Traefik V2.0 In Docker

San Francisco Docker Meetup - Tuesday 24th of September 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

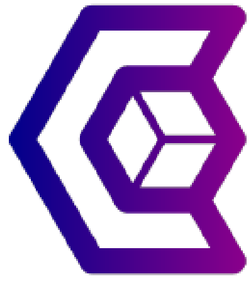
Emile vauge

- 🇫🇷 Developer
- Creator of Træfik, Founder of Containous
- @emilevauge
- emilevauge

Containous

https://containo.us

- We Believe in Open Source
- We Deliver Traefik and Traefik Enterprise Edition
- Commercial Support
- 30 people distributed, 90% tech



Why Traefik?

Why, Mr Anderson?

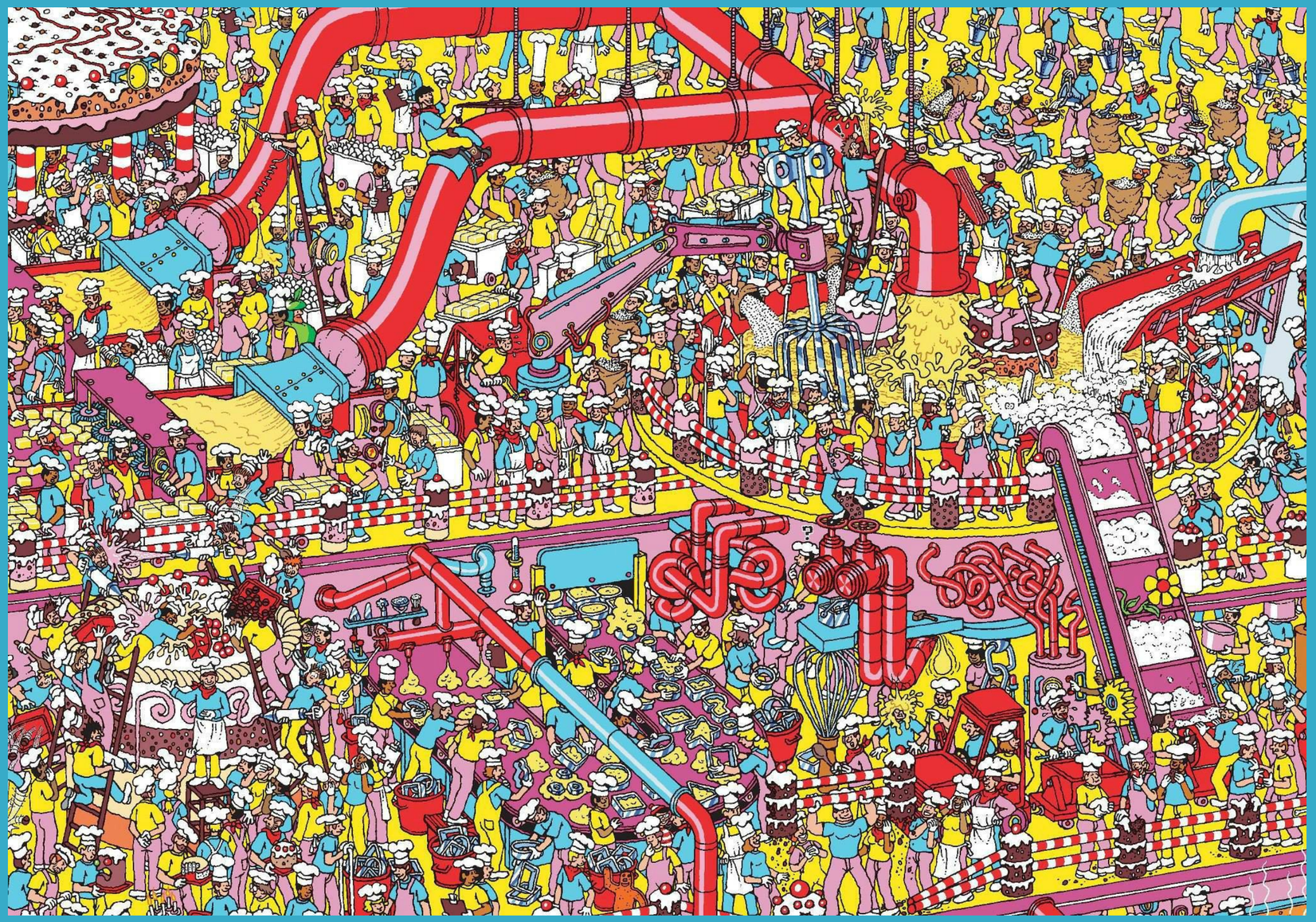
Evolution Of Software Design

1990s and earlier	2000s	2010s
Coupling		
Pre-SOA (monolithic)	**Traditional SOA**	**Microservices**
Tight coupling	Looser coupling	Decoupled

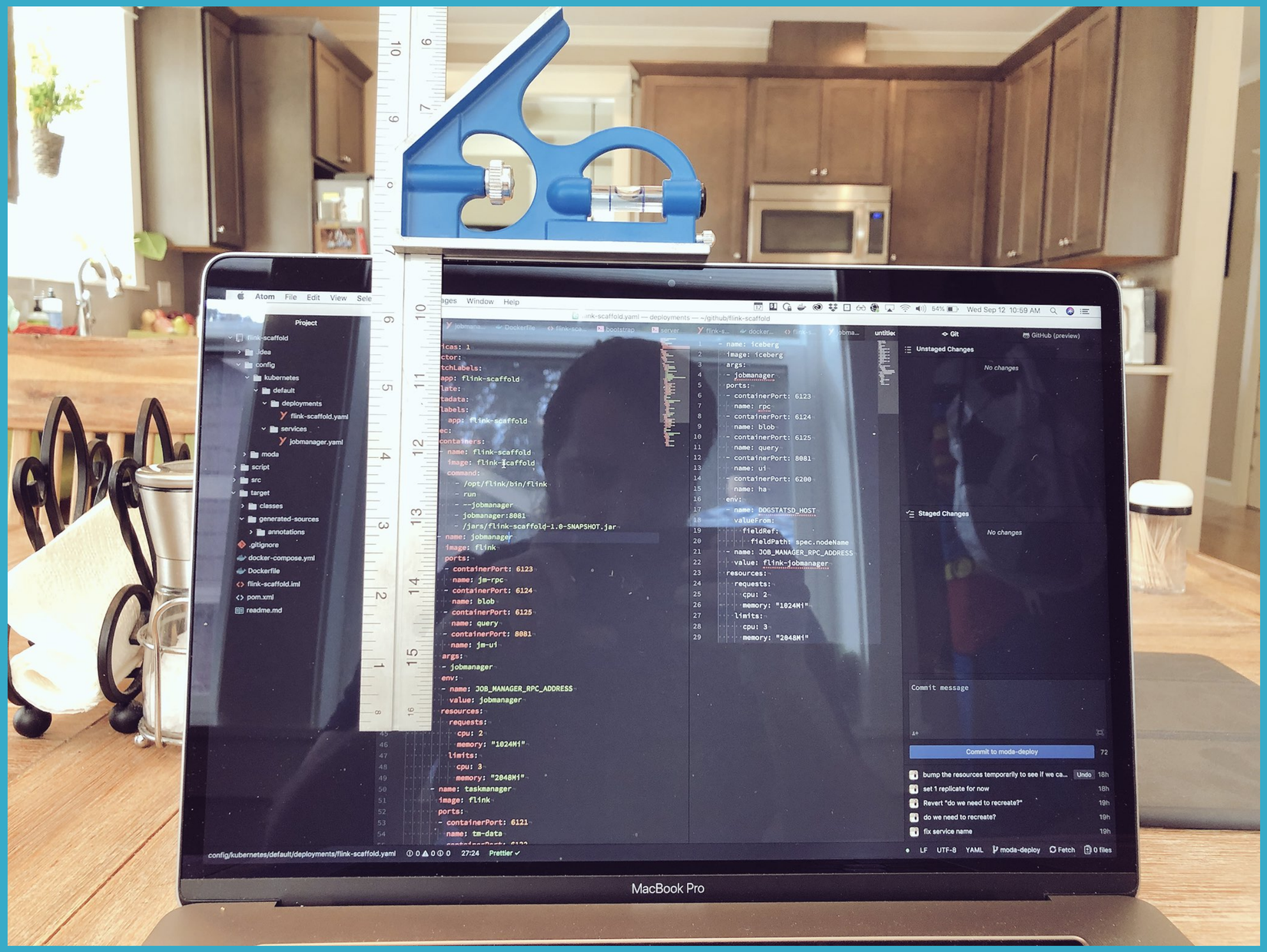
The Premise Of Microservices···

⋯And What Happens

Where’s My Service?



