Onefootball

SCALING EDGE OPERATIONS AT ONEFOOTBALL WITH AMBASSADOR

From 0 to 6000 rps

Rodrigo Del Monte

SRE @ Onefootball

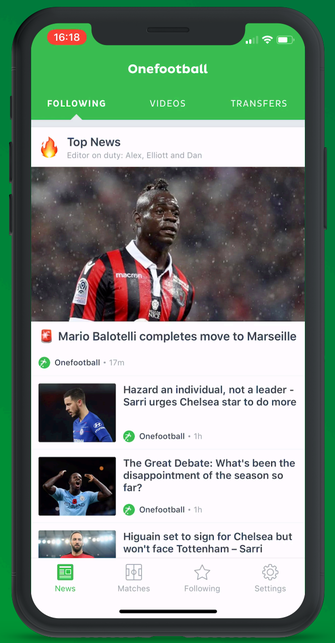
- +10 years as System Administrator mainly open-source.
- 7 years AWS solutions
- +2 years in a serious relationship with K8s.

Jonathan Beber

SRE @ Onefootball

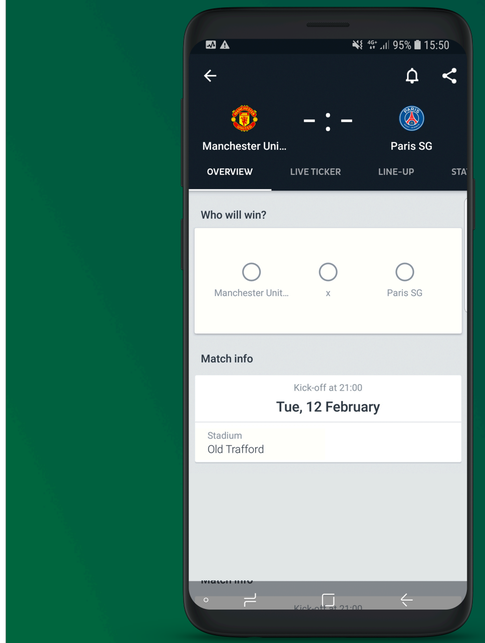
- 6 years AWS solutions
- 6 years working with cloud and containers
- 🦪 @jonathanbeber

WE TELL THE WORLD'S FOOTBALL STORIES



+10M

Monthly Active Users



Founded

2008

+180

Employees

Kubernetes

On EC2

Ambassador

API Gateway

Elasticache

Redis

+50

Microservices

CDN

Images & Content

Aurora

RDS

POST WORLD CUP 2018

Smooth World Cup

/ EC2 to Kubernetes
  - +350 instances
/ +40 microservices
/ Cloud native environment
  - Grafana
  - Helm
  - Prometheus

World Cup Hangover effect

/ 1 ELB per service

/ Multiple DNS entries

/ Multiple CDN configs

/ Lack of visibility

/ Product looking forward to new features

Finding an Ingress solution

/ Kubernetes native

/ Envoy: more than a HTTP router

/ ~~External datastore~~

/ Batteries included

Ambassador

envoy

kubernetes

THE MIGRATION PROCESS

How?

