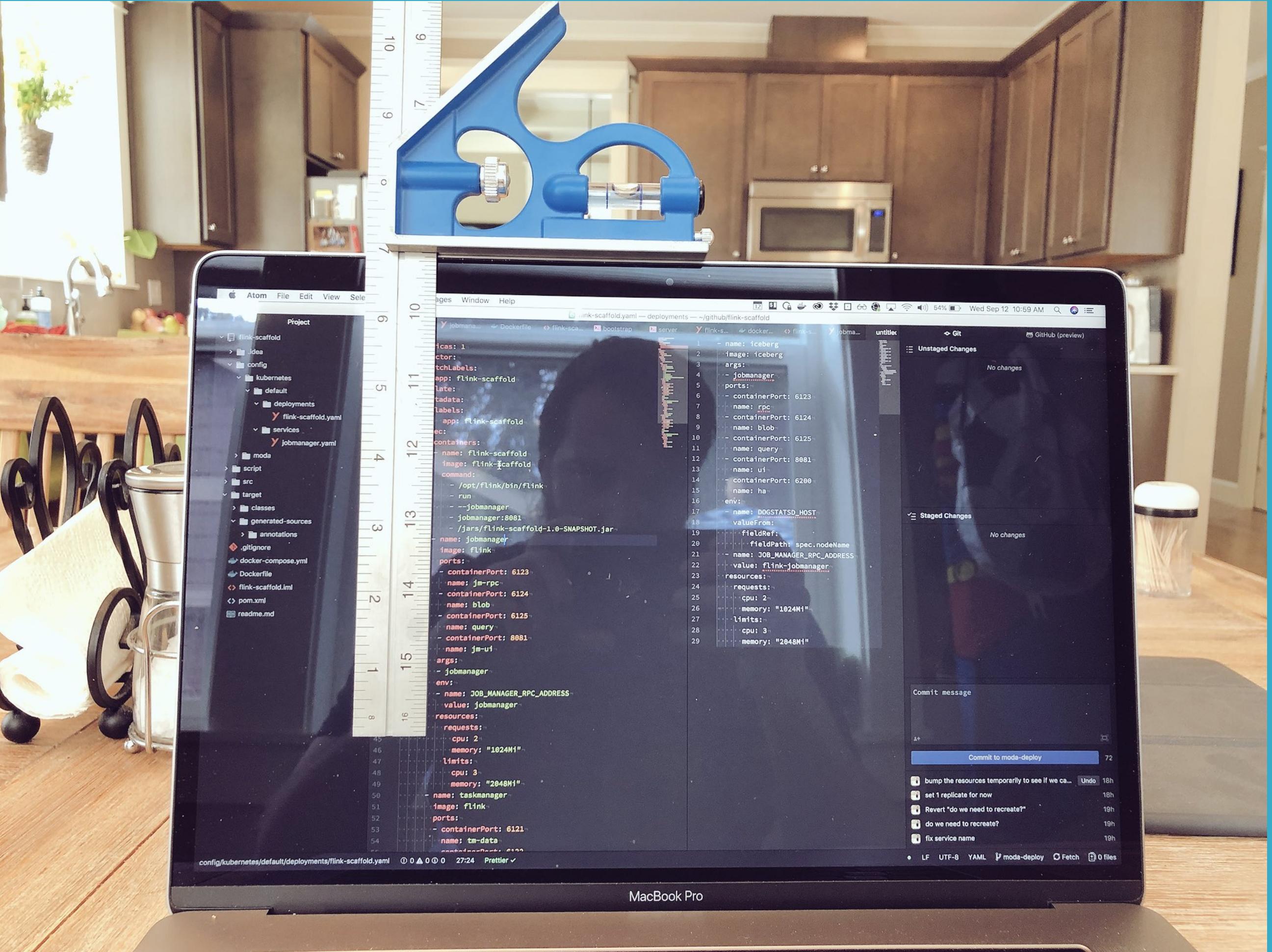


# Tools Of The Trade



# Where's My Service?





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

# What If I Told You?

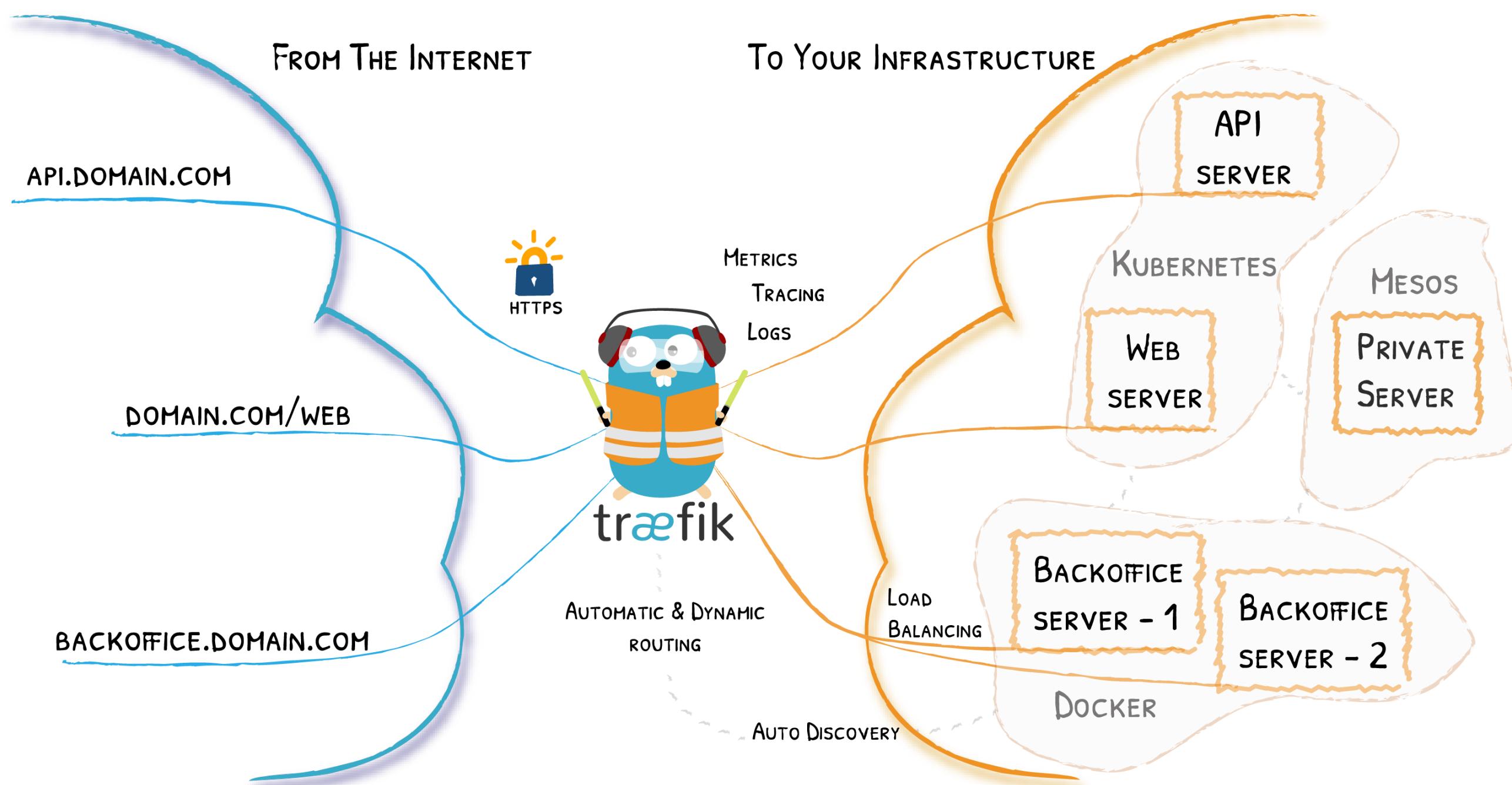


That You Don't Have to Write This Configuration File...?

# Here Comes Traefik!



# Overview



# Traefik Project

-  <https://github.com/containous/traefik>
- MIT License
- 21,000+ 
- 600M+ 
- 2000+ LGTM
- 350+ 