Tools Of The Trade

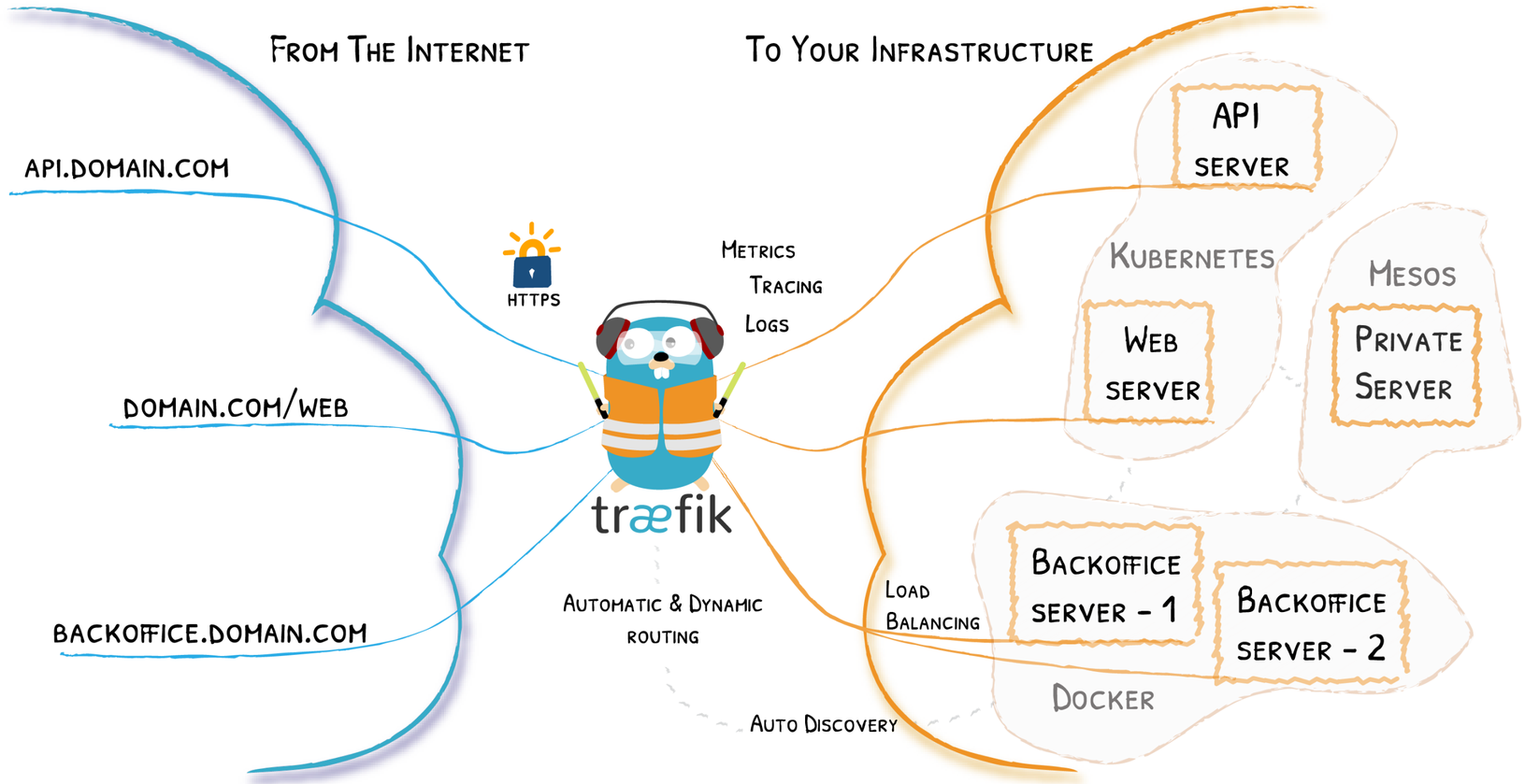


Source: https://twitter.com/Caged/status/1039937162769096704

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
- 24,000+ ☆ 1B+ ⬇ 400+
- Created in 2015, 4Y
- Current stable branch: `v2.0`

BACK TO TRAEFIK PART 2.0

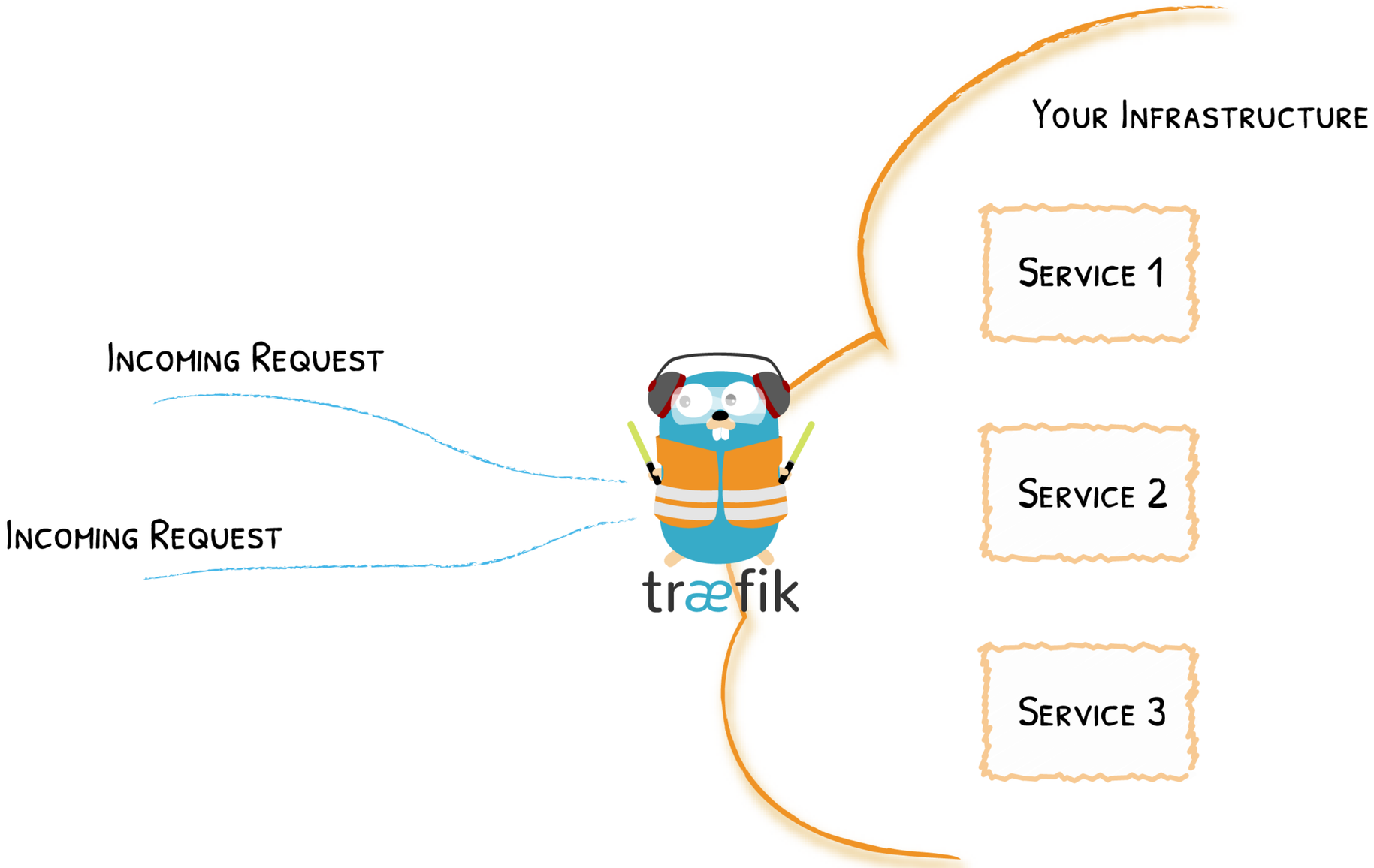
Traefik 2.0 Quick Overview

- Revamped Documentation
- Clarified Concepts
- Expressive Routing Rule Syntax
- Middlewares
- TCP Support
- Canary / Mirroring
- And so Much More...

