Migration to Kubernetes

Does what it says on the tin

wehkamp

Introduction

wehkamp

- John Keates
- Platform engineering at Wehkamp
- Consultancy
- DevOps Culture and Cloud Architecture
- @johnkeates pretty much everywhere

Agenda

1. A bit of context
2. Origin & Requirements
3. Atlas
4. Migration

Wehkamp facts

fashion // home & garden // beauty // baby & kids

>300.000
different products

>560.000
daily visitors

783 million
sales 21/22

80%
of all customers shop via mobile

>1.000
colleagues

11 million
packages sent each year

72%
of our customers are female

Over 2.500 brands

WE Fashion // Vingino //Mango // Tommy Hilfiger // Scotch & Soda // ONLY // Private Label
wehkamp home // HK living // Woood // Zuiver // Riverdale // House Doctor

Our history

1952 - first advertisement

1955 - first catalogue

1995 - first steps online

2010 - completely online

2018 - mobile first

2021 - Acquisition kleertjes.com

DEDEMSVAART, Wehkamp's Fabriekskantoor

4 SLOPEN GR

LINNEN - UITZETTEN COMPLEET OP ZICHT

Wij praten niet lang. Op ónze kosten krijgt u de complete uitzet op zicht. Terug op onze kosten als Wehkamp geen eerste klas kantoor is. Maar 1000 tegen 1 stuurt u niets terug. Want **tienduizenden** gezinnen oordeelden alles zo rijk, zo goed en zo voordelig dat ze daar wel voor oppasten. Geen huurcontract. Vertrouwen! «Crescendo» in driemaal, «Butterfly» in achtmaal en «Gala Première» in twaalfmaal betaalbaar, de laatste twee uitzetten met maar 1/2 % rente per maand. Bij betaling in-eens: 3 % korting.

Deze uitzetten zijn 30, 40 en 80 gulden lager in prijs dan in de winkel. Dit komt door onze enorme omzet in linnenuitzetten!

BESTELNR O 300

« CRESCENDO »

(met 4 lakens en 4 gratis slopen, rijk geborduurd, goedgekeurd door de Vereniging van Ned. Huisvrouwen).

Inhoud:

2 geborduurde lakens 180 x 240 cm.
2 gladde lakens 180 x 240 cm.
4 geborduurde slopen (CADEAU) 62 x 72 cm.
4 theedoeken, sneldrogend, 63 x 63 cm.
6 wafelvaatdoeken, de sterkste.
4 badstof keukendoeken, lang schoonblijvend.
4 dubbeldikke baddoeken, heerlijk zacht.
4 bijpassende washandjes, ruime opening.
6 flanellen stofdoeken (geel).
1 extra kwaliteit modern ontbijtlaken, vrolijk dessin.
1 wit damasten tafellaken, voornaam, 130 x 160 cm
4 bijpassende servetten, van wit damast.
6 dameszakdoekjes van luxe poplin.
4 supersterke messendoekjes.
4 super theedoeken (droogwonder).

56 stuks Normale prijs f 129,10
nu f 99,—
met 1-persoons lakens, 150 cm. breed f 95,40

Met 10 jaar Fabrieksgarantie op lakens en slopen.

BESTELNR O 400

« BUTTERFLY »

met 6 lakens en 6 slopen, rijk geborduurd, goedgekeurd door de Ver. van Nederl. Huisvrouwen.

3 rijk geborduurde 100 % graslinnen lakens 180 x 240.
3 gezoomde lakens van dezelfde « Super » kwaliteit 180 x 240.
6 bijpassende geborduurde slopen 62 x 72.
6 theedoeken « Kampioen » grote maat 70 x 72.
6 sneldrogende theedoeken 65 x 65.
6 wafel-keukendoeken, nergens voordeliger.
6 linnen vaatdoeken, « Goudmerk ».
6 dubbeldikke badstof keukendoeken « Princess ».
6 bijpassende panlappen.
6 zware moderne luxe baddoeken « Indanthren ».
6 bijpassende washandjes.
12 prachtige gefestonneerde stofdoeken, royale maat.
6 messendoekjes, extra sterk.
1 modern ontbijtlaken, fantastisch mooi.
1 luxe ontbijtset, rijk gekleurd damast 130 x 160 met
6 bijpassende vingerdoekjes.
1 satijndamast tafellaken, glanshoudend, grote maat 150 x 200.
6 bijpassende satijndamast servetten.
2 satijndamast tafellakens, glanshoudend 130 x 160.
12 luxe poplin dameszakdoekjes, extra gemerceriseerd.
2 luxe flanellen Wolanta-lakens 170 x 220.

109 st. f 199,60 of 31,60 + 7 × 24,—

Met 1-persoons lakens 150 breed: f 190,60

Met 10 jaar Fabrieksgarantie op lakens en slopen.