/ Production traffic

/ Downtime is not a option

/ +80 migrations to run

/ Multiples DNS entries

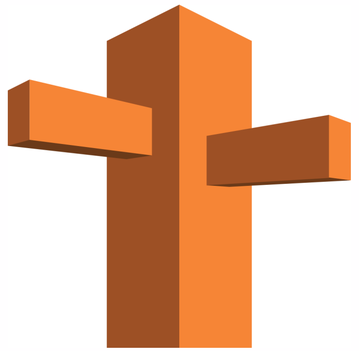
- Extensive configuration
- Error prone

Helm charts ❤️ Route53

/ Own helm chart repository
  - Config artifact
  - Application artifact

/ Weighted records on Route53

/ GitOps operation



Few steps

1. Deploy ambassador mapping;
2. Test mapping;
3. Start send traffic;
4. Monitor and release until 100%

- New API domain
- Single point of configuration

```
apiVersion: v1¬
kind: Service¬
metadata:¬
  …¬
  annotations:¬
    getambassador.io/config: |¬
      ---¬
      apiVersion: ambassador/v0¬
      kind: Mapping¬
      name: {{ .Chart.Name }}¬
      host: "^match-(facts)?\\.onefootball\\.com$"¬
      host_regex: true¬
      ambassador_id: public¬
      prefix: /¬
      service: {{ .Chart.Name }}.{{ .Chart.Name }}¬
      ---¬
      apiVersion: ambassador/v0¬
      kind: Mapping¬
      name: {{ .Chart.Name }}-api¬
      host: api.onefootball.com¬
      ambassador_id: public¬
      prefix: /{{ .Chart.Name }}/¬
      service: {{ .Chart.Name }}.{{ .Chart.Name }}¬
```

Metrics everywhere

/ Multiple attention points

- Grafana
- CloudWatch
- APM

Ambassador metrics

- Built-in feature
- Cloud Native
- Easy insights
  - Requests
  - Errors
  - Delay

New features release

/ Tests in production

- When unit test aren't enough

/ Canary release hard coded

/ Target content

Gradual releases

Shadowing

```
getambassador.io/config: |¬
  ---¬
  apiVersion: ambassador/v0¬
  kind: Mapping¬
  name: ml-entity¬
  host: ml-entity.of.com¬
  prefix: /¬
  service: ml-entity.ml-entity¬
  ---¬
  apiVersion: ambassador/v0¬
  kind: Mapping¬
  name: ml-entity-shadow¬
  host: entity-extractor.of.com¬
  prefix: /¬
  service: ml-entity.ml-entity¬
  shadow: true¬
```