Learn more on the blog post

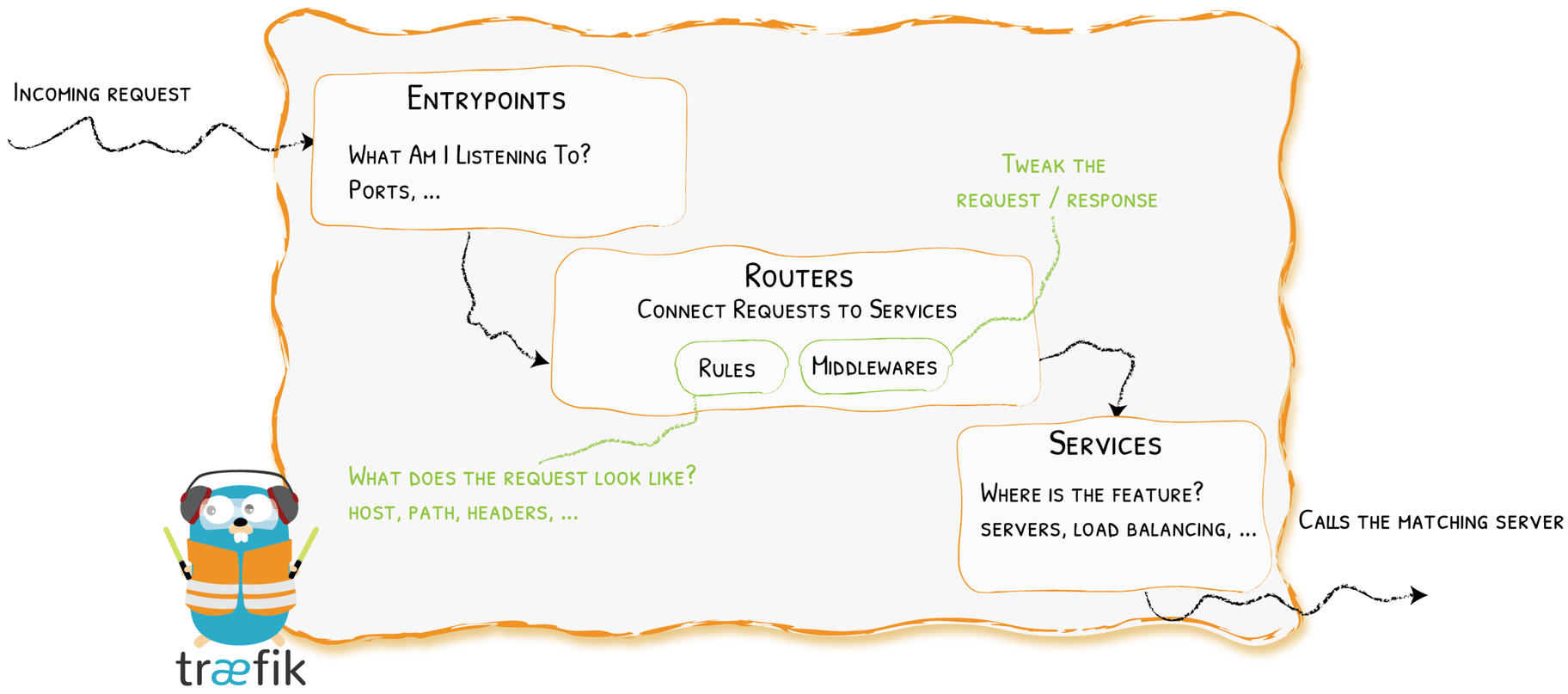
Traefik (V2.0) Core Concepts

Traefik Is An Edge Router

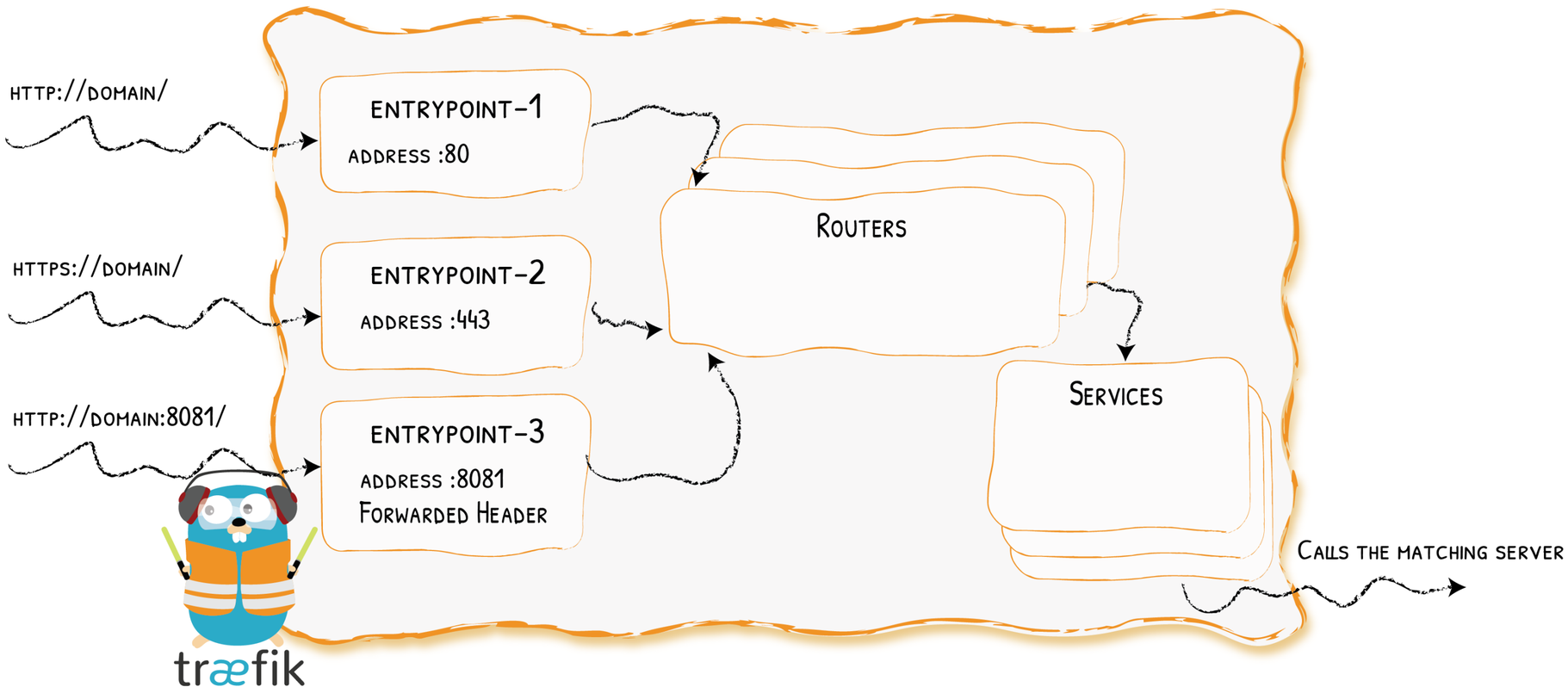


Traefik Dynamically Discovers Services

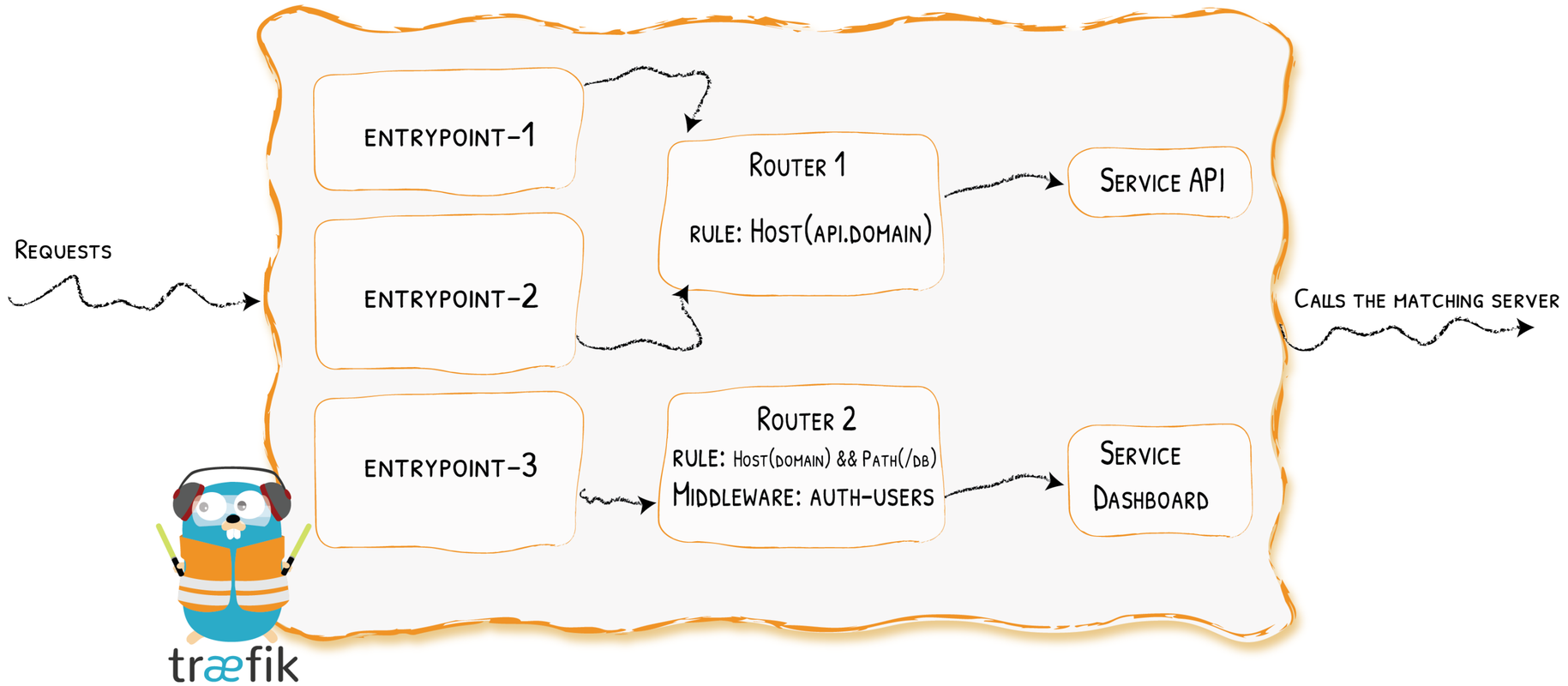
Architecture (V2.0) At A Glance



Entrypoints



Routers


ENTRYPOINT-1
ROUTER 1