# Why Go?

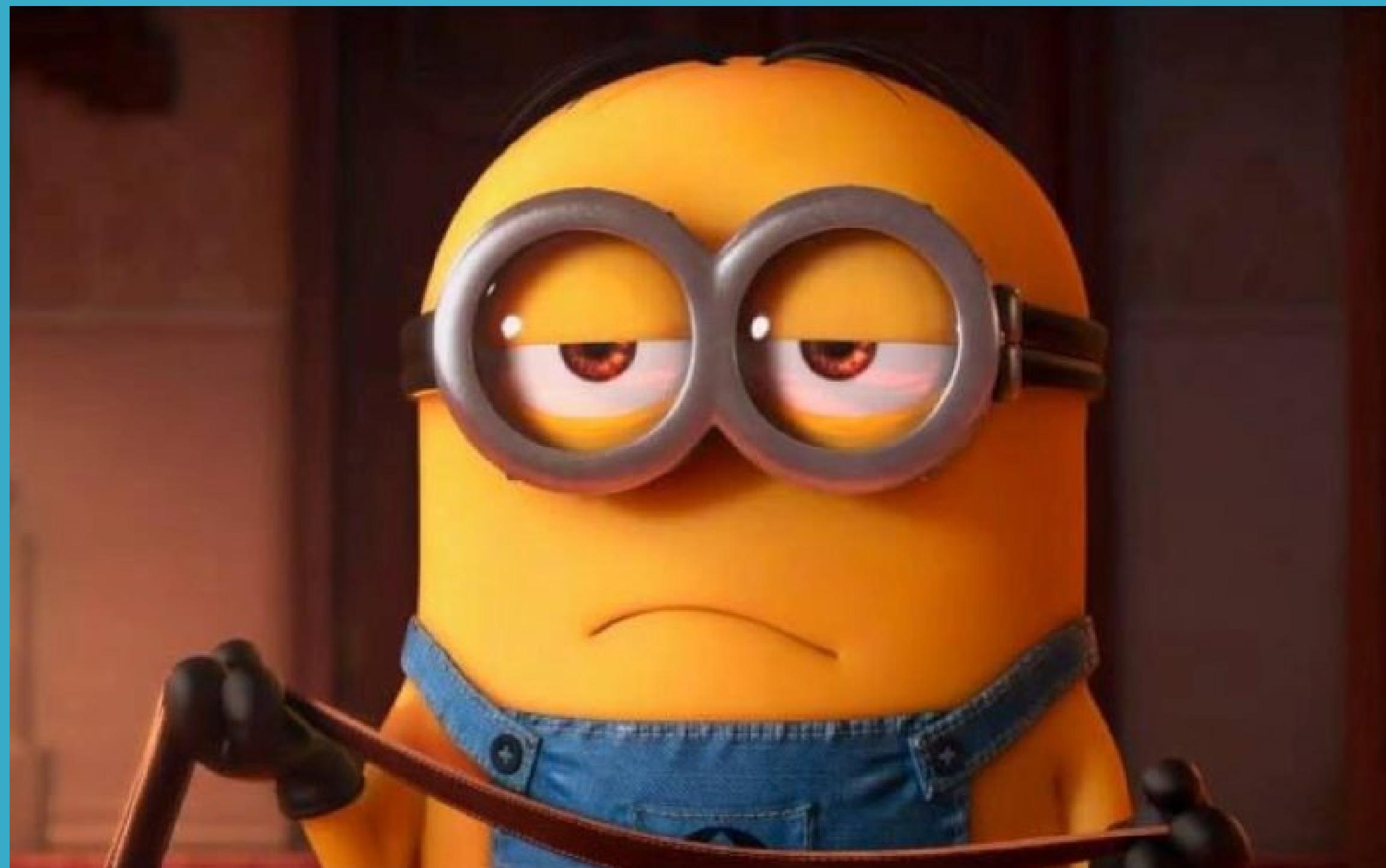
- Ecosystem (Docker, Kubernetes, Etcd, Consul...)
- Fast & "low level"
- Fat binary
- OSS friendly (Easy to learn/read)

# I've Found A Bug!

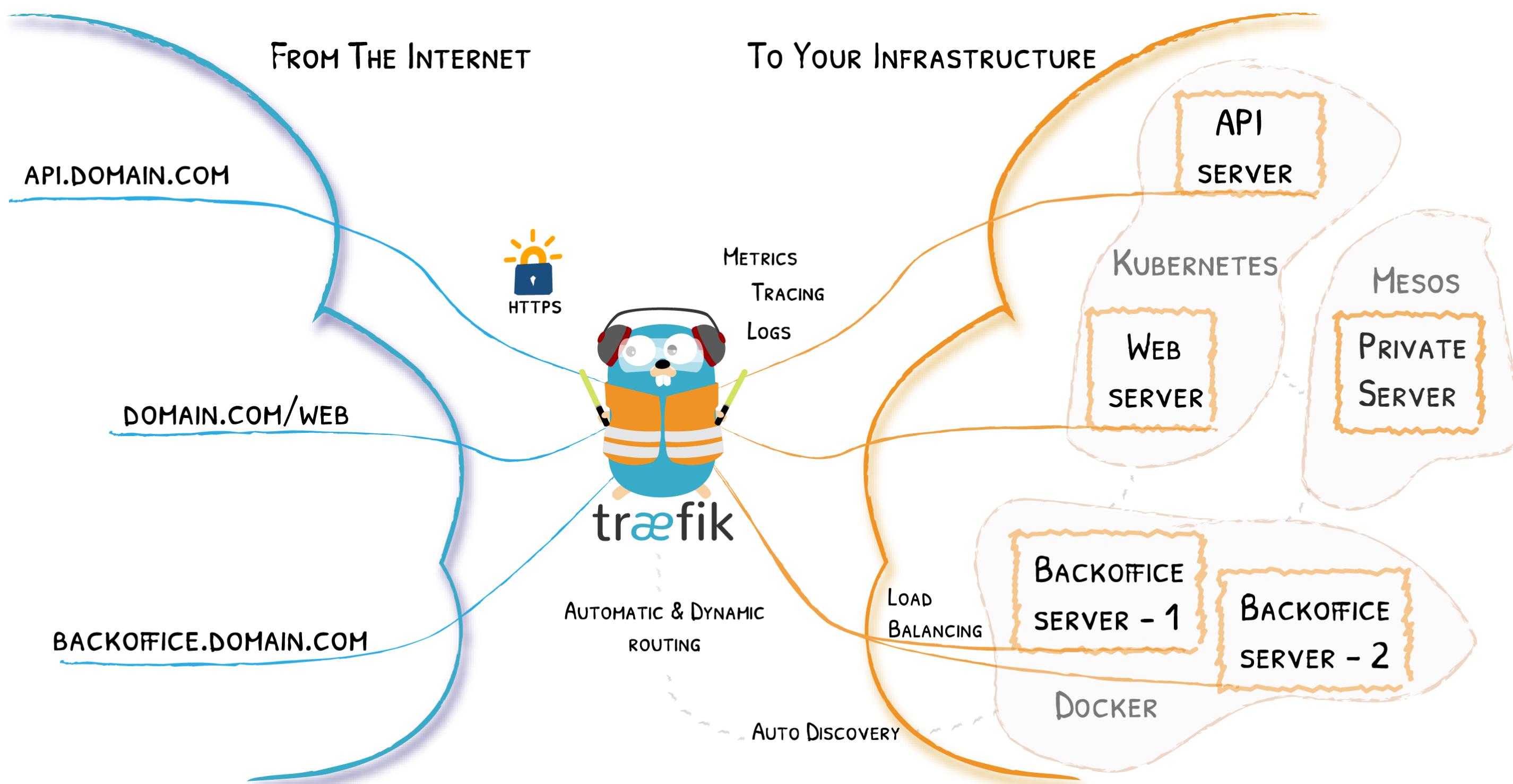
```
./traefik bug
```

Autofills the issue template (environment, configuration files, ...)

