Smart Routing Et HTTPS Pour Tous

Traefik en action !

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

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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"

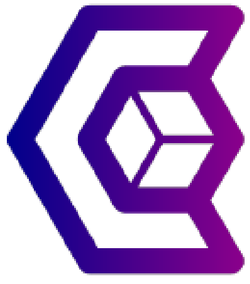
Whoami

- Damien DUPORTAL:
  - Træfik's Developer 🥑 Advocate @ Containous
- 🐦 @DamienDuportal
- dduportal

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

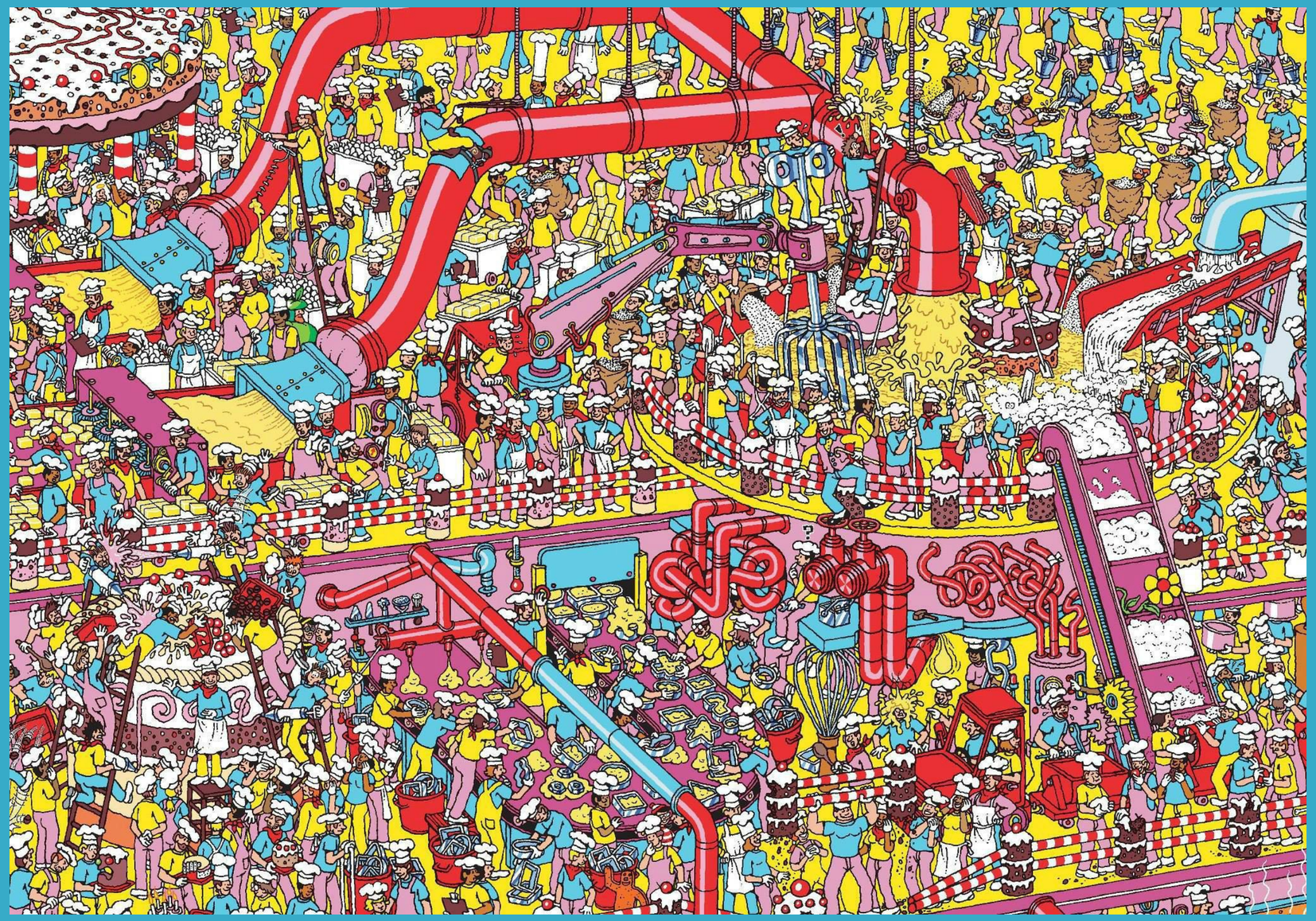
1990s and earlier	2000s	2010s
Coupling		
Pre-SOA (monolithic) Tight coupling	**Traditional SOA** Looser coupling	**Microservices** Decoupled

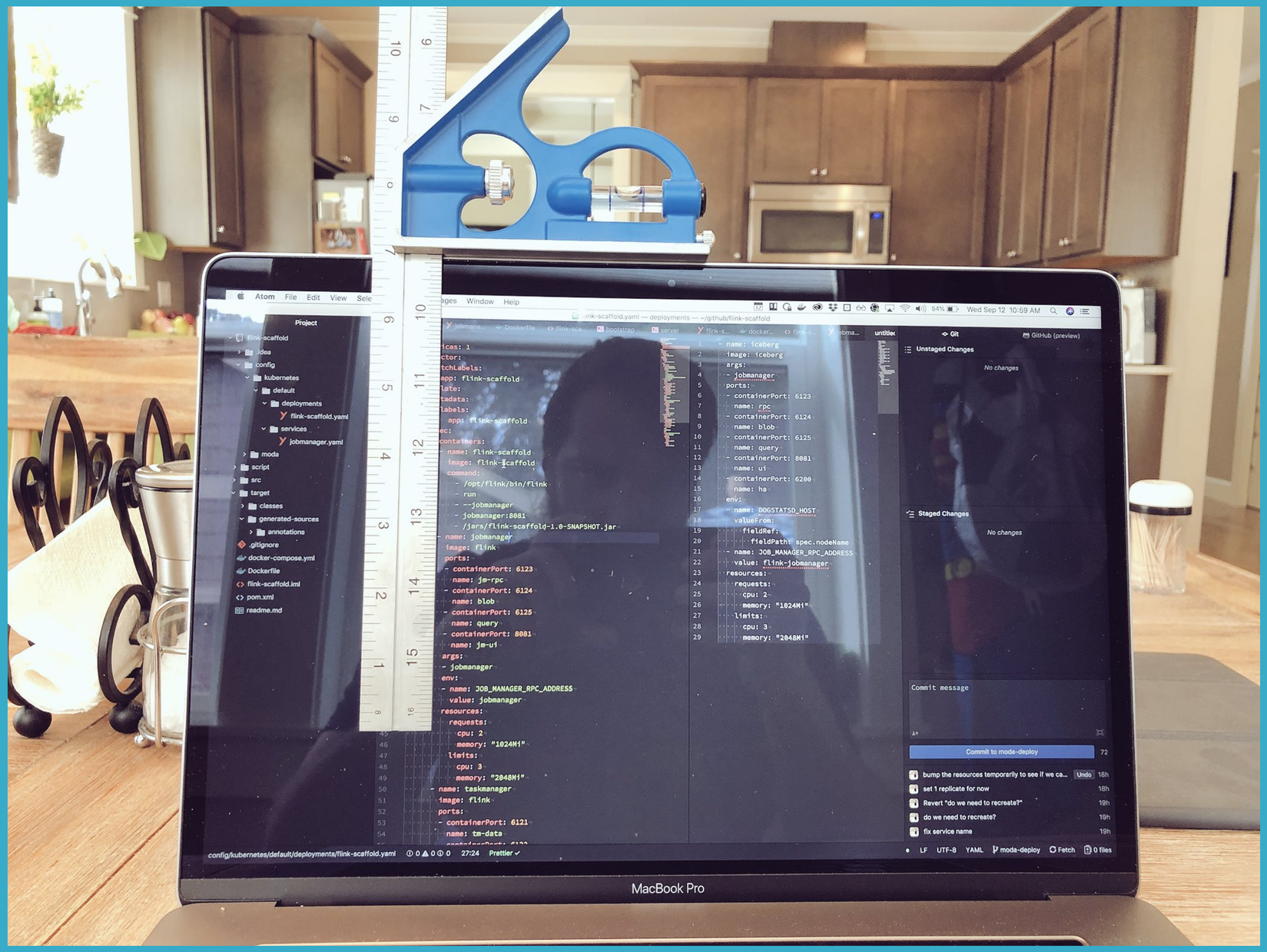
The Premise Of Microservices...