RULE: HOST(API.DOMAIN)
SERVICE API
REQUESTS
ENTRYPOINT-2
CALLS THE MATCHING SERVER
ENTRYPOINT-3
ROUTER 2
RULE: HOST(DOMAIN) && PATH(/DB)
MIDDLEWARE: AUTH-USERS
SERVICE
DASHBOARD
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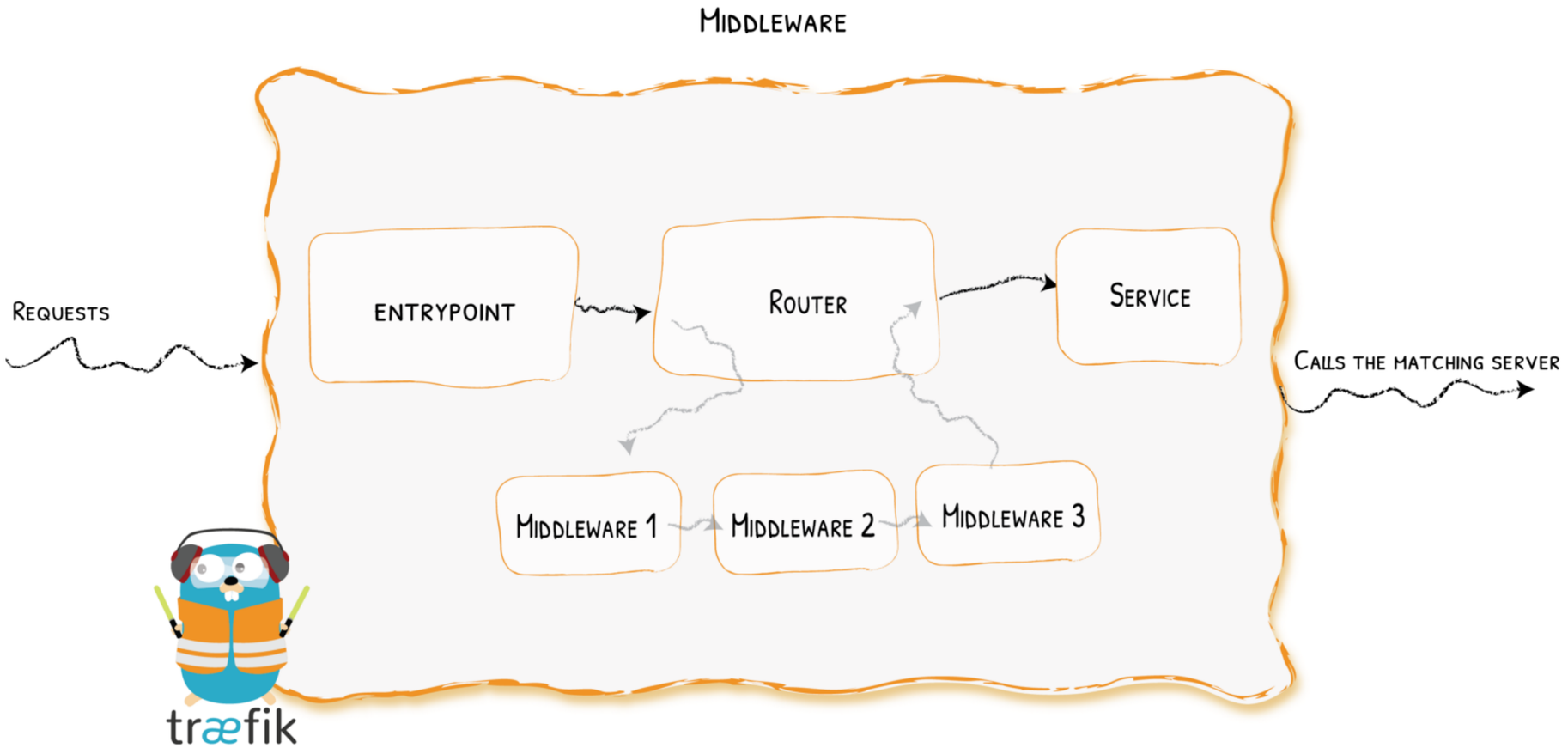
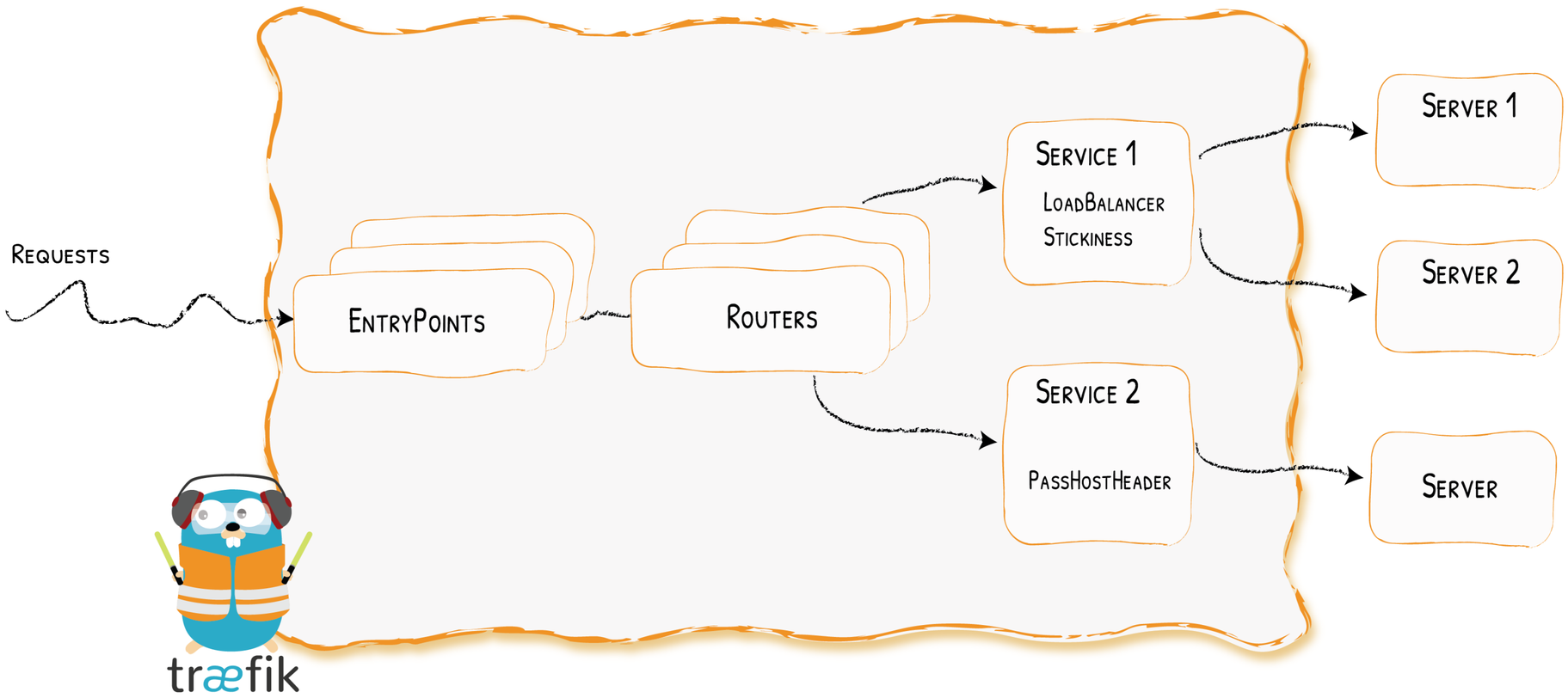
Middlewares