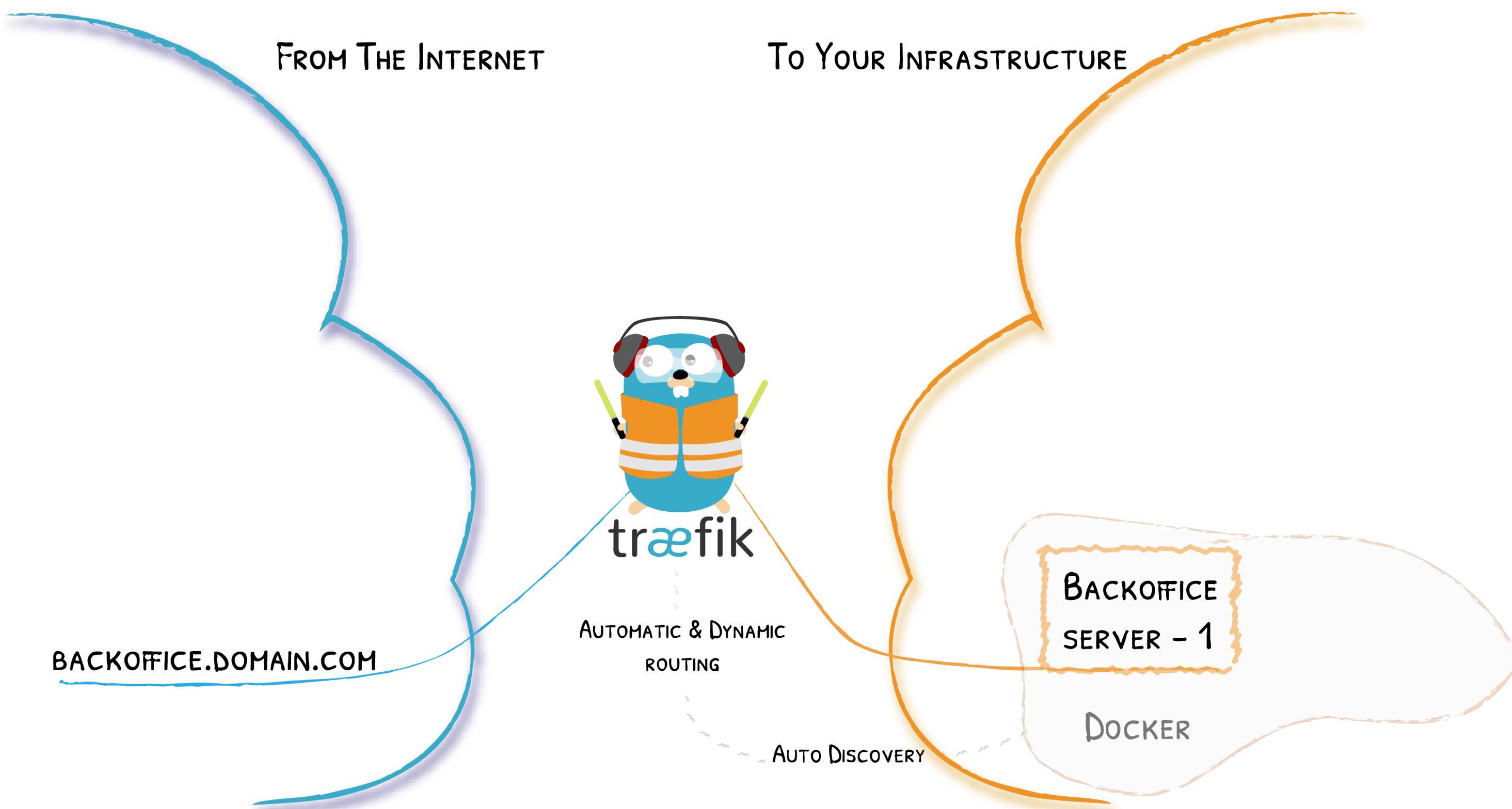
# Traefik Core Concepts



# Remember The Diagram?



# Let's Simplify



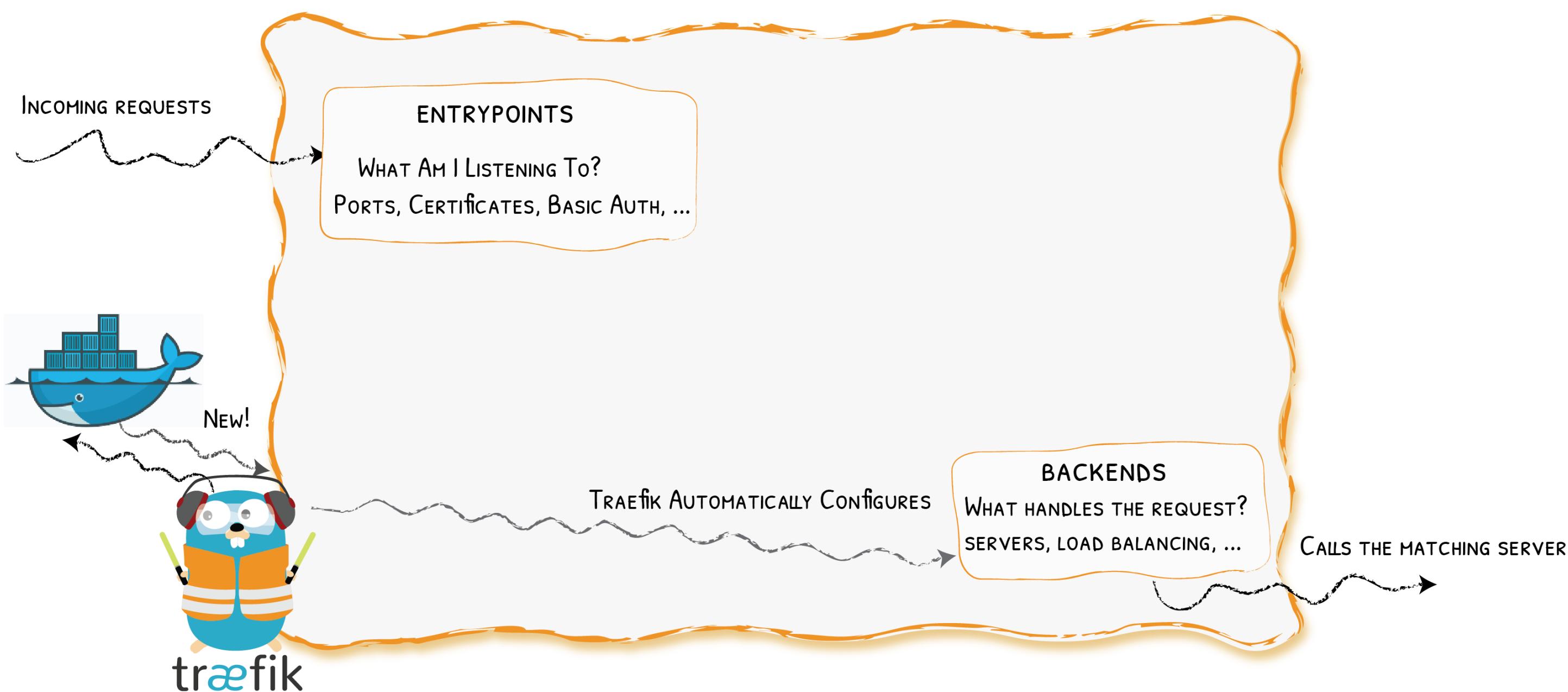
# Providers



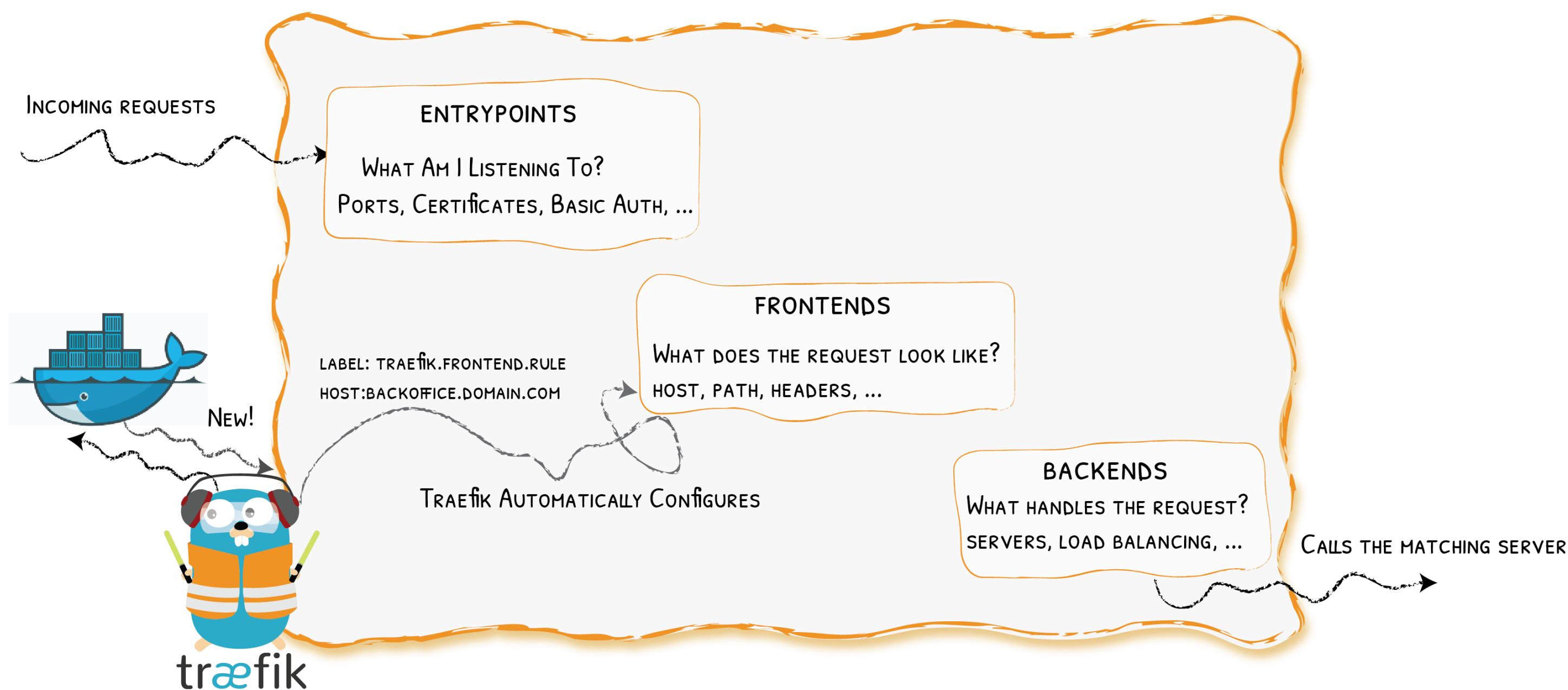
# Entrypoints



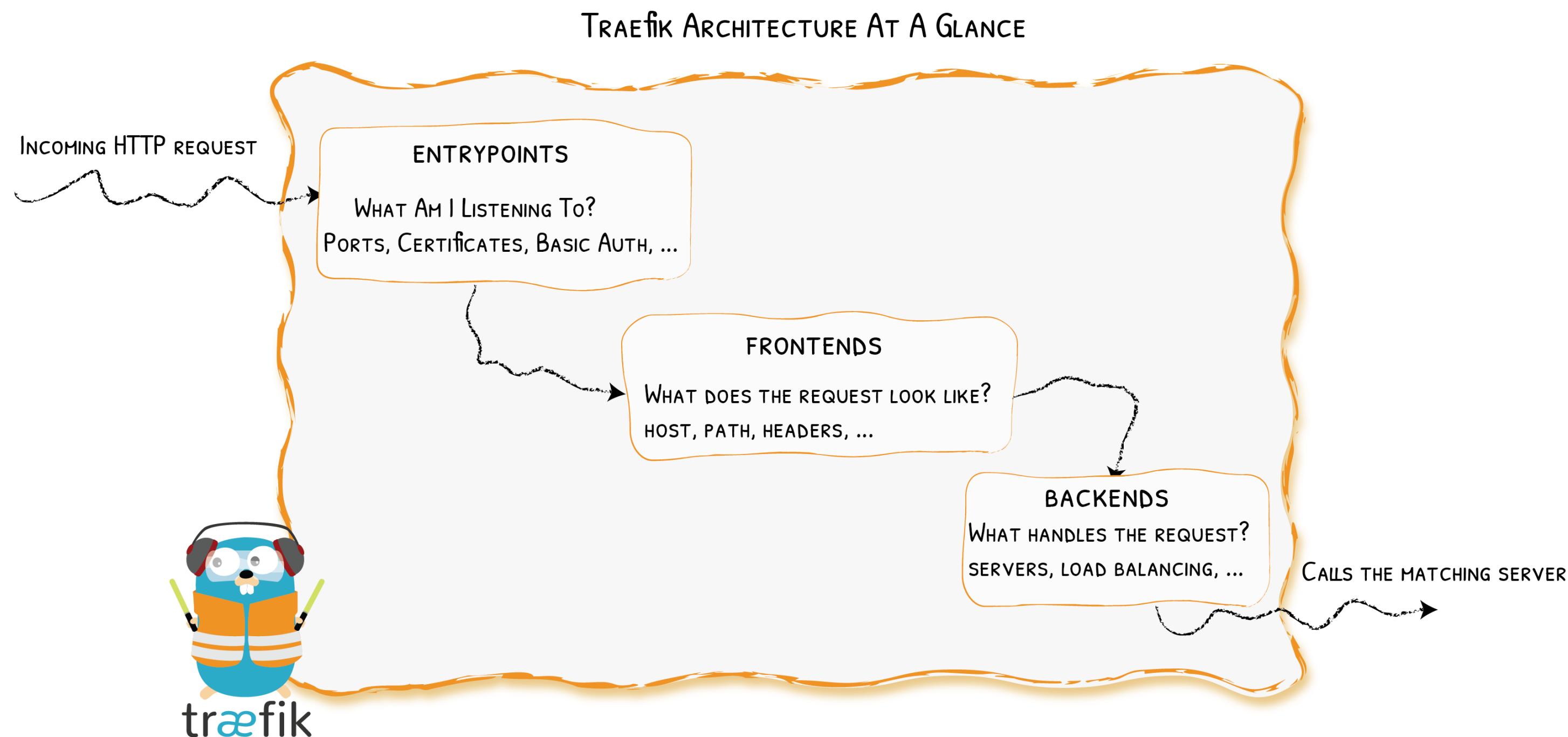