Routing

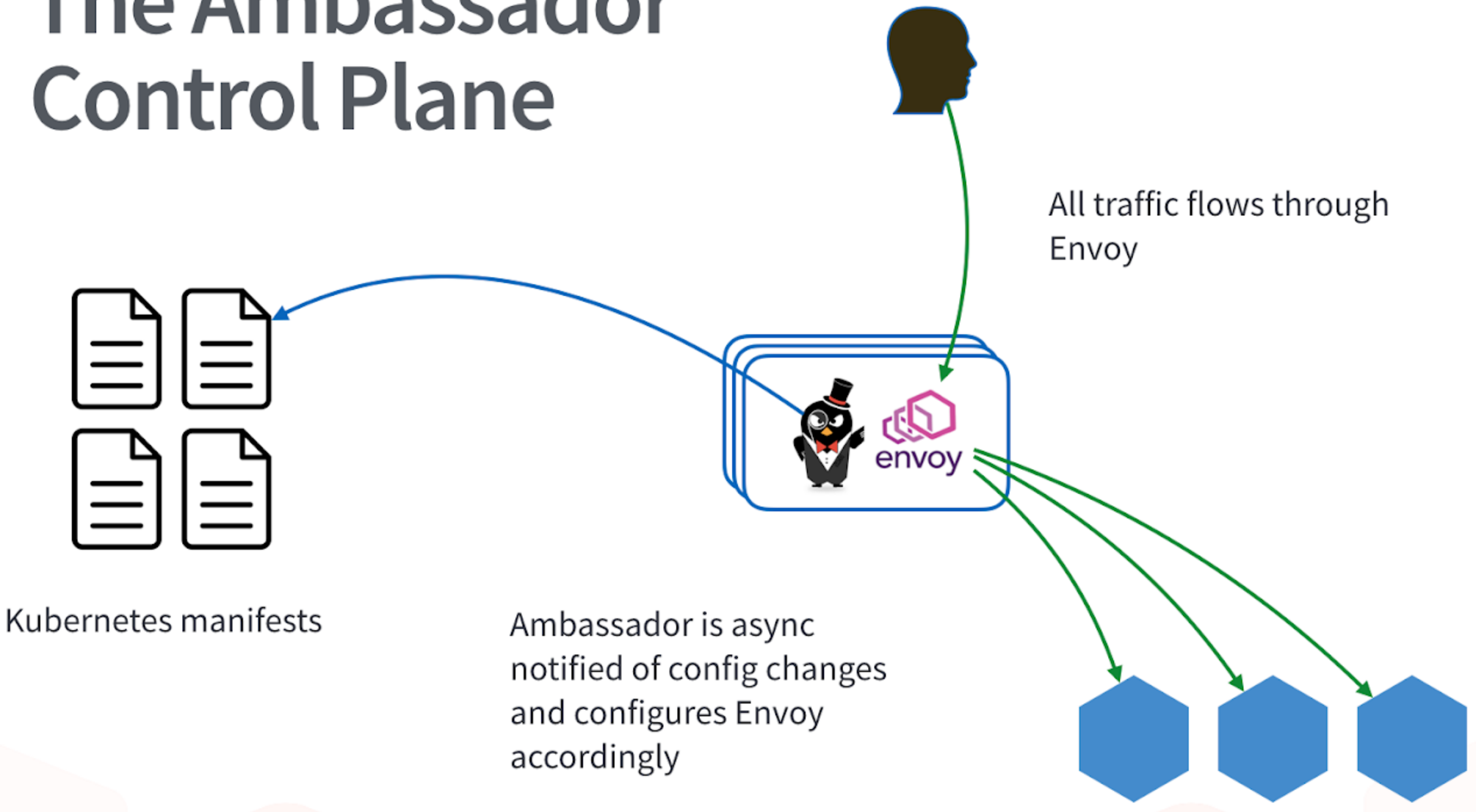
```
getambassador.io/config: |¬
  ---¬
  apiVersion: ambassador/v0¬
  kind: Mapping¬
  name: news-api-green¬
  ambassador_id: public¬
  prefix: "/news/v3/(nl|ru)/me"¬
  prefix_regex: true¬
  rewrite: ""¬
  service: news-green.news¬
  ---¬
  apiVersion: ambassador/v0¬
  kind: Mapping¬
  name: news-api¬
  ambassador_id: public¬
  prefix: /news/¬
  service: news.news¬
```