...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!

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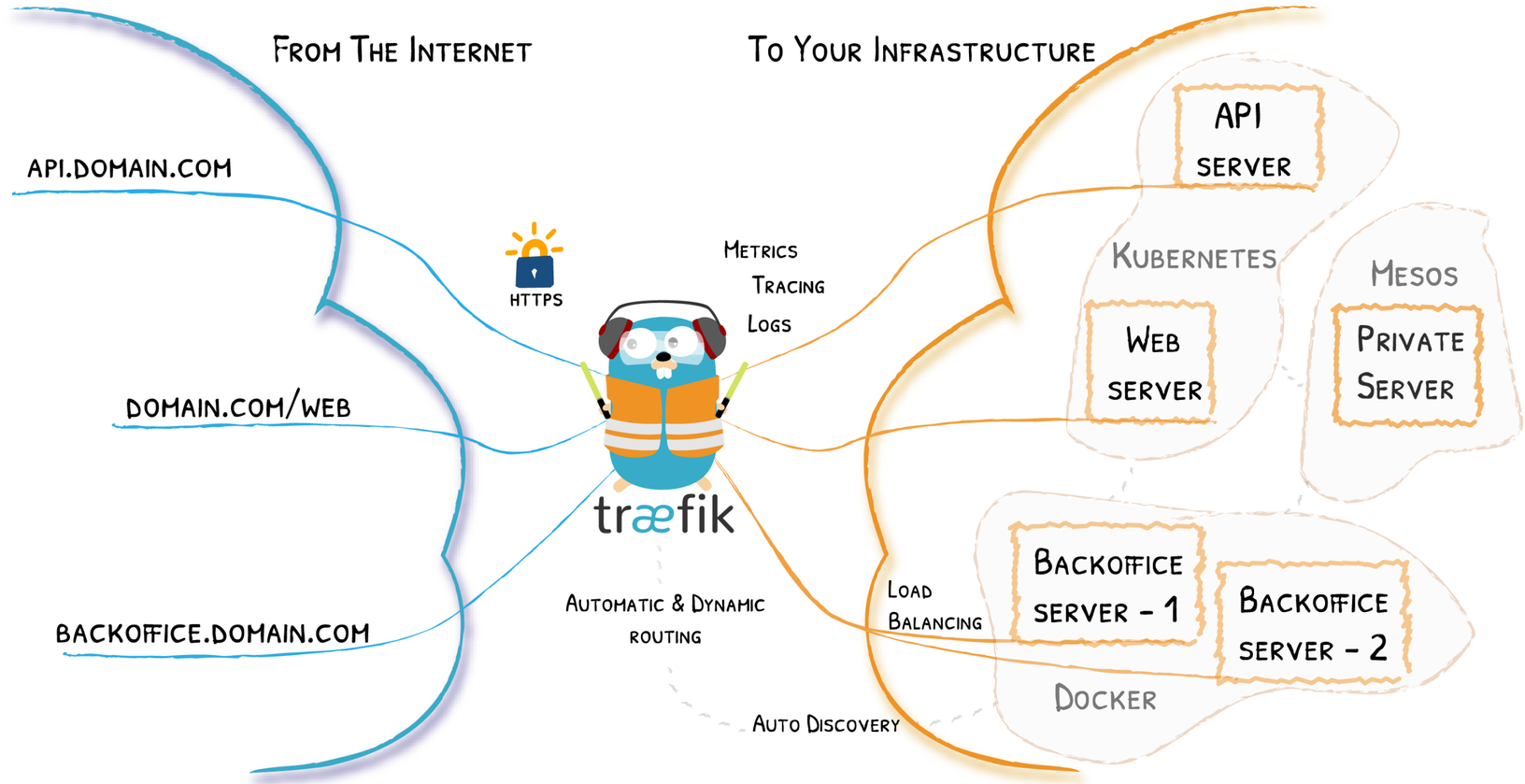
Overview


From The Internet
To Your Infrastructure
api.domain.com
domain.com/web
backoffice.domain.com
https
Metrics
Tracing
Logs
træfik
Automatic & Dynamic
routing
Auto Discovery
Load
Balancing
API
server
Kubernetes
Web
server
Mesos
Private
Server
Backoffice
server - 1
Backoffice
server - 2
Docker

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)

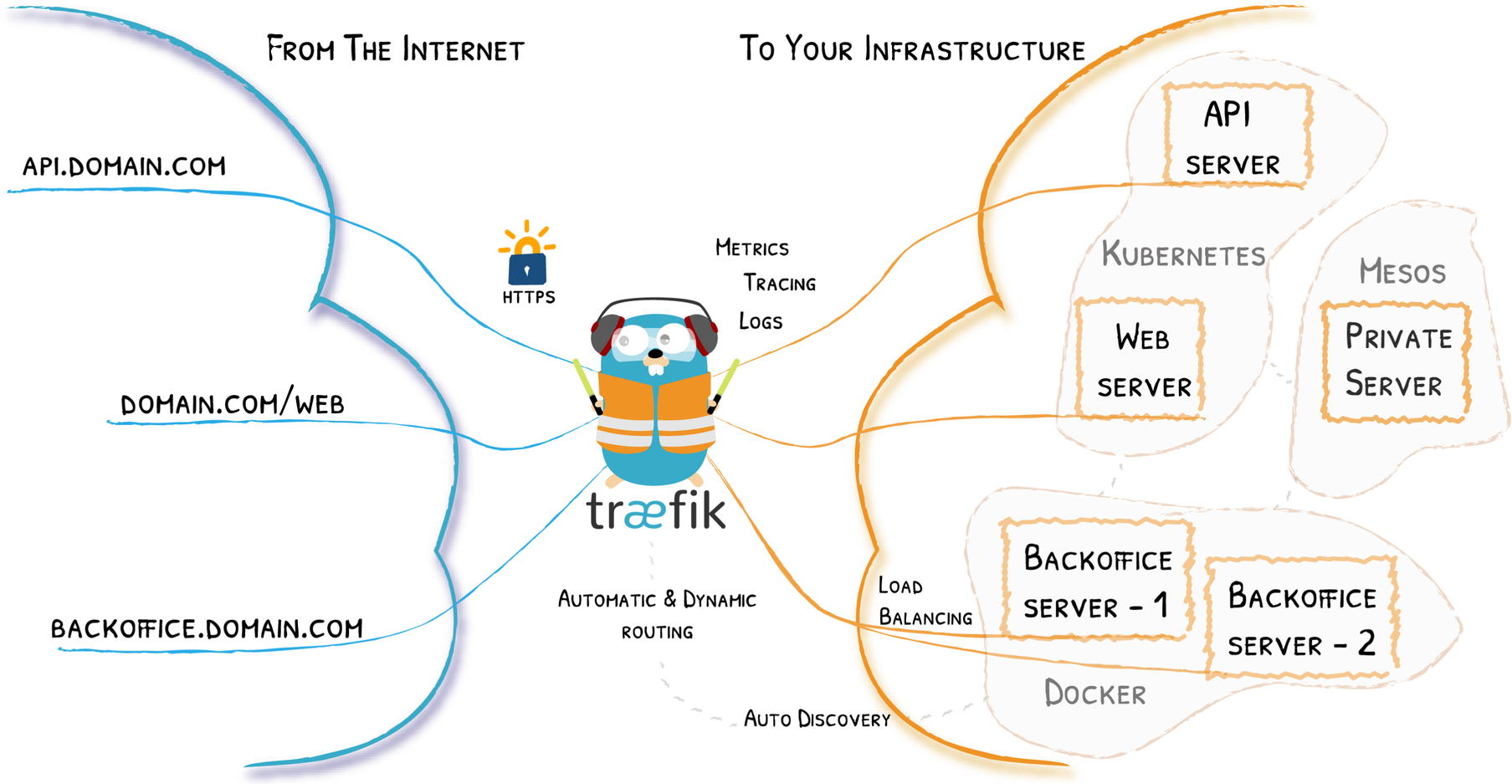
I've Found A Bug!

```
./traefik bug
```