# Backends



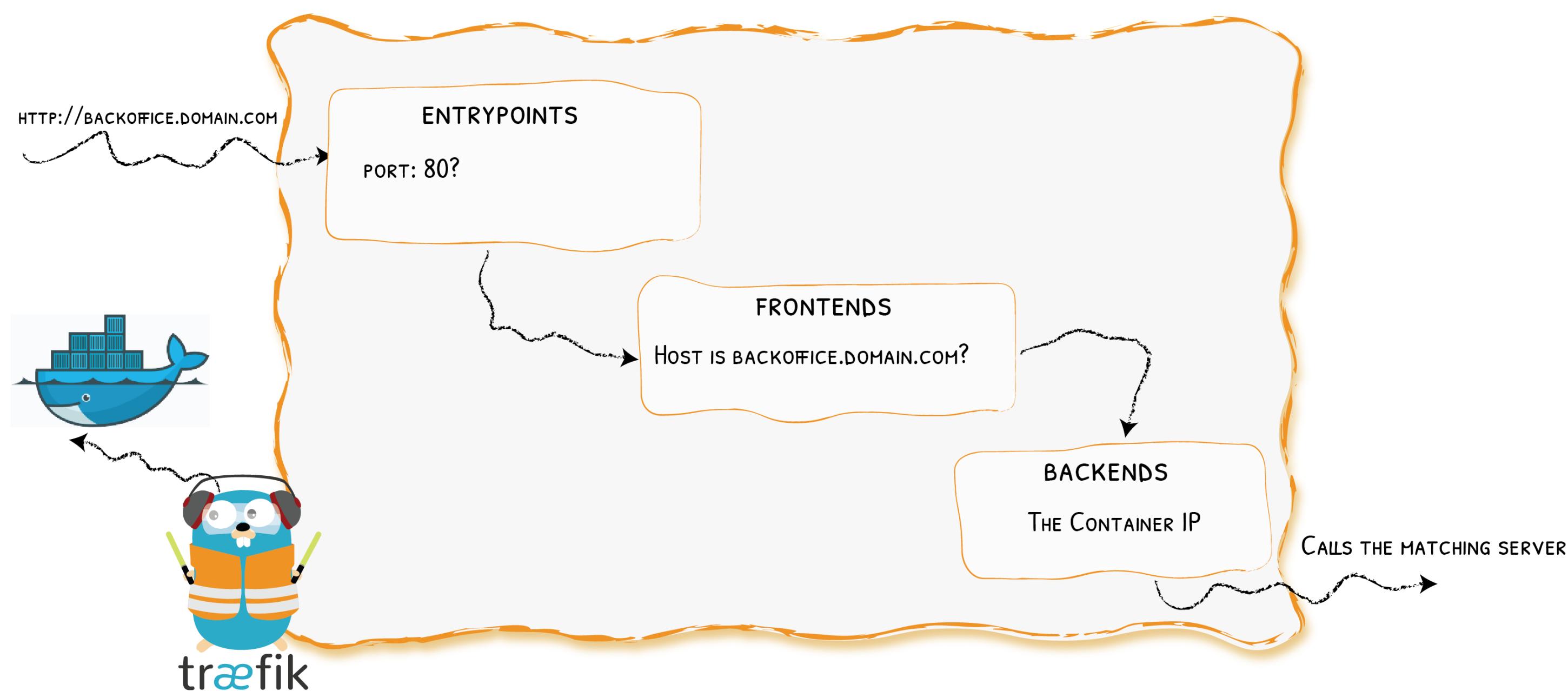
# Frontends



# At A Glance



# In Practice



# *A Glimpse On Traefik's Features*

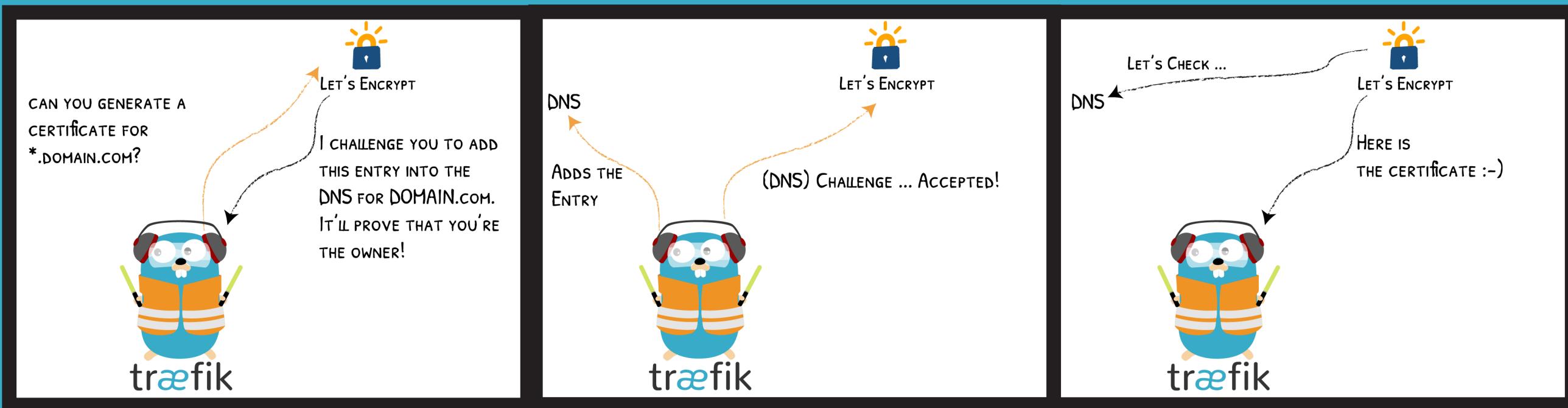
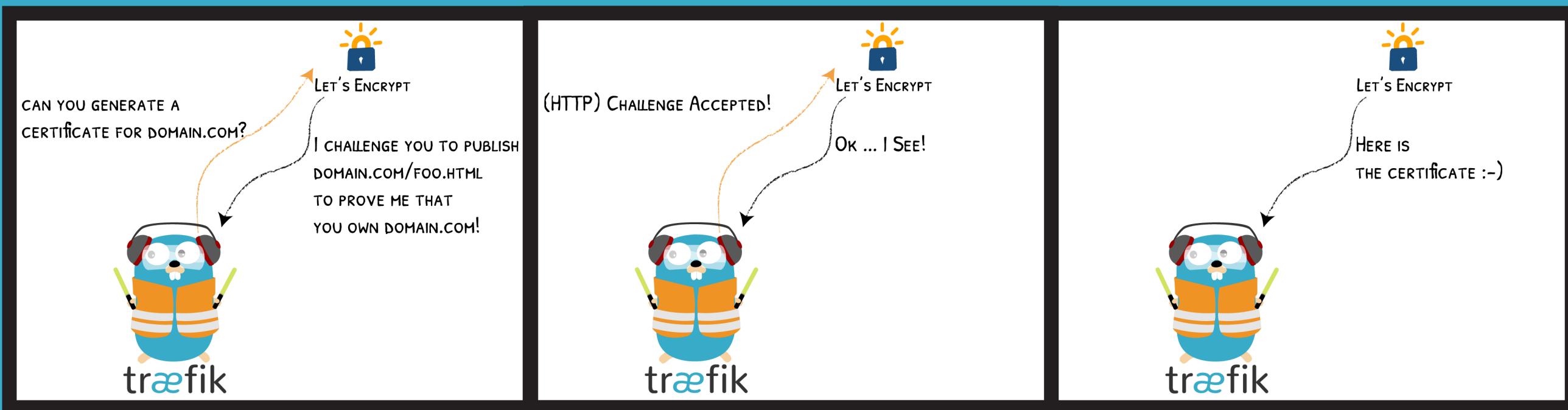
Keep It Simple