Services


Requests
EntryPoints
Routers
Service 1
LoadBalancer
Stickiness
Service 2
PassHostHeader
Server 1
Server 2
Server
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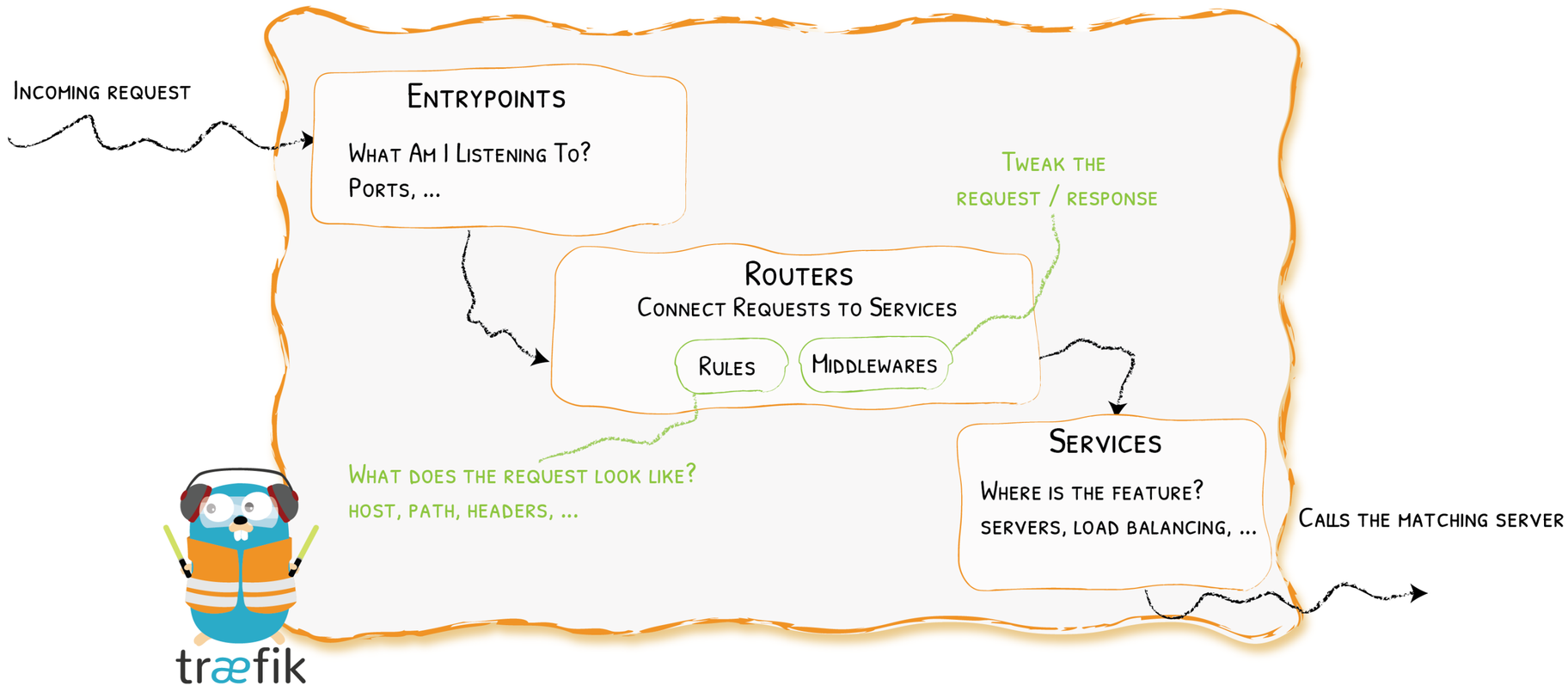
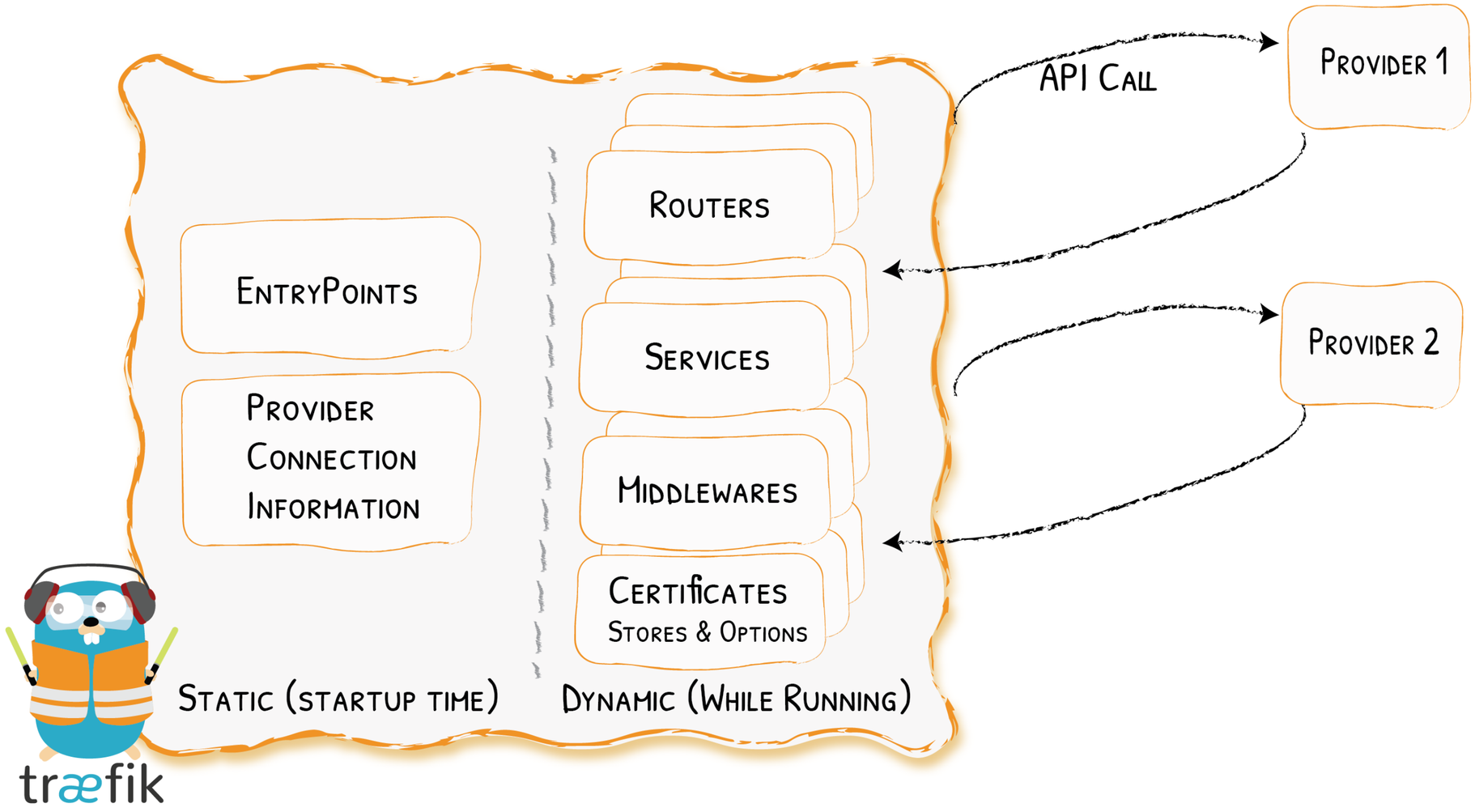
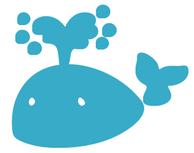
Architecture (Again) At A Glance

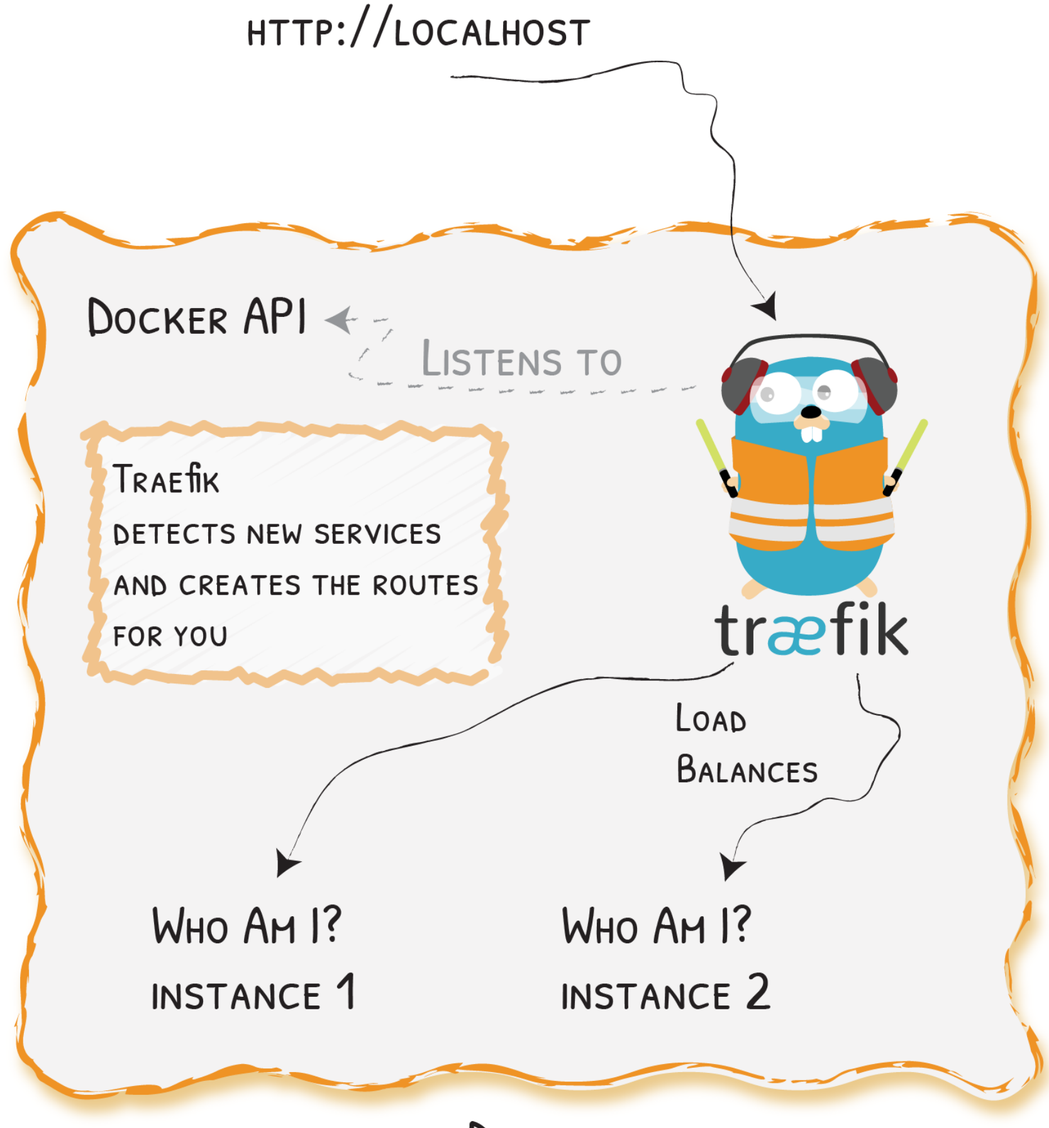


Static & Dynamic Configuration



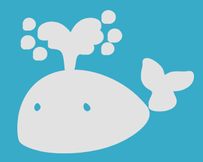
Show Me The Configuration!

Simple Example With 



TRAEFIK IS THE ONLY ACCESSIBLE CONTAINER FROM THE OUTSIDE.

OTHER SERVICES ARE DEPLOYED ON DEMAND AND AVAILABLE THROUGHT TRAEFIK.