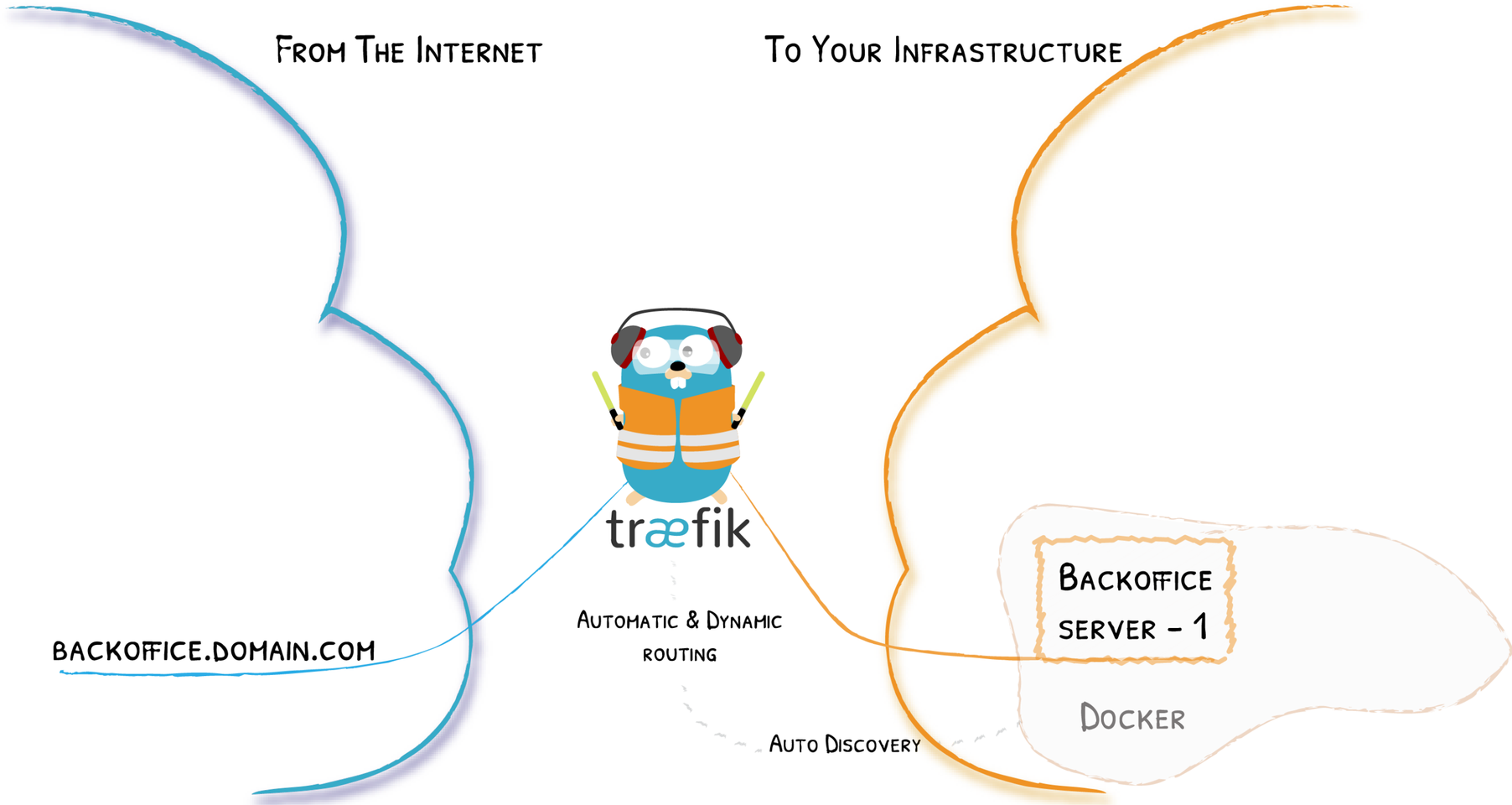
Autofills the issue template (environment, configuration files, ...)

Traefik Core Concepts

Remember The Diagram?