# Show Me The Code!

- With Docker:

```
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



# With Docker: Simple Backend

```
# https://www.mycompany.org
webserver:
  image: nginx:alpine
  labels:
    - "traefik.frontend.rule=Host:www.mycompany.org"
```

# With Docker: Websockets

```
# https://mycompany.org/webterminal
webterminal:
  image: ts10922/ttyd
  labels:
    - "traefik.frontend.rule=PathPrefixStrip:/webterminal"
  expose:
    - "7681"
```

# With Docker: Context

```
# http://mycompany.org/jenkins
jenkins:
  image: jenkins/jenkins:lts
  labels:
    - "traefik.frontend.rule=PathPrefix:/jenkins"
    - "traefik.port=8080" # Because 50000 is also exposed
  environment:
    - JENKINS_OPTS="--prefix=/jenkins"
```

# With Docker: Rewrites

```
# http://mycompany.org/gitserver
gitserver:
  image: gitea/gitea:1.5
  labels:
    - "traefik.frontend.rule=PathPrefixStrip:/gitserver"
    - "traefik.port=3000" # Because 22 is also exposed
```

# Traefik With Kubernetes

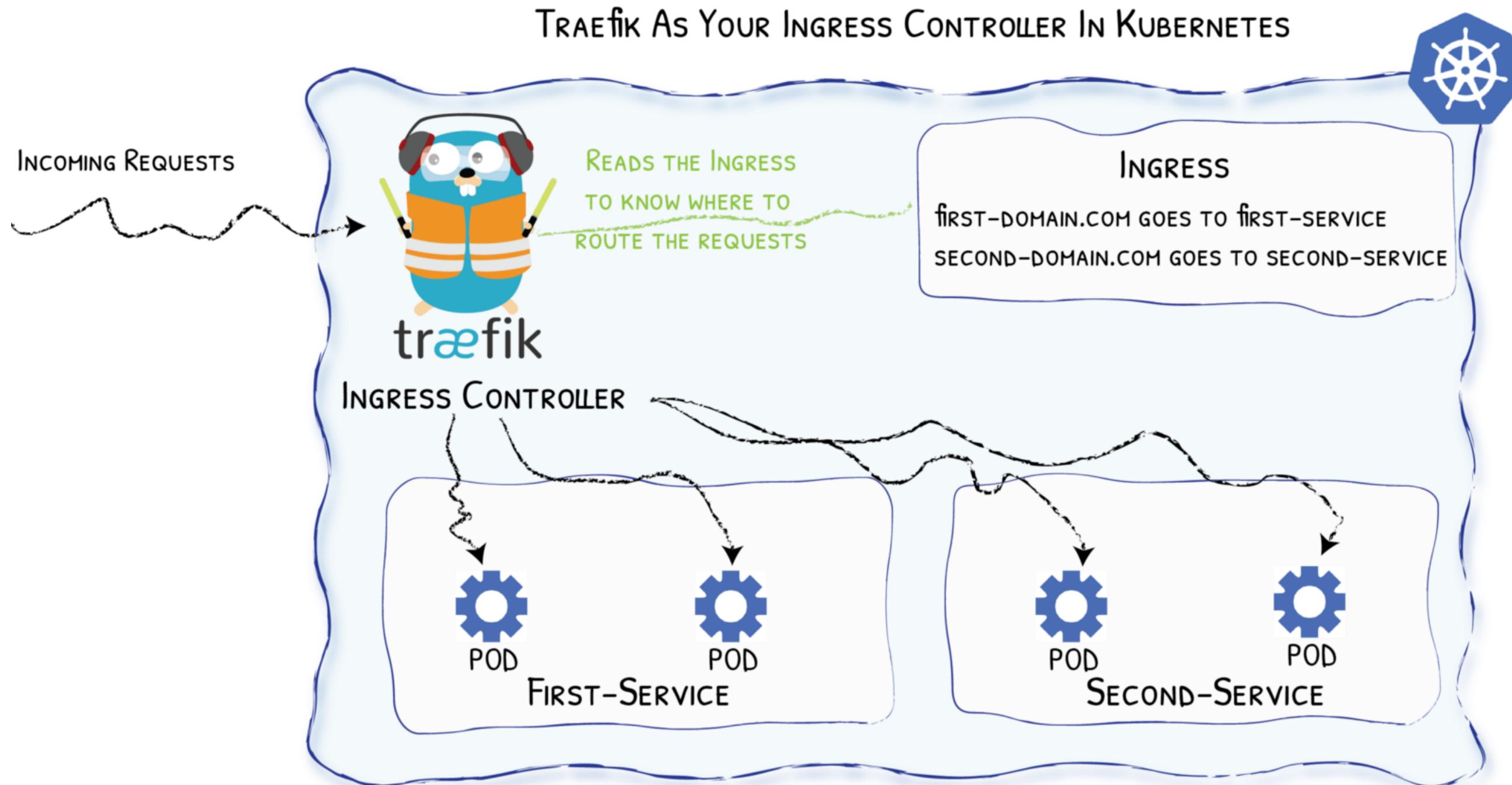


Diagram from <https://medium.com/@geraldcroes>

# With Kubernetes Too!

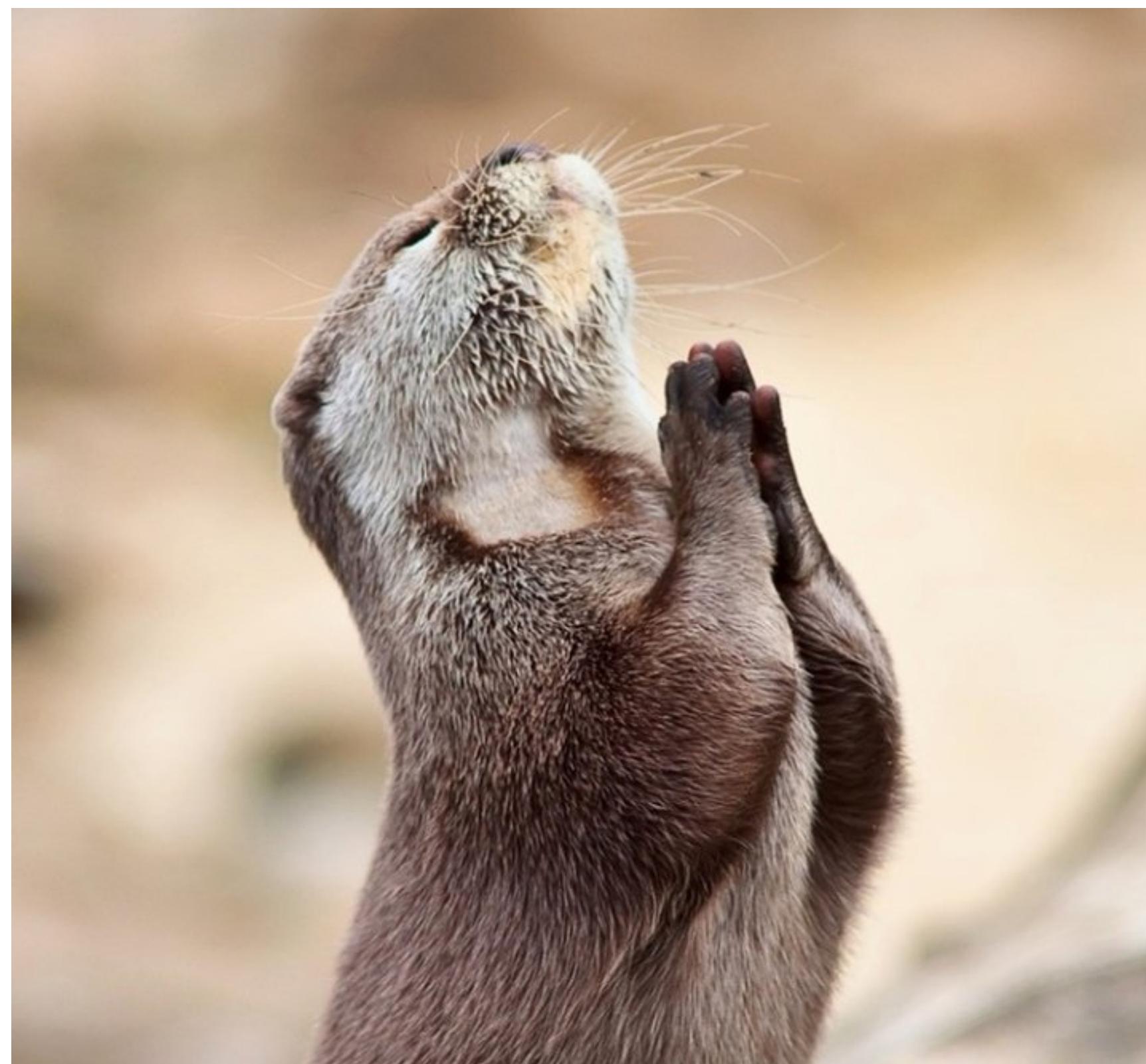
```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  annotations:
    # kubernetes.io/ingress.class: 'nginx'
    kubernetes.io/ingress.class: 'traefik'
spec:
  rules:
  - host: mycompany.org
    http:
      paths:
      - path: "/whoami"
        backend:
          serviceName: whoami
       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