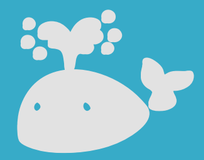
With 

- With Docker Compose:

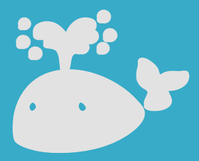
```yaml
version: '3'

services:
  reverse-proxy:
    image: traefik:v2.0
    command: --providers.docker
    ports:
      - "80:80"
    volumes:
      - /var/run/docker.sock:/var/run/docker.sock

  webapp:
    image: containous/whoami
    labels:
      - "traefik.http.routers.webapp.rule=Host(`localhost`)"
```

With  : Context

```yaml
# https://mycompany.org/jenkins -> http://jenkins:8080/jenkins
jenkins:
    image: jenkins/jenkins:lts
    environment:
      - JENKINS_OPTS=--prefix=/jenkins
    labels:
      - "traefik.http.services.jenkins.LoadBalancer.server.Port=8080" # Because 50000 is also exposed
      - "traefik.http.routers.jenkins.rule=Host(`mycompany.org`) && PathPrefix(`/jenkins`)"
      - "traefik.http.routers.jenkins.service=jenkins"
```

With  : Rewrites

```
# https://mycompany.org/gitserver -> http://gitserver:3000/
gitserver:
    image: gitea/gitea
    labels:
      - "traefik.http.routers.gitserver.rule=Host(`mycompany.org`) && PathPrefix(`/gitserver`)"
      - "traefik.http.middlewares.gitserver-stripprefix.stripprefix.prefixes=/gitserver"
      - "traefik.http.routers.gitserver.middlewares=gitserver-stripprefix"
```

With 🐳: Websockets

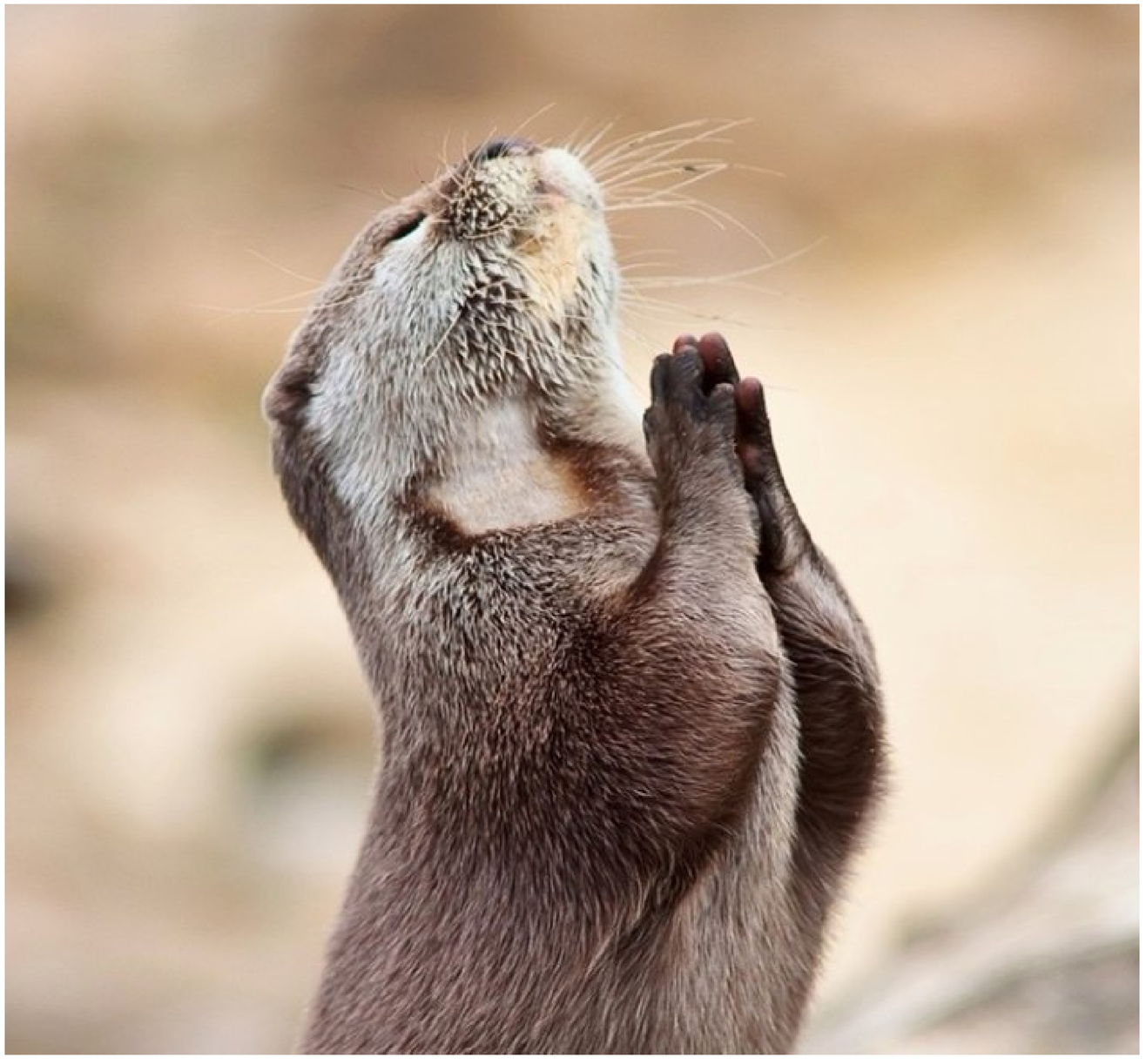
```
# https://webterminal.mycompany.org -> http://webterminal/
webterminal:
    image: tsl0922/ttyd
    labels:
      - "traefik.http.routers.devbox.rule=Host(`webterminal.mycompany.org`)"
```

With File Configuration

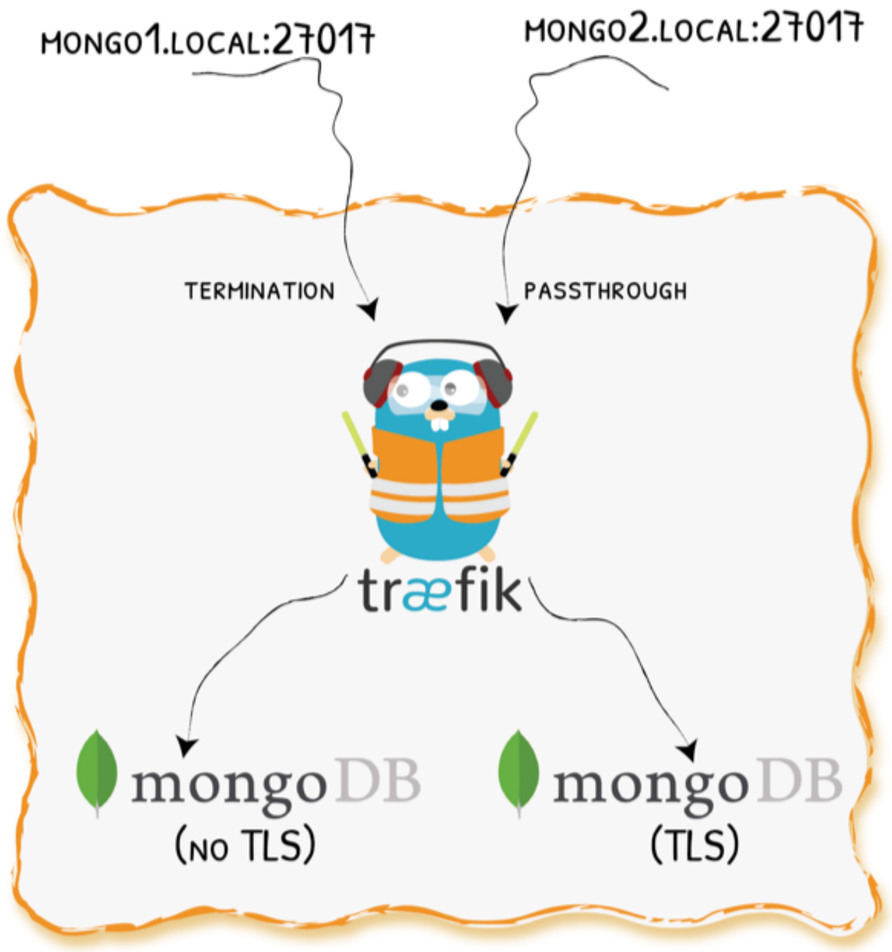
Canaray Releases

```
http:
  services:
    canary:
      weighted:
        services:
        - name: appv1
          weight: 3 # 75%
        - name: appv2
          weight: 1 #25%
  appv1:
    loadBalancer:
      servers:
      - url: "http://private-ip-server-1/"
  appv2:
    loadBalancer:
      servers:
      - url: "http://private-ip-server-2/"
```