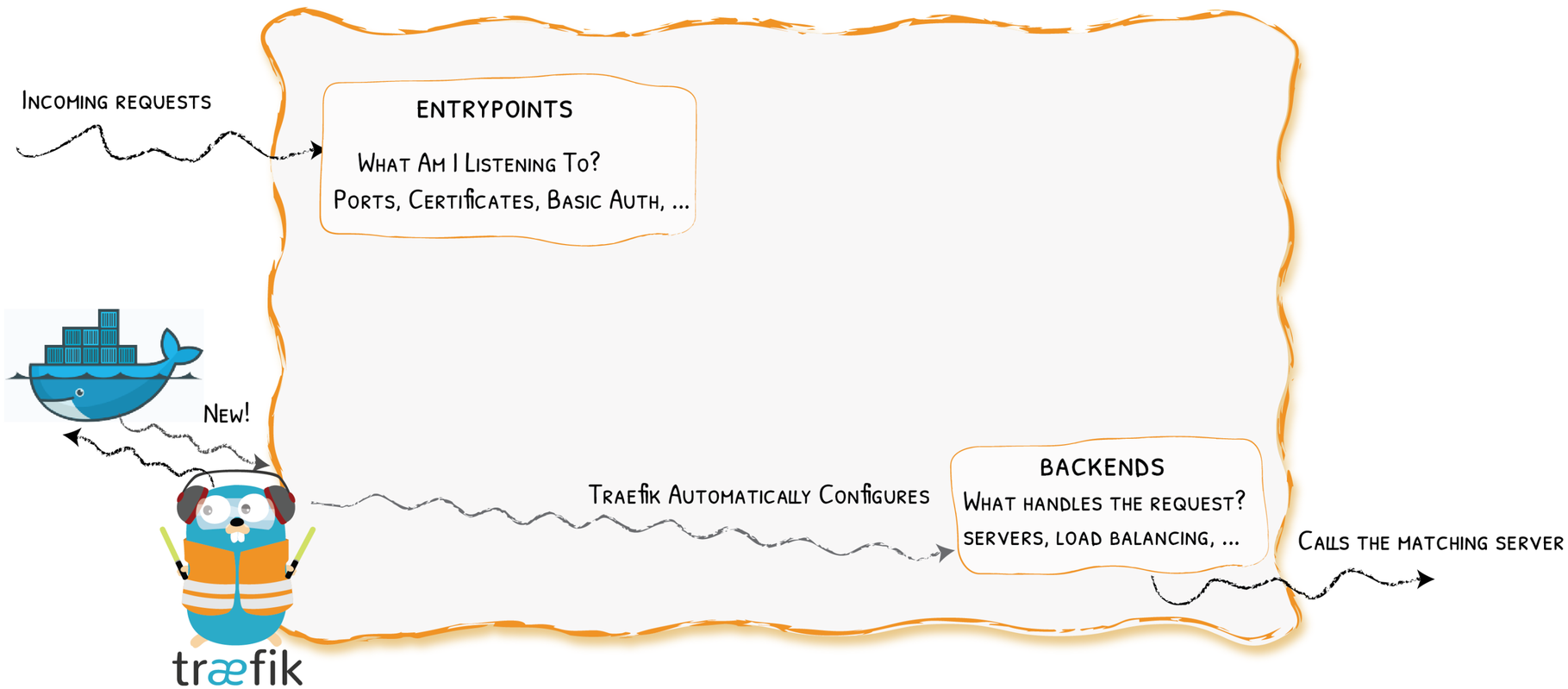
Let's Simplify



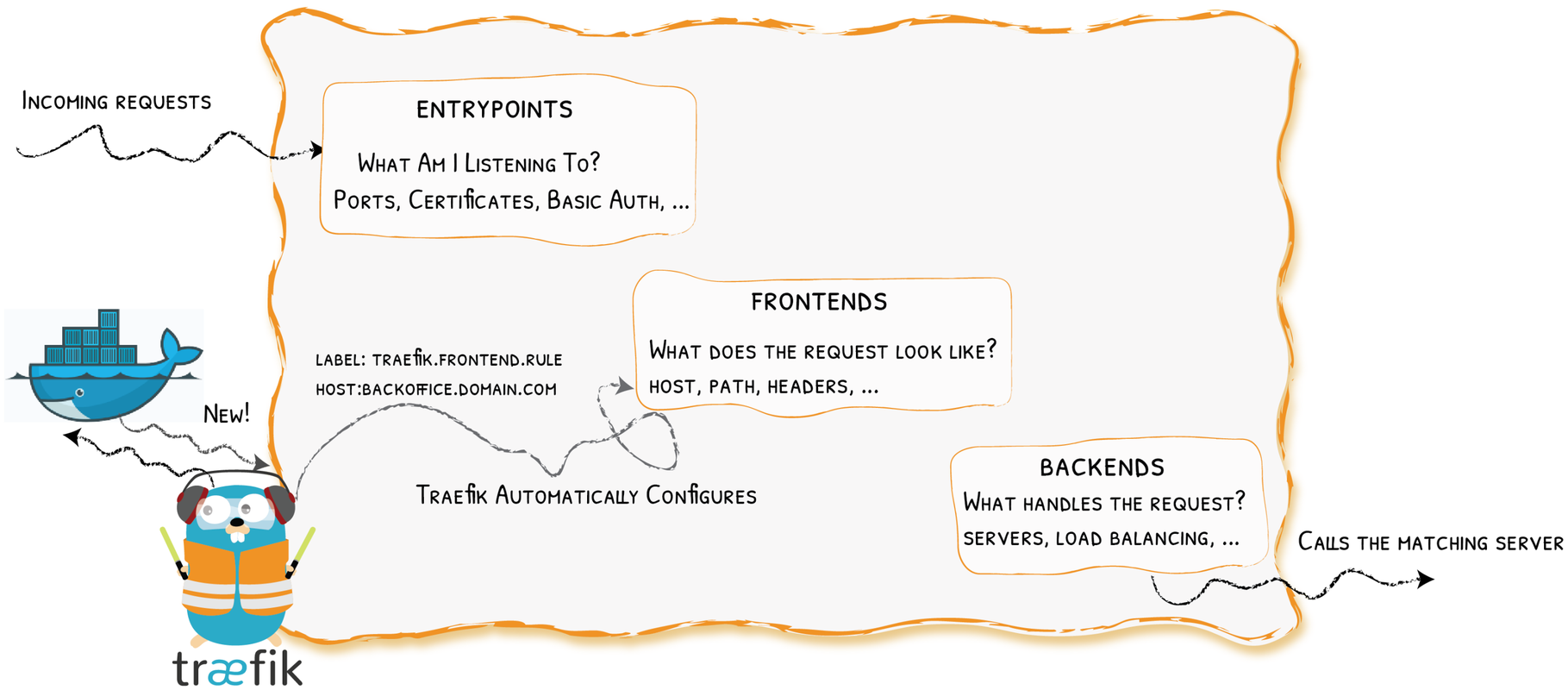
Providers

Entrypoints

Backends


Incoming requests
ENTRYPOINTS
What Am I Listening To?
Ports, Certificates, Basic Auth, ...
New!
Traefik Automatically Configures
BACKENDS
What handles the request?
servers, load balancing, ...
Calls the matching server
træfik

Frontends


Incoming requests
ENTRYPOINTS
What Am I Listening To?
Ports, Certificates, Basic Auth, ...
FRONTENDS
What does the request look like?
host, path, headers, ...
BACKENDS
What handles the request?
servers, load balancing, ...
Calls the matching server
label: traefik.frontend.rule
host:backoffice.domain.com
Traefik Automatically Configures
New!
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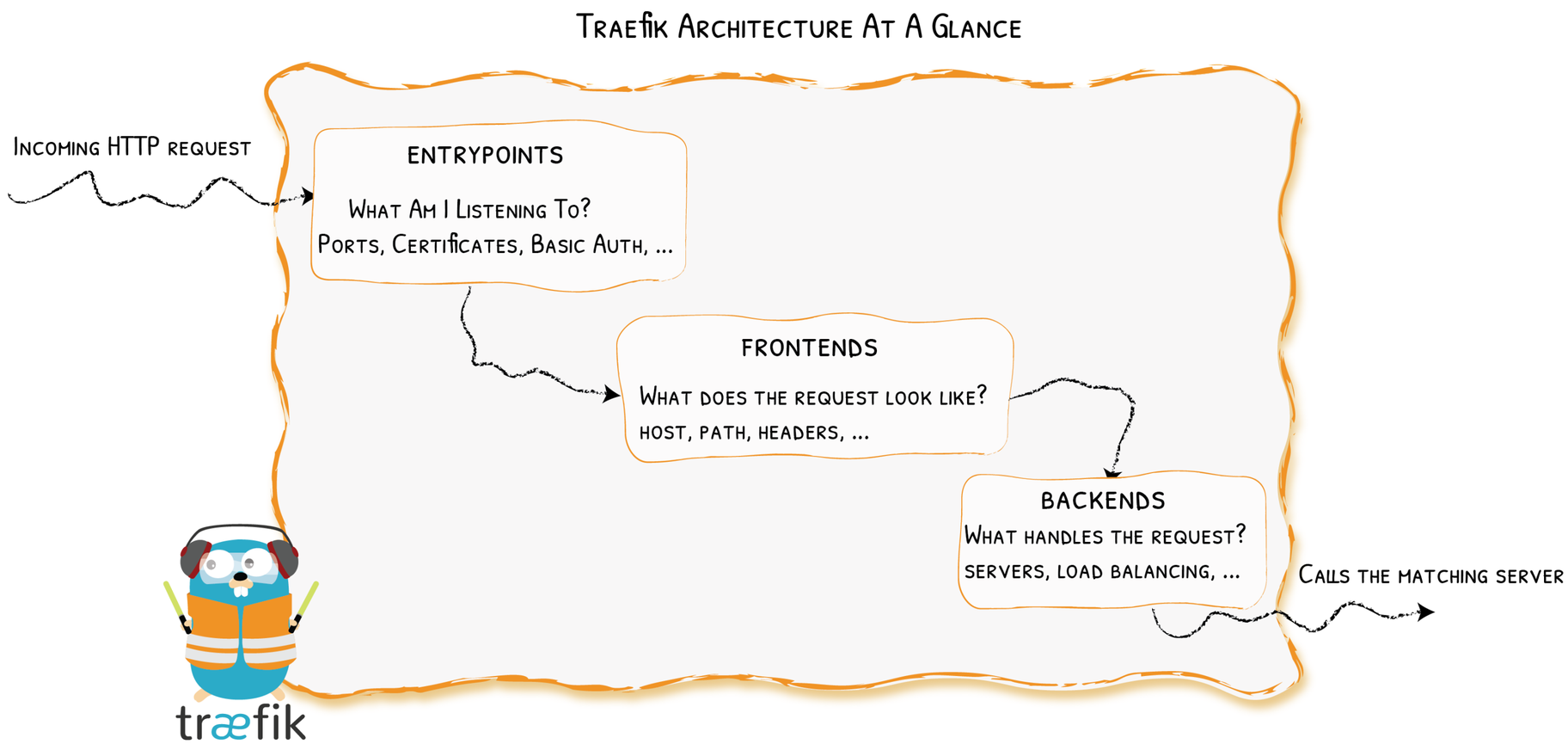
At A Glance