# Demo

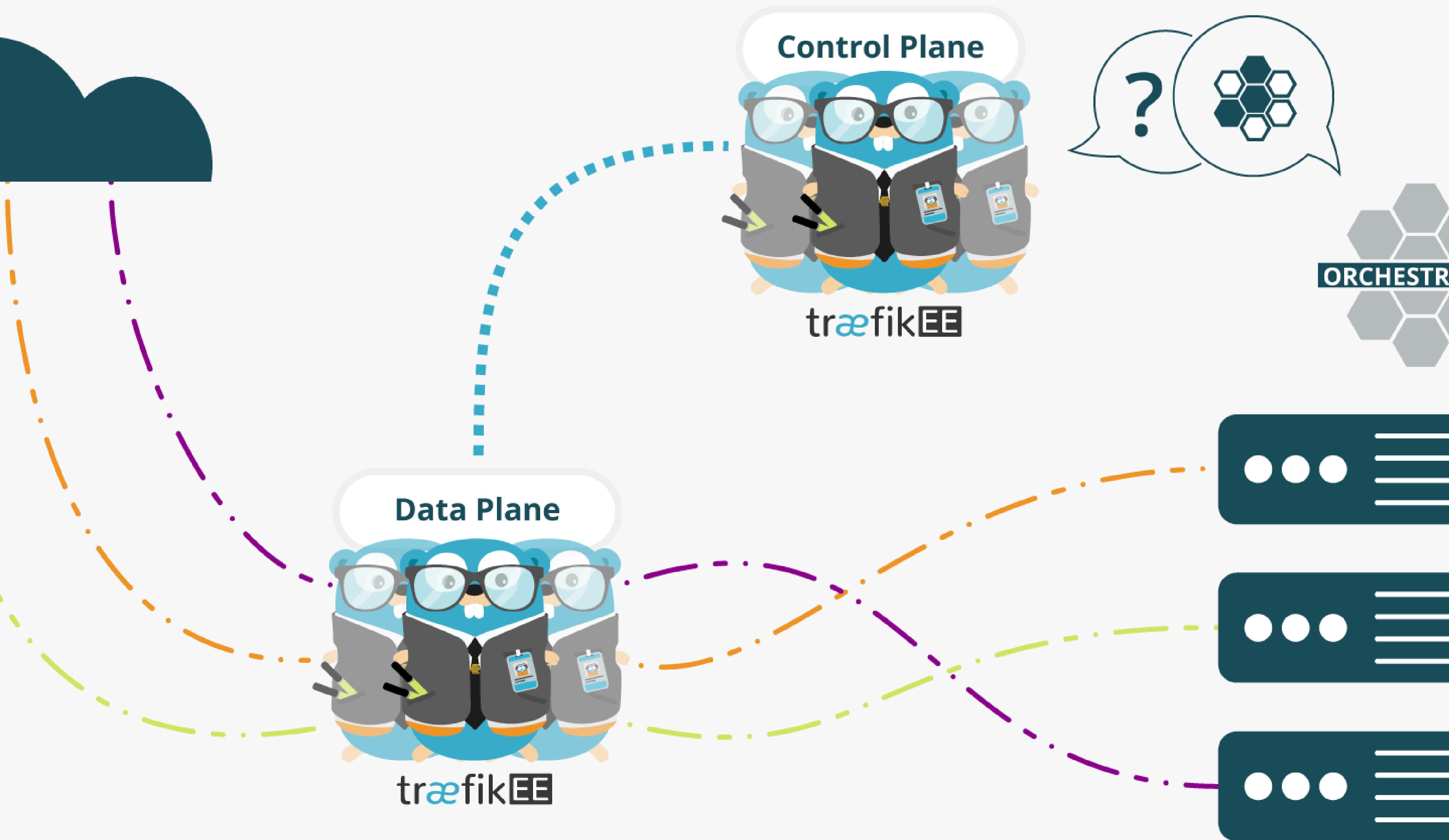




traefikEE

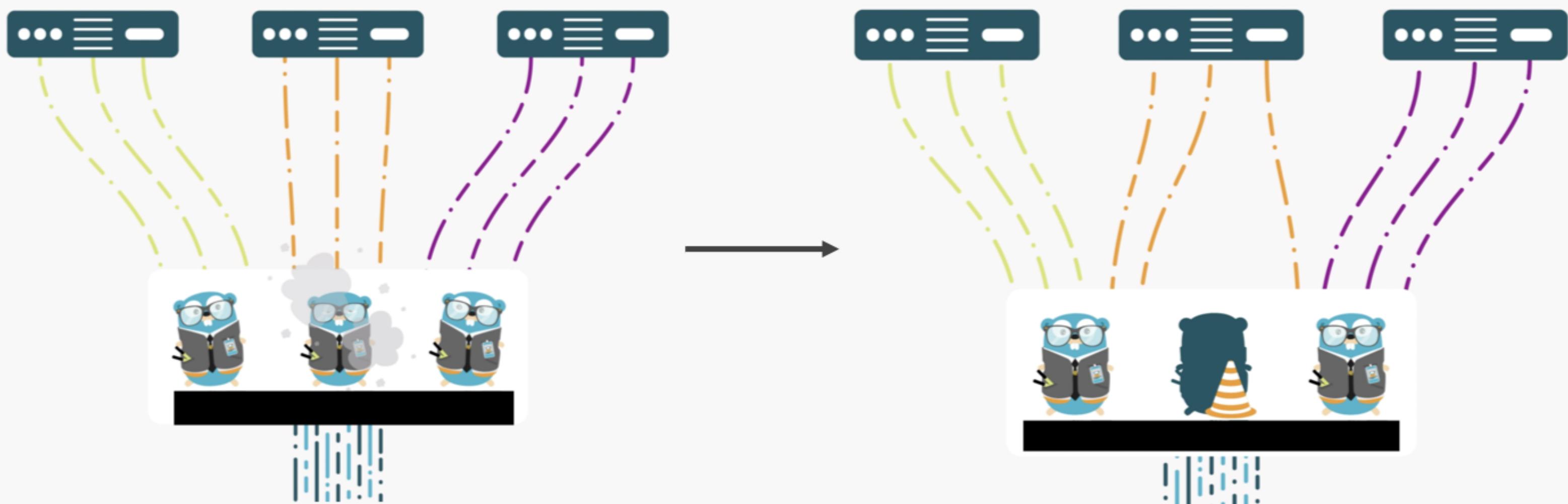
INTERNET

TO YOUR INFRA

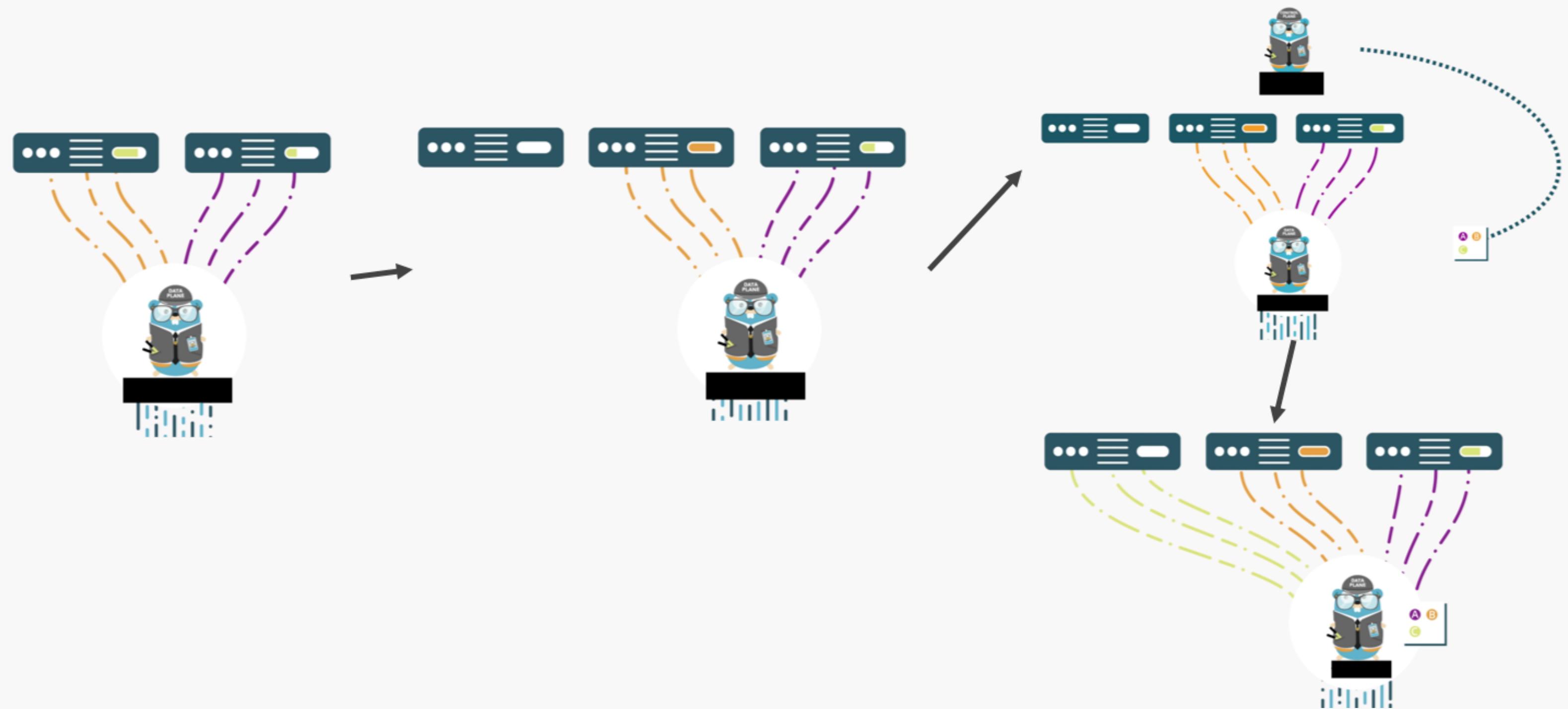


*Did You Say "High Availability"?*

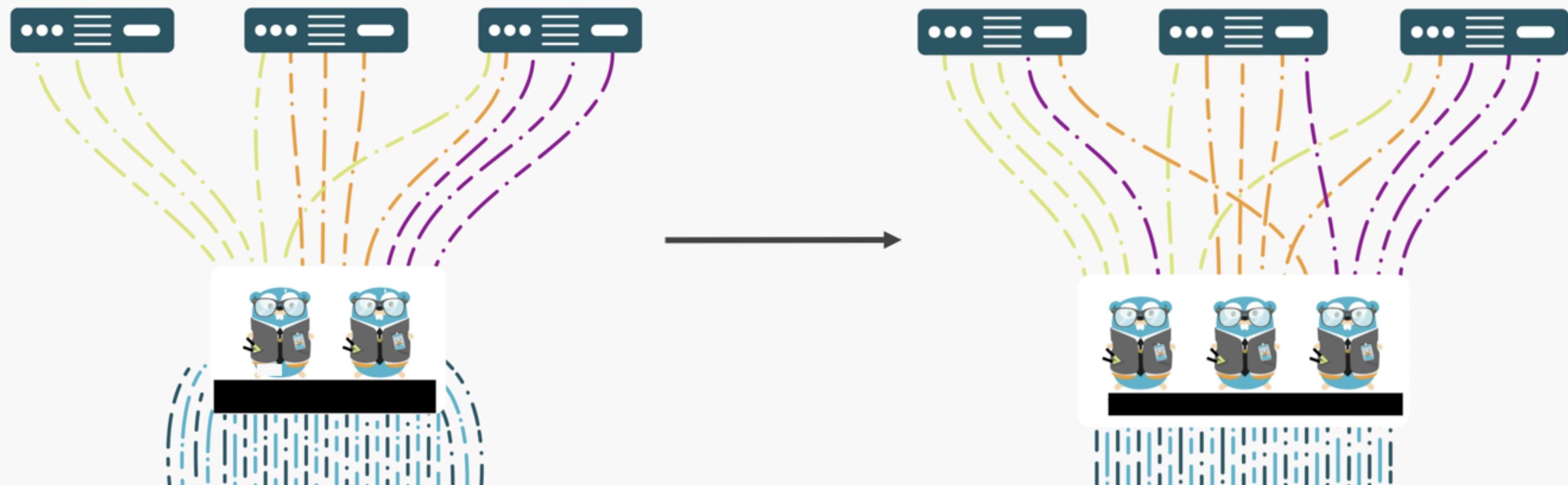
# A Highly-Available Traefik



# A Safe Traefik



# A Scalable Traefik



# As Simple As Traefik

```
$ traefikeectl install \  
--licensekey="j1fIw4wmYHsnuTM6VUmiHAKnVzLtaQHX" \  
--dashboard \  
--kubernetes
```

# Early Access

<https://containo.us/traefikee>

A scene from the movie Back to the Future. On the left, Doc Brown (played by Christopher Lloyd) is holding a large, metallic flux capacitor. He has white hair and a shocked expression, looking upwards. On the right, Marty McFly (played by Michael J. Fox) is also looking upwards with a surprised expression. The background is dark, suggesting they are in a time-traveling vehicle or a similar setting.

Let's Talk About The Future

# BACK toTRAEFIK 2.8

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 via HTTPS. Traefik then routes these requests to various infrastructure components: KUBERNETES, MESOS, and DOCKER, which host API SERVERS, WEB SERVERS, and PRIVATE SERVERS. Traefik also handles 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