Demo

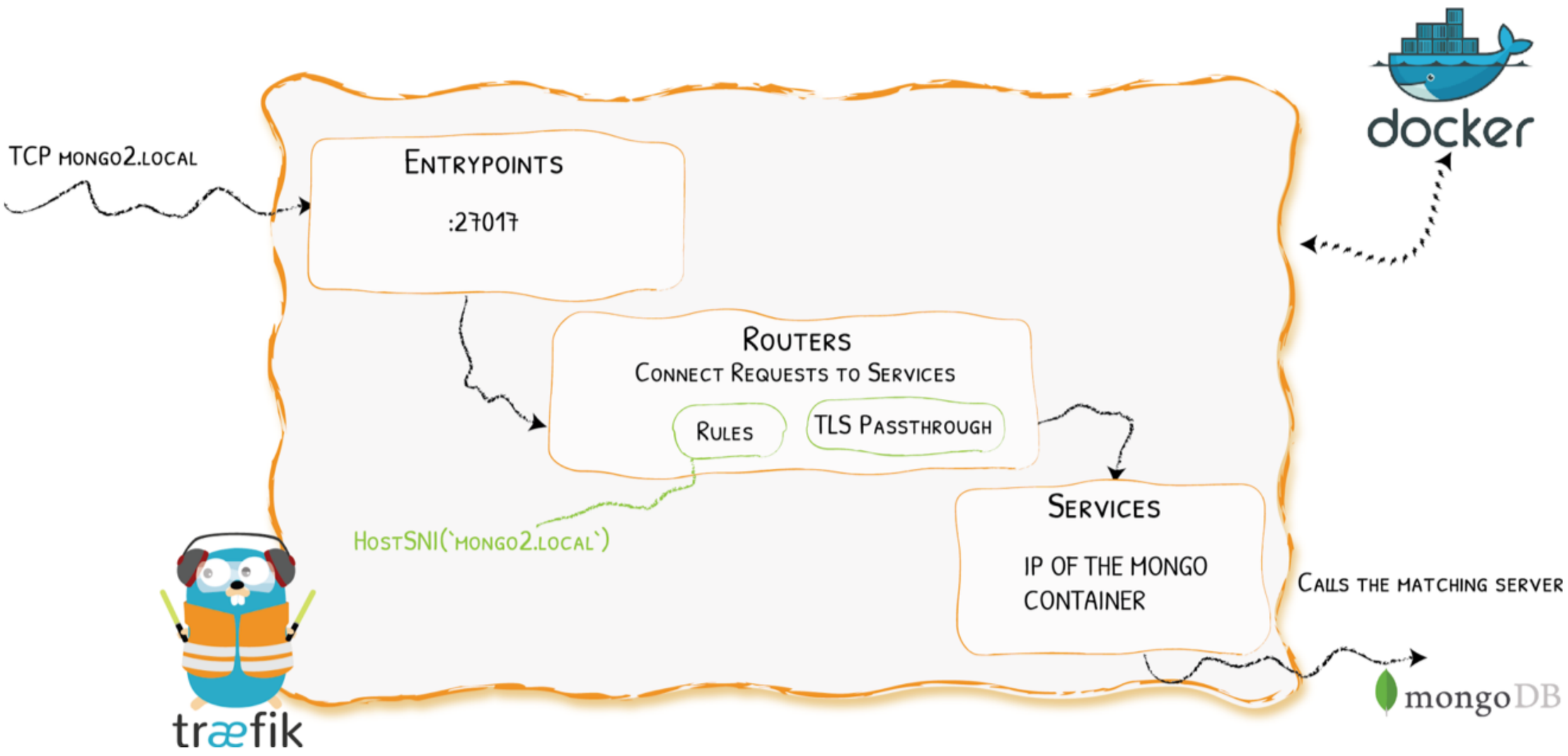


Demo 1 - SNI Routing + TLS Passthrough For TCP

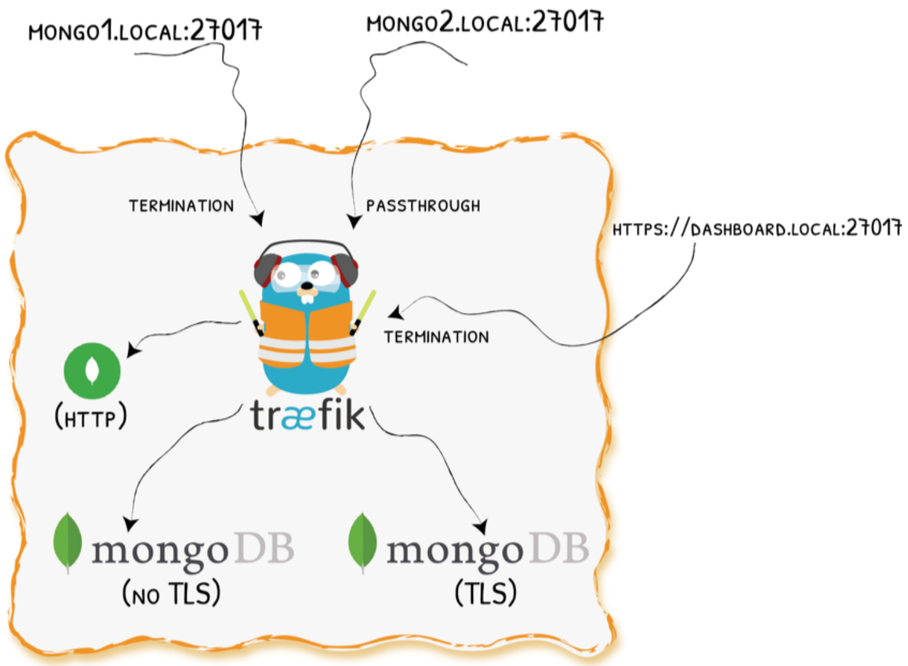


Demo Code on

Demo 1 - Configuration



Demo 2 - Muxing HTTPS And TCP On The Same Port



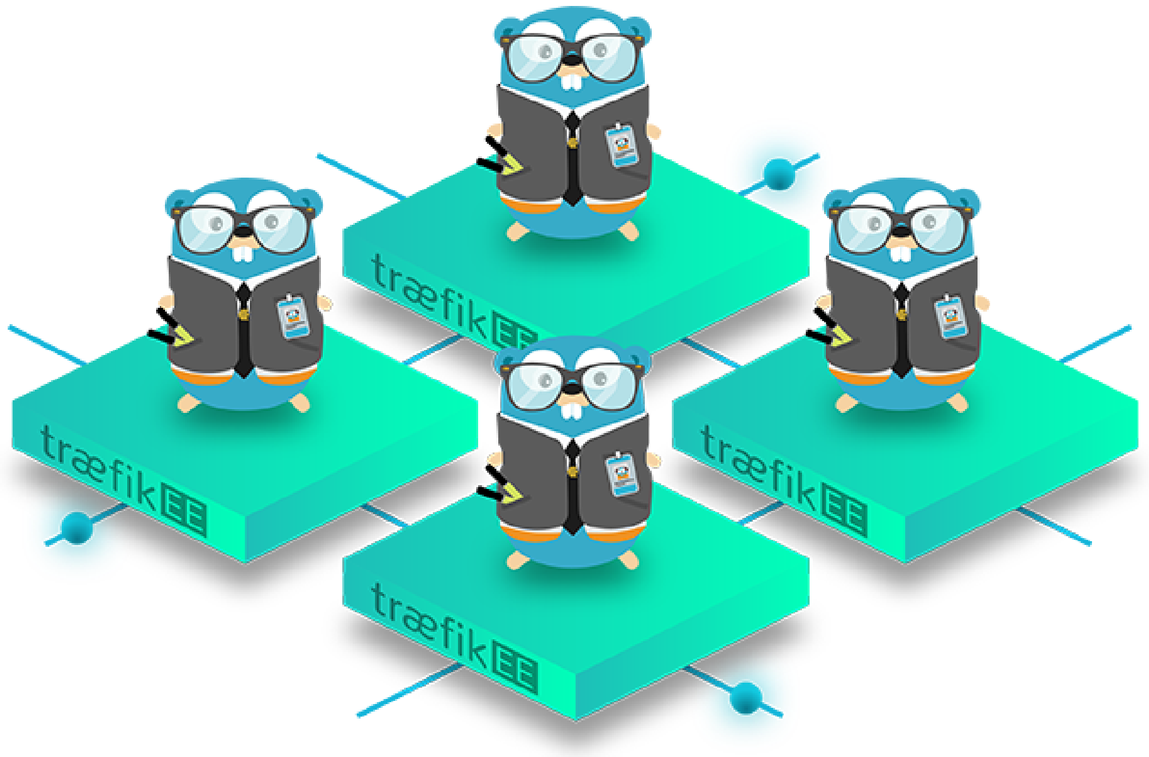
Demo Code on

Demo 3 - Canaray Release Of A WebApp

The Herd

You came to the wrong neighbour

Traefik Comes In Herd



HIGH AVAILABILITY

træfik ENTERPRISE EDITION

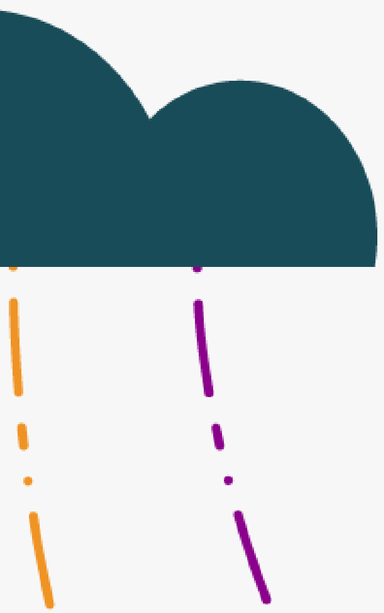

SECURITY
træfik ENTERPRISE EDITION

SCALABILITY

træfik ENTERPRISE EDITION

NTERNET

TO YOUR INFRA



træfikEE

ORCHESTR

træfikEE

As Simple As Traefik

- Install it:

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

- Configure it:

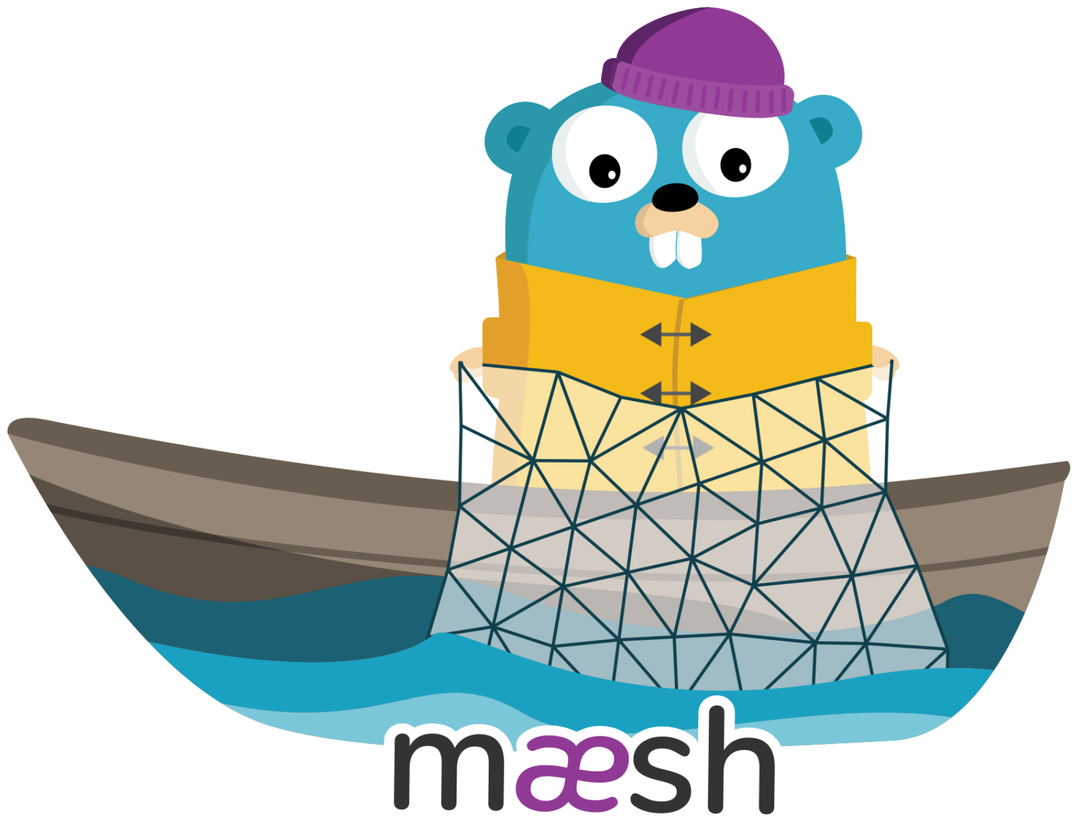
```
# Routing Configuration, same as Traefik's
traefikeectl deploy \
    --acme.email=ssl-admin@mycompany.org
    --acme.tlsChallenge
    ...
```

Free Trial

https://containo.us/traefikee

East / West Traefik

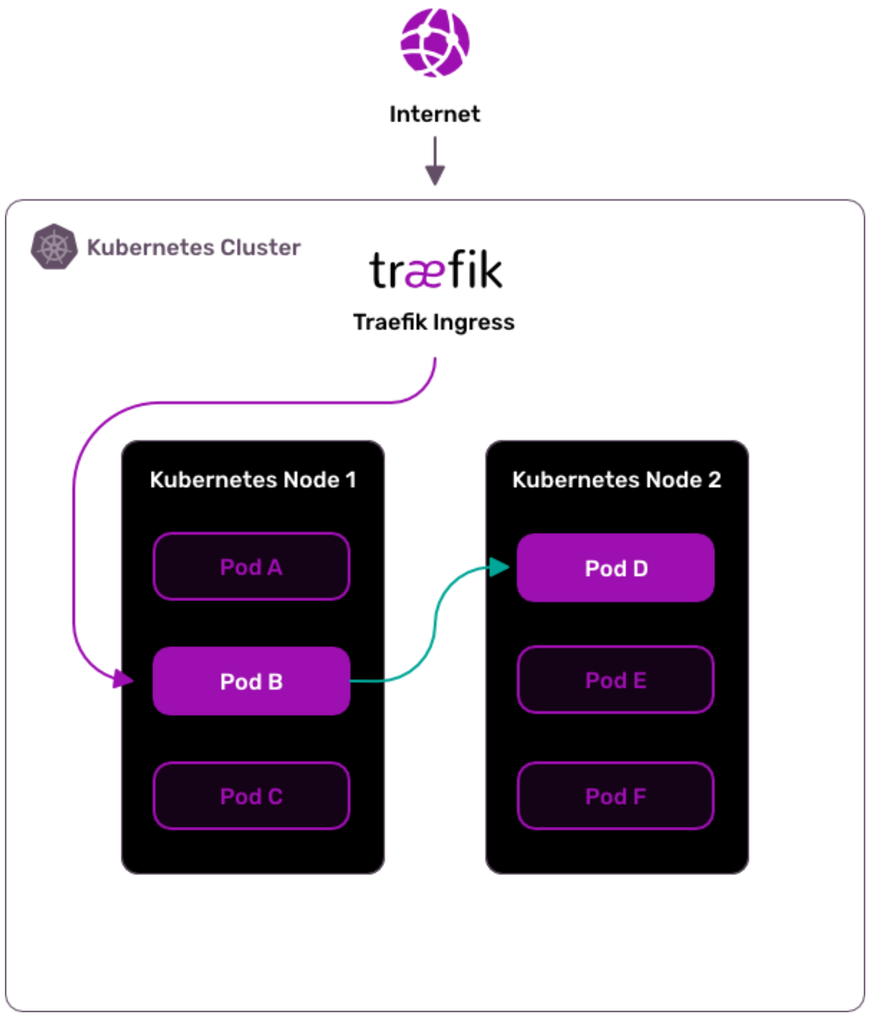
Say Hello To Maesh

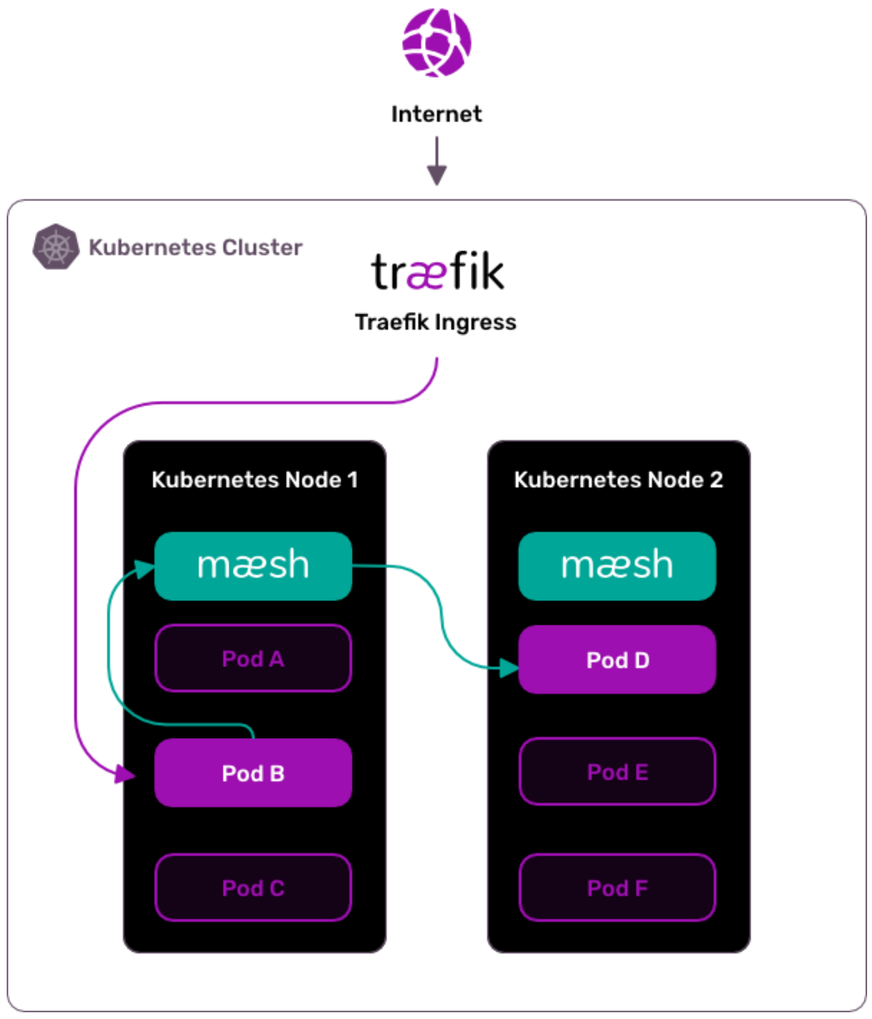


What Is Maesh?

Maesh is a lightweight, easy to configure, and non-invasive service mesh that allows visibility and management of the traffic flows inside any Kubernetes cluster.

Maesh Architecture





More On Maesh

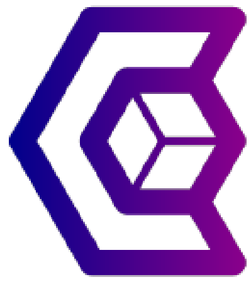
- Built on top of Traefik,
- SMI (Service Mesh Interface specification) compliant,
- Opt-in by default.

Maesh Website

That’s All Folks!

We Have Stickers!

We Are Hiring!



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

Thank You!

@emilevauge

emilevauge

- Slides (HTML): https://containous.github.io/slides/docker-meetup-sf
- Slides (PDF): https://containous.github.io/slides/docker-meetup-sf/slides.pdf
- Source on : https://github.com/containous/slides/tree/docker-meetup-sf