Traefik Architecture At A Glance
Incoming HTTP request
ENTRYPOINTS
What Am I Listening To?
Ports, Certificates, Basic Auth, ...
FRONTENDS
What does the request look like?
host, path, headers, ...
BACKENDS
What handles the request?
servers, load balancing, ...
Calls the matching server
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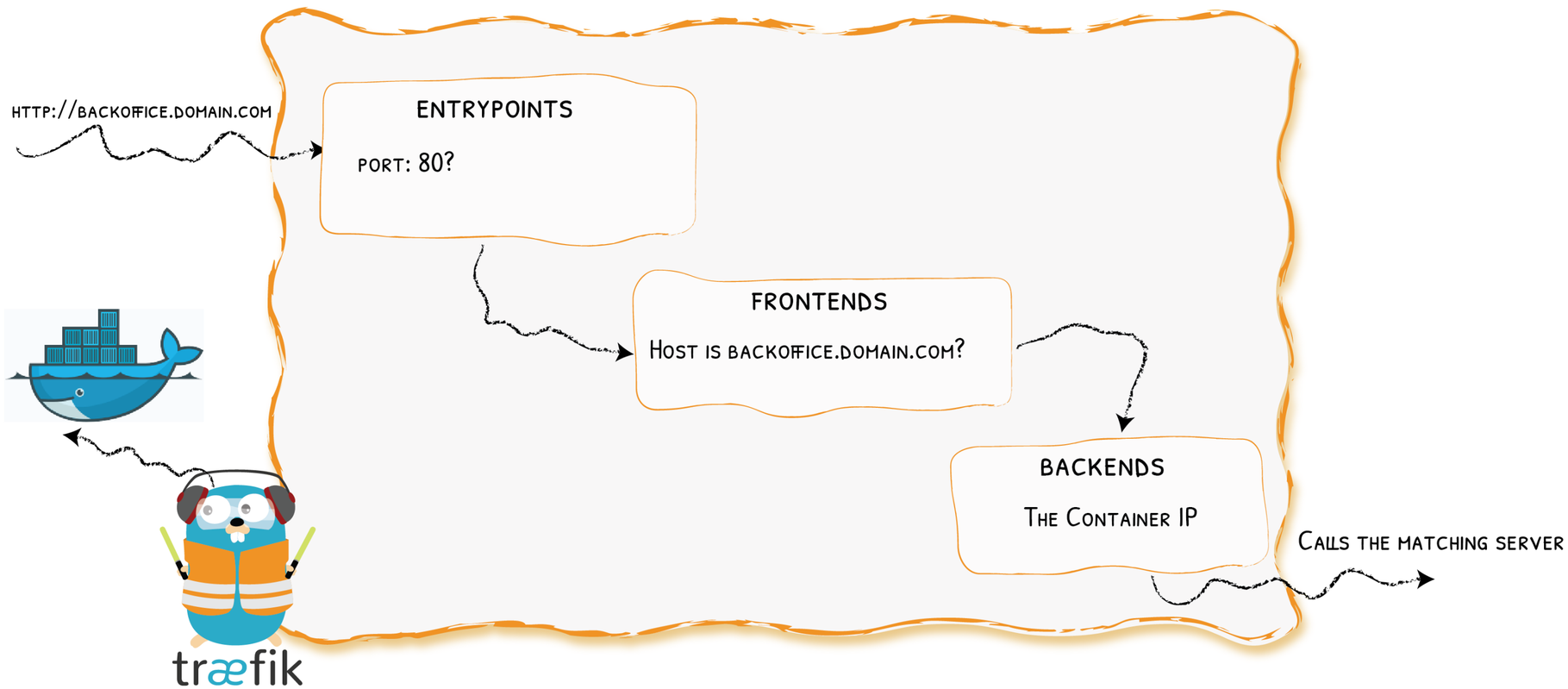
In Practice


HTTP://BACKOFFICE.DOMAIN.COM
ENTRYPOINTS
PORT: 80?
FRONTENDS
HOST IS BACKOFFICE.DOMAIN.COM?
BACKENDS
THE CONTAINER IP
CALLS THE MATCHING SERVER
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A Glimpse On Traefik's Features

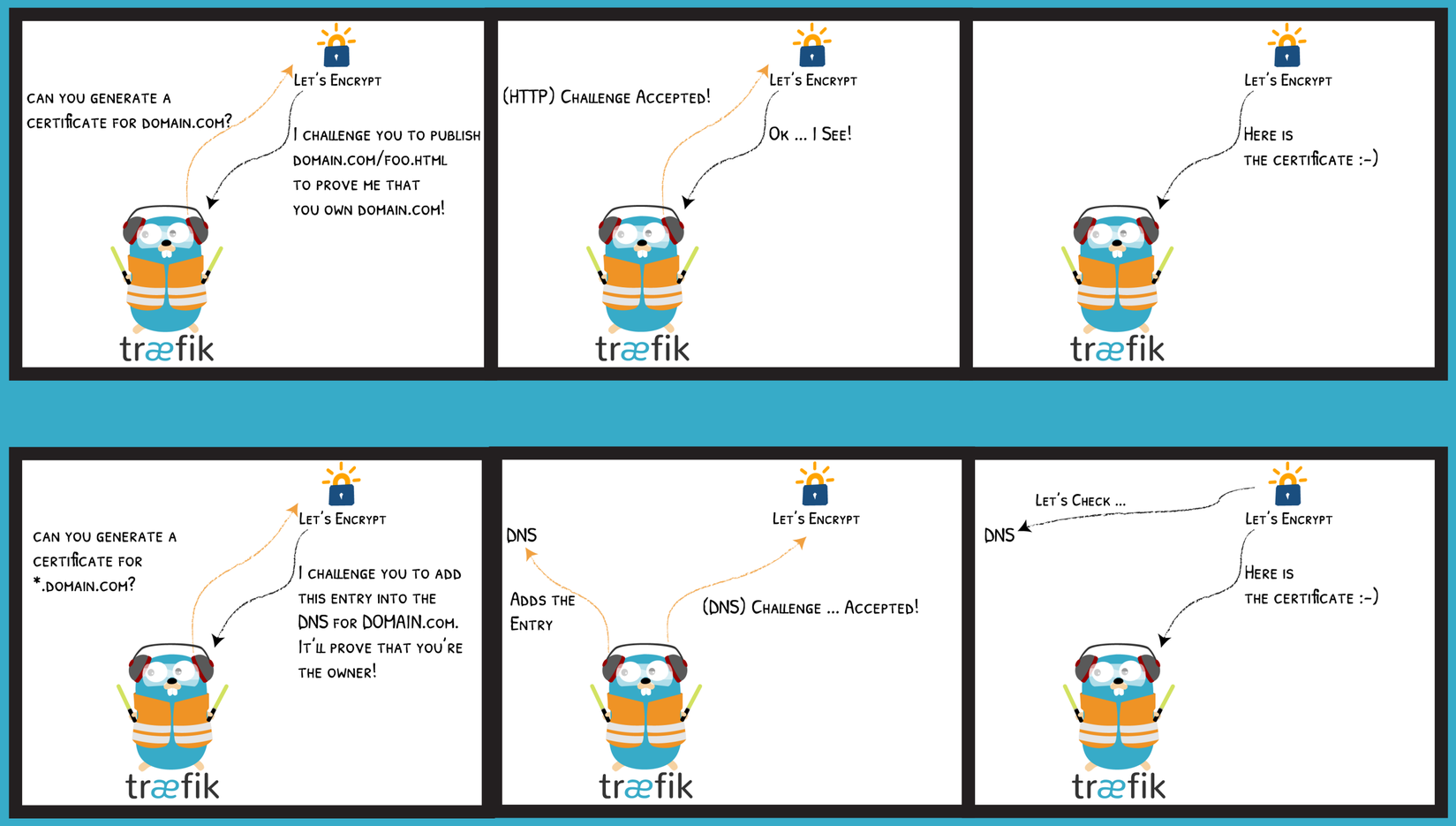
Keep It Simple

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: tsl0922/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