DOCKER

API SERVER

WEB SERVER

PRIVATE SERVER

BACKOFFICE SERVER - 1

BACKOFFICE SERVER - 2

Metrics  
Tracing  
Logs

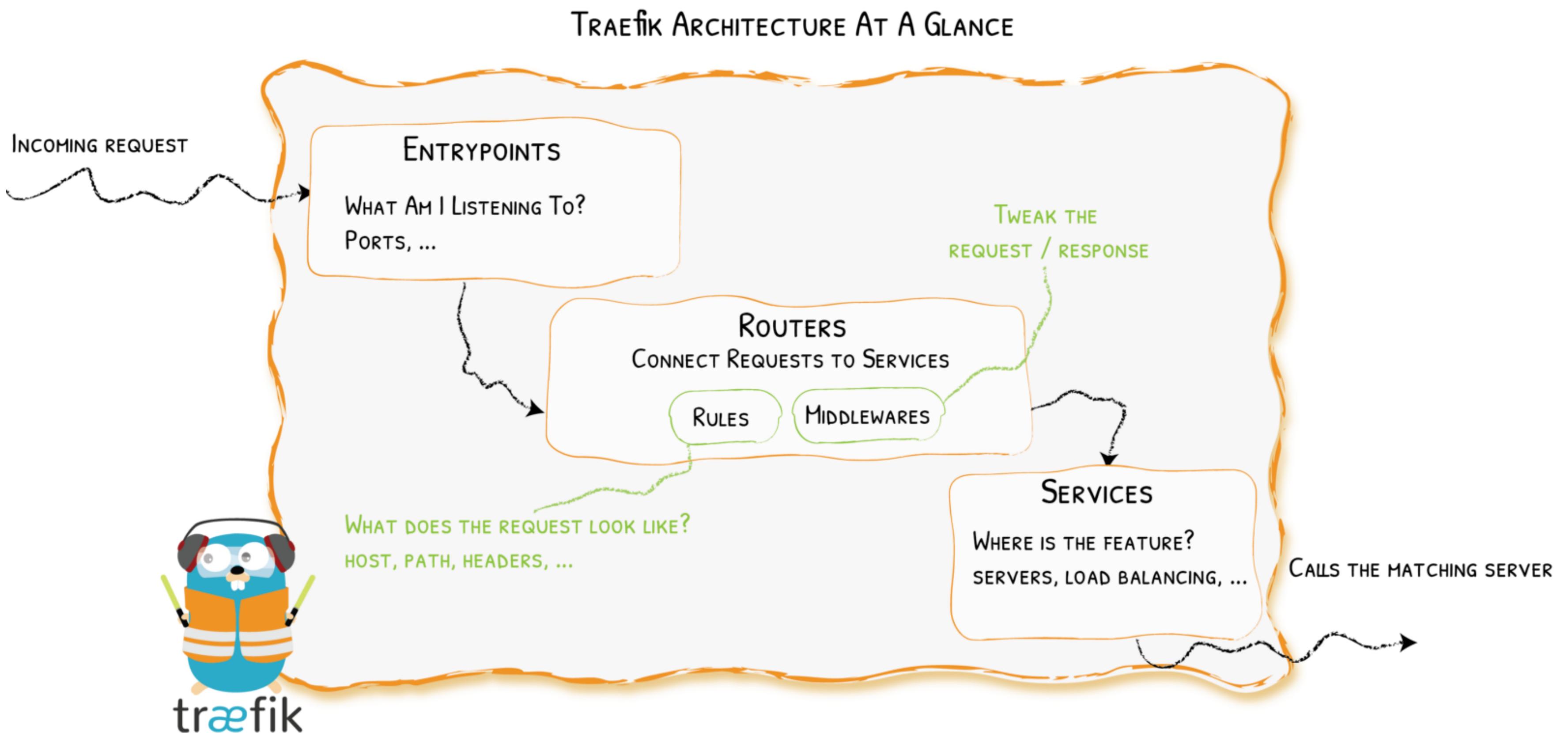
AUTOMATIC & DYNAMIC ROUTING

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

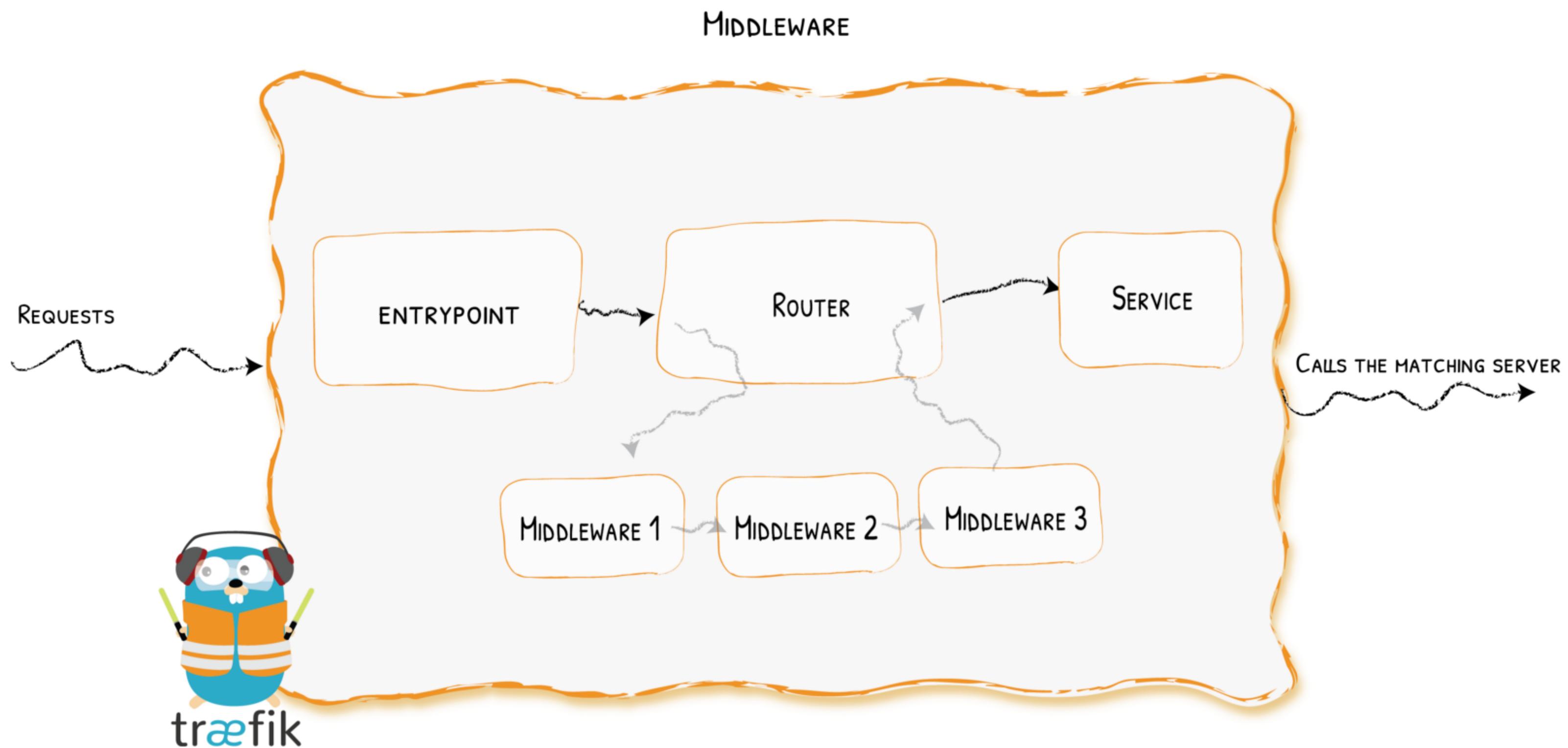


# Expressive Routing Rule Syntax



```
# 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



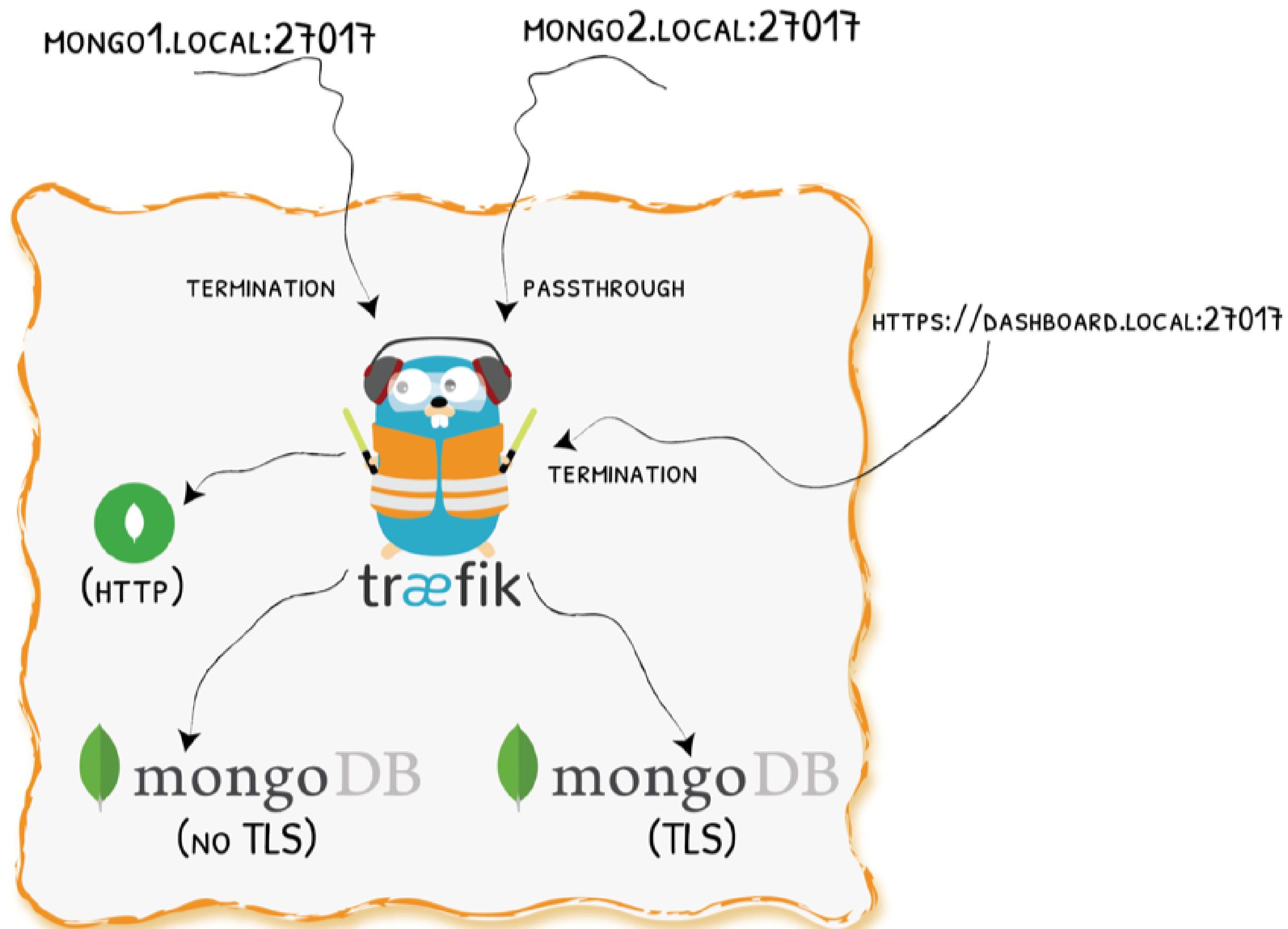
# *Custom Resources Definition*





HTTP  
&  
TCP

# Demo



# *More To Come*

- New WebUI
- Newmetrics
- UDP
- YAML
- TLS stores & options
- Canary

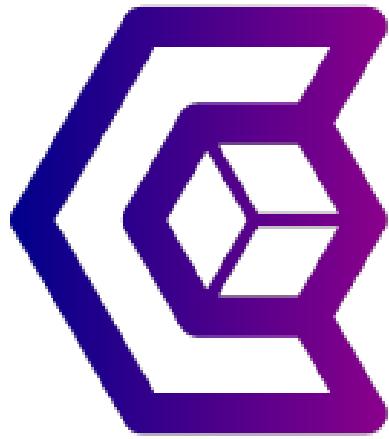
# More Info

[bit.ly/traefik-v2](https://bit.ly/traefik-v2)

**TO BE  
CONTINUED...**



# We Are Hiring!

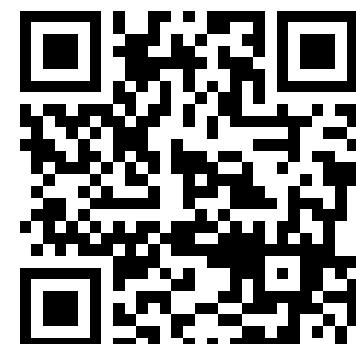


```
docker run -it containous/jobs
```

# Thank You!

 @DamienDuportal

 dduportal



<https://containous.github.io/slides/bbl-decathlon-2019>