THE
FUTURE

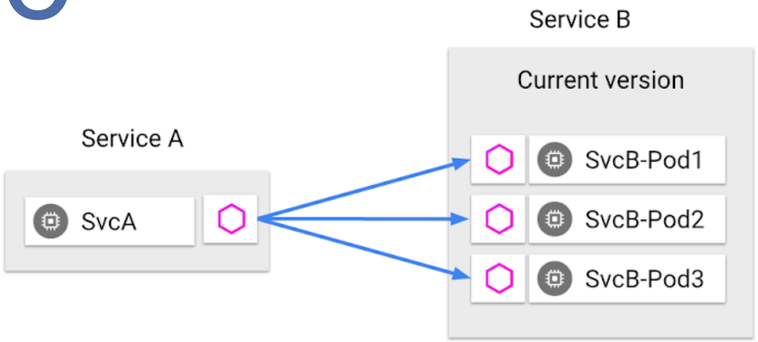
The Future

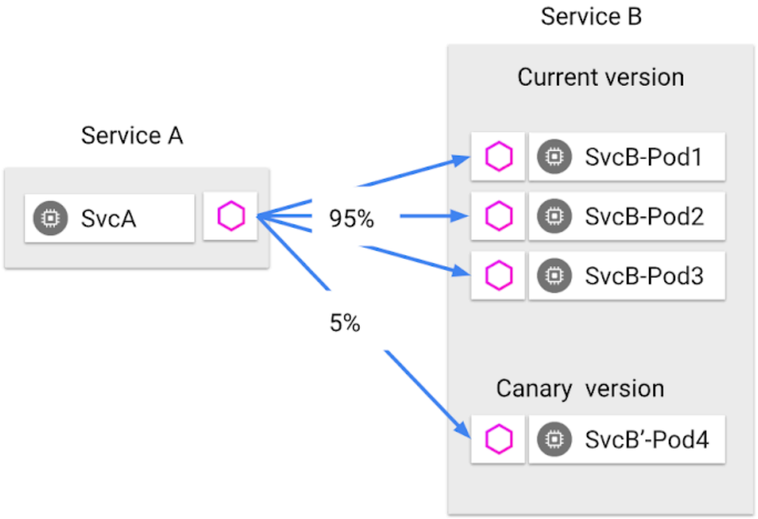
- Communication between applications
- Mutual TLS
- Distributed tracing

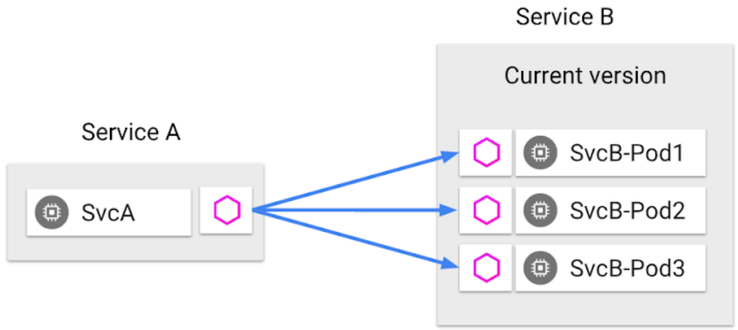
The Ambassador Control Plane

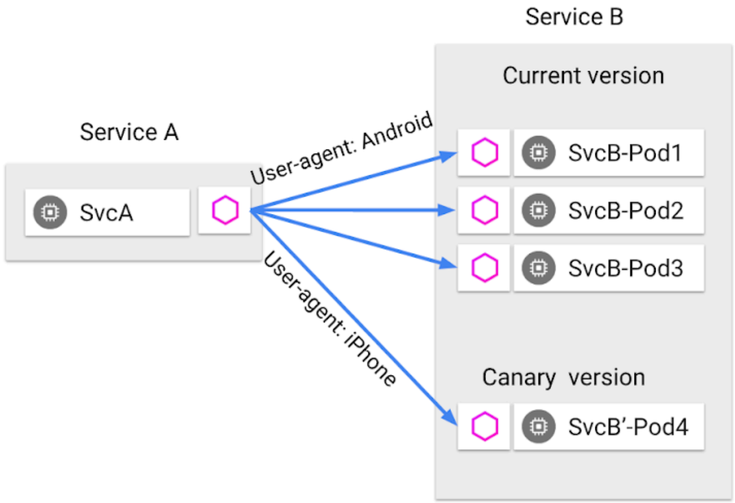


Istio


Service B
Current version
Service A
SvcA
SvcB-Pod1
SvcB-Pod2
SvcB-Pod3


Service B
Current version
Service A
SvcA
95%
5%
SvcB-Pod1
SvcB-Pod2
SvcB-Pod3
Canary version
SvcB'-Pod4


Service B
Current version
Service A
SvcA
SvcB-Pod1
SvcB-Pod2
SvcB-Pod3


Service B
Current version
Service A
SvcA
User-agent: Android
User-agent: iPhone
SvcB-Pod1
SvcB-Pod2
SvcB-Pod3
Canary version
SvcB'-Pod4

Ambassador ❤️ Zepkin

/ Native integration

/ Support for Zipkin-compatible APIs

```
---
apiVersion: ambassador/v1
kind: TracingService
name: tracing
service: "example-zipkin:9411"
driver: zipkin
config: {}
tag_headers:
- ":authority"
- ":path"
```

LIGHTSTEP

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THANK YOU!

Rodrigo Del Monte
linkedin.com/in/rodrigodelmonte
Jonathan Beber
linkedin.com/in/jonathanbeber