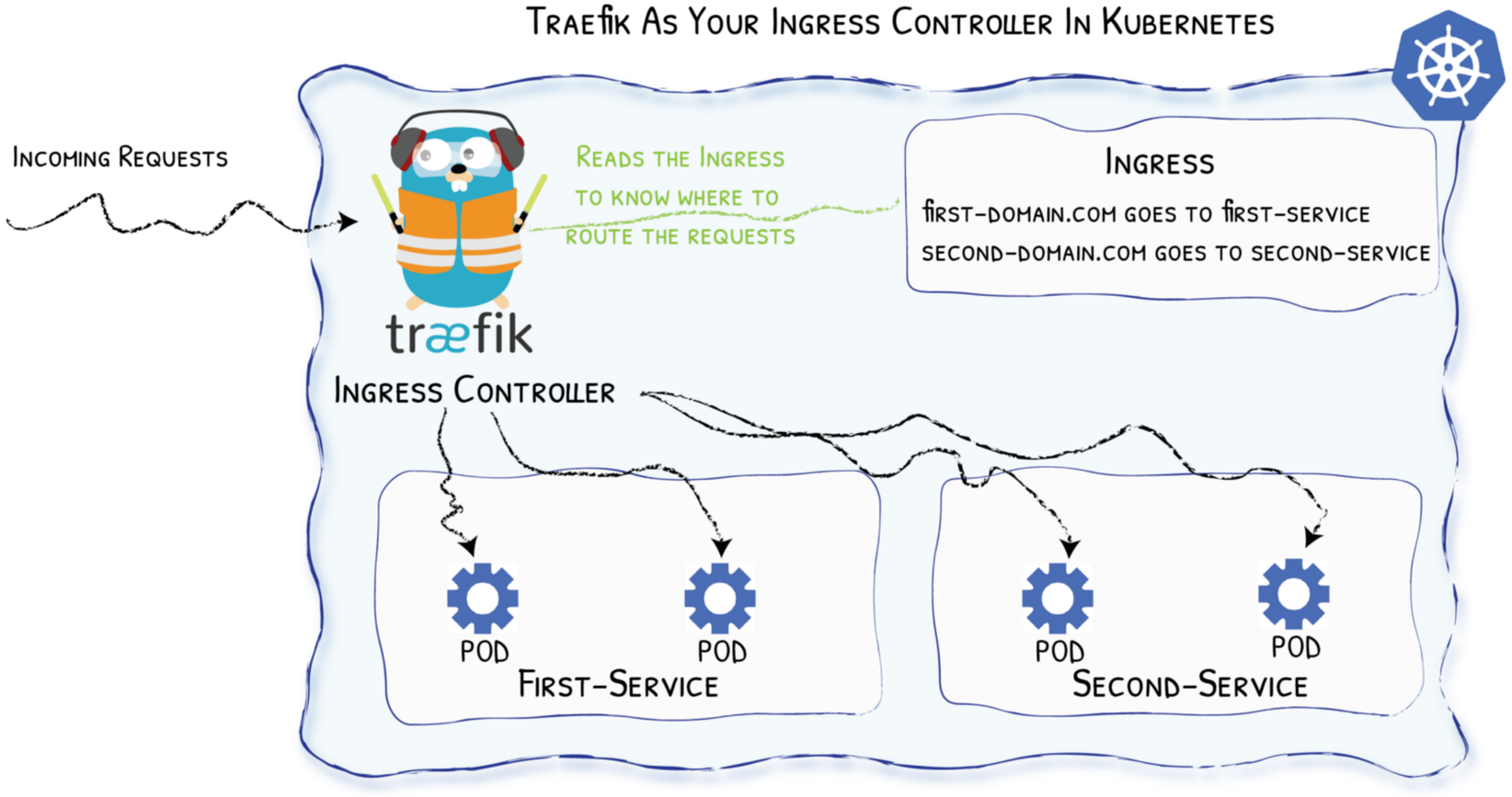


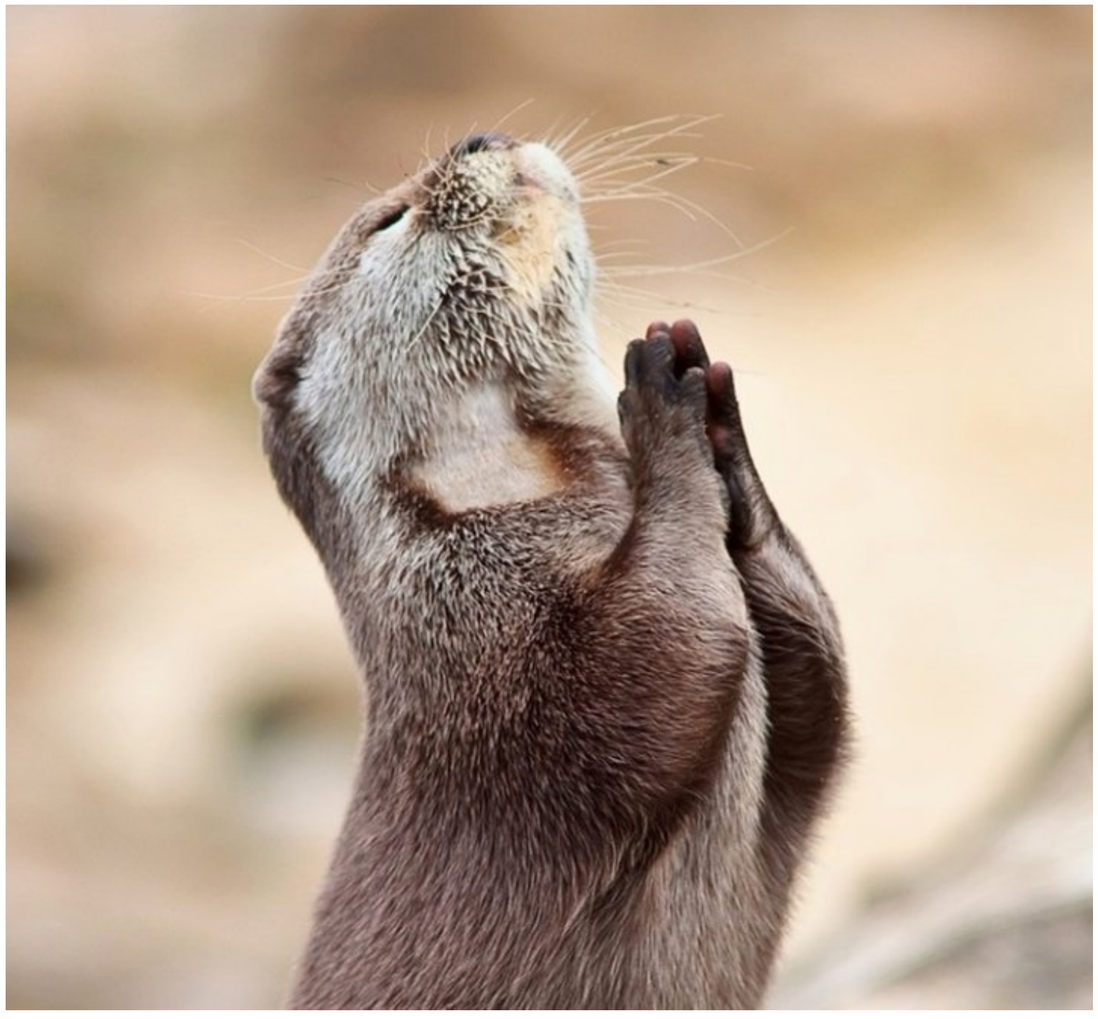
Diagram from https://medium.com/@geraldcroes

With Kubernetes Too!

```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...

Demo



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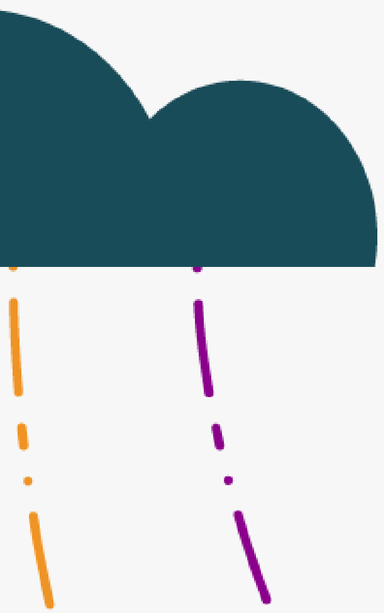
NTERNET

TO YOUR INFRA



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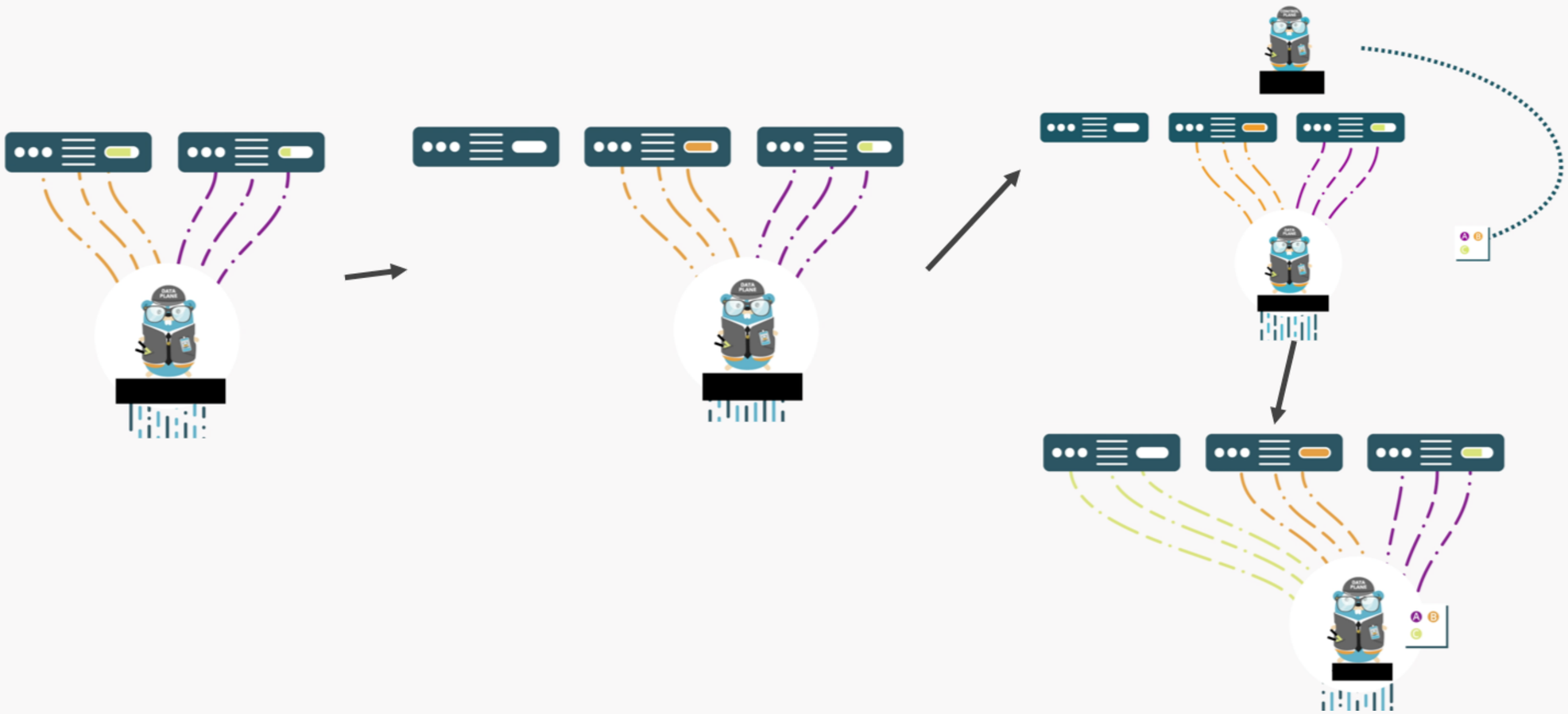
Did You Say "High Availability"?

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

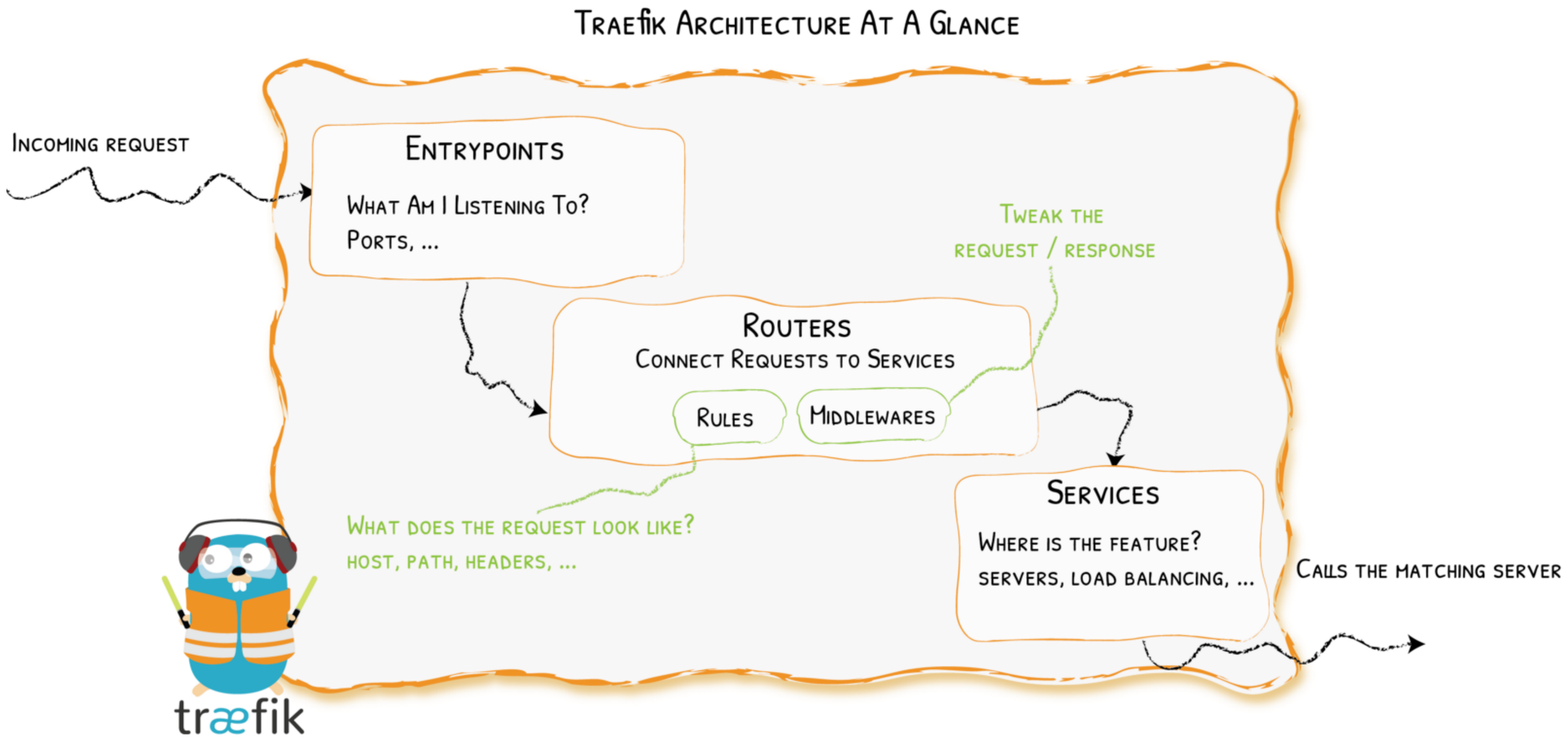
Let's Talk About The Future

BACK TO TRAEFIK PART 2.0

Revamped Documentation

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

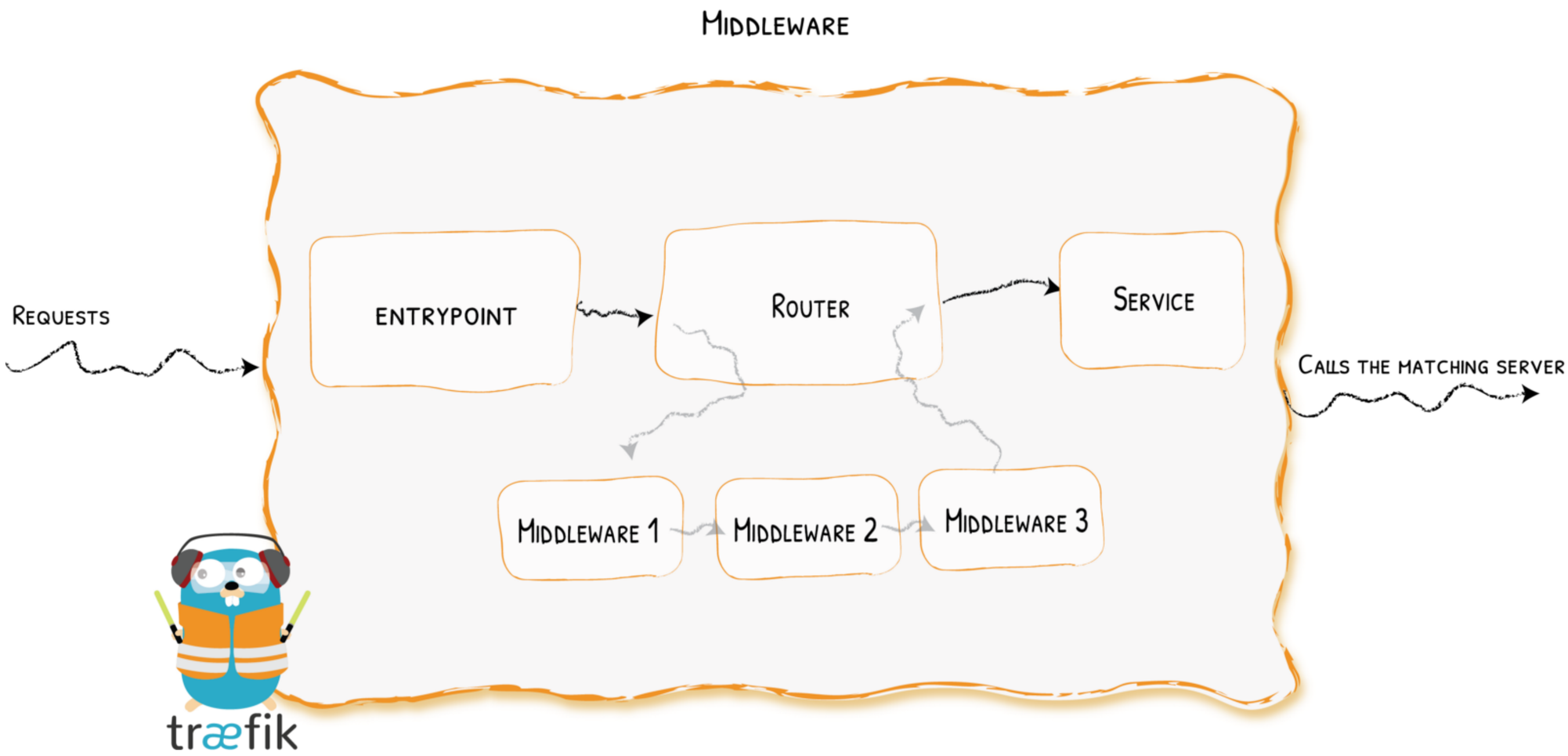


Expressive Routing Rule Syntax


```
# 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

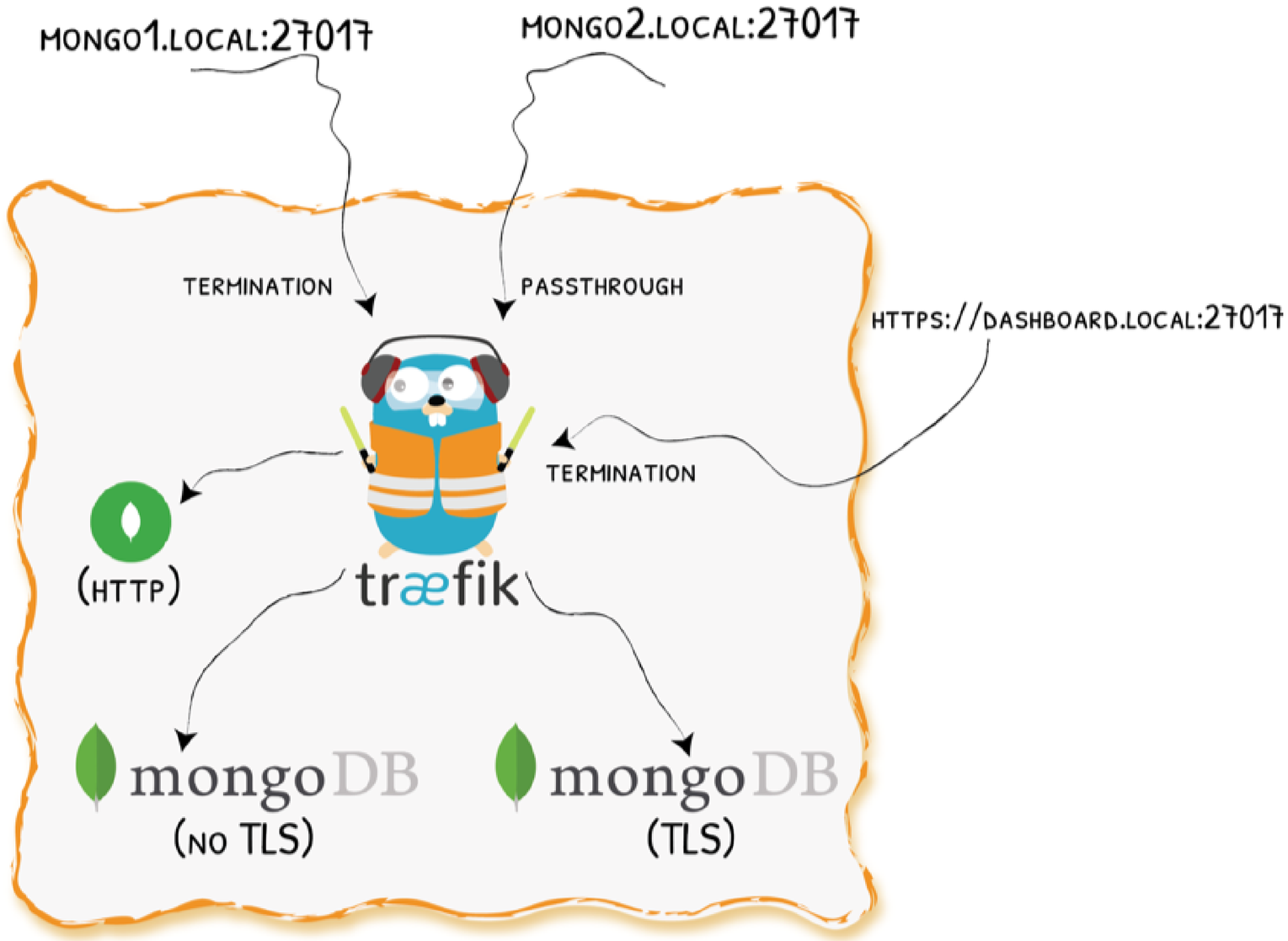
traefik

HTTP

&

TCP

Demo


MONGO1.LOCAL:27017
MONGO2.LOCAL:27017
TERMINATION
PASSTHROUGH
HTTPS://DASHBOARD.LOCAL:27017
TERMINATION
(HTTP)
træfik
mongoDB
(NO TLS)
mongoDB
(TLS)

More To Come

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

More Info

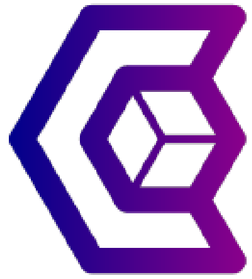
bit.ly/traefik-v2

TO BE

CONTINUED...


We Have
Stickers!
træfik

We Are Hiring!



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

Thank You!

@DamienDuportal

dduportal

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