BESTELNR O 500

« GALA PREMIERE »

(met 12 lakens en 12 slopen, rijk geborduurd, goed gekeurd door de Ver. van Ned. Huisvrouwen).

6 luxe lakens, zonder pap. Zwitsers borduurmotief, 180 x 240.
6 gezoomde gladde lakens zonder pap 180 x 240.
12 bijpassende Zwitsers geborduurde slopen 62 x 72.
6 linnen glazendoeken.
6 theedoeken « Kampioen » grote maat 70 x 72.
6 sneldrogende theedoeken 65 x 65.
12 wafel keukendoeken, nergens beter.
6 linnen vaatdoeken « Goudmerk ».
6 dubbeldikke badstof keukendoeken « Princess ».
6 bijpassende panlappen.
6 zware, moderne luxe baddoeken, « Indanthren ».
6 bijpassende washandjes.
6 Uni jacquard baddoeken « Ideal » grote maat.
6 bijpassende washandjes.
12 prachtige gefestonneerde stofdoeken, royale maat.
12 messendoekjes, extra sterk.
2 luxe ontbijtsets, rijk gekleurde damast 130 x 160 met
12 bijpassende vingerdoekjes.
1 modern gekleurd ontbijtlaken.
Om het fraaie cachet van de uitzet nog beter te laten uitkomen hebben wij de samenstelling uitgebreid met de volgende tafellakens, die door de fabriek 25 jaar
2 wit damast tafellakens « Carmen » 130 x 160.
1 wit damast tafellaken in dezelfde superklasse 150 x 200.
6 bijpassende servetten.
12 luxe poplin dameszakdoekjes, extra gemerceriseerd.
1 moderne wollen blokdeken (2-pers.) catalogusprijs.

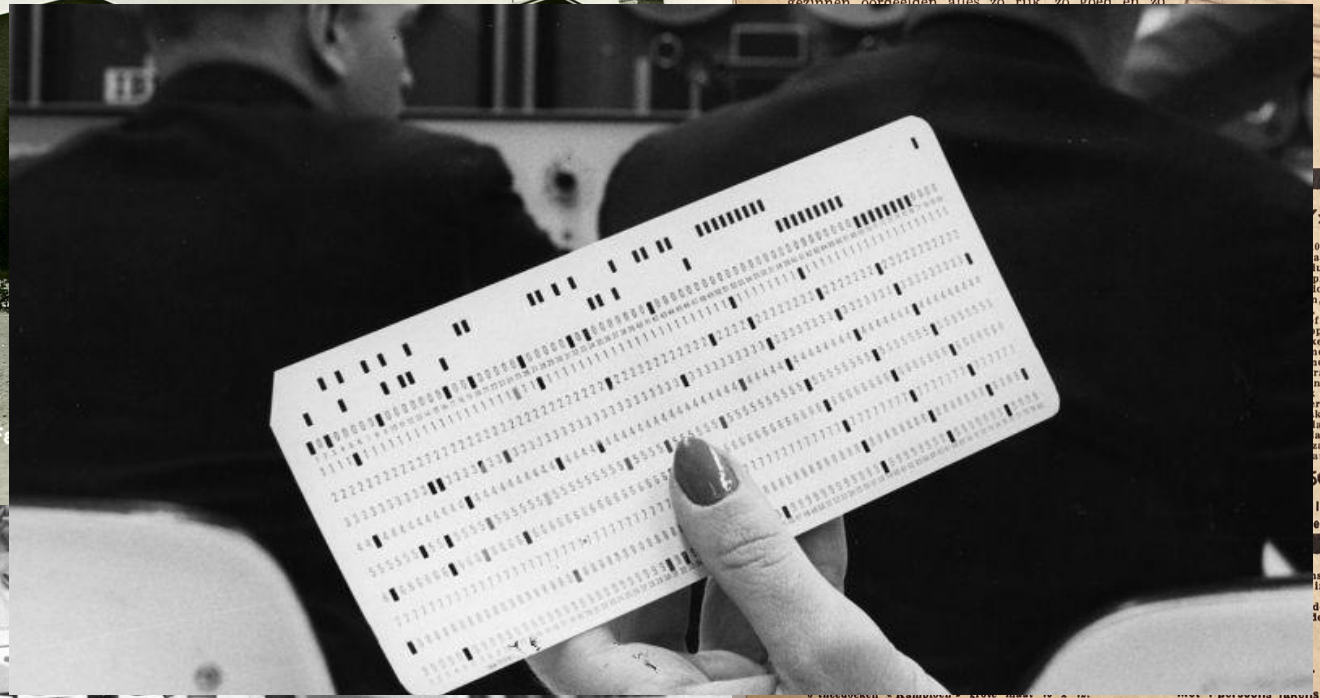
157 stuks f 385,80
of 58,55 + 11 × 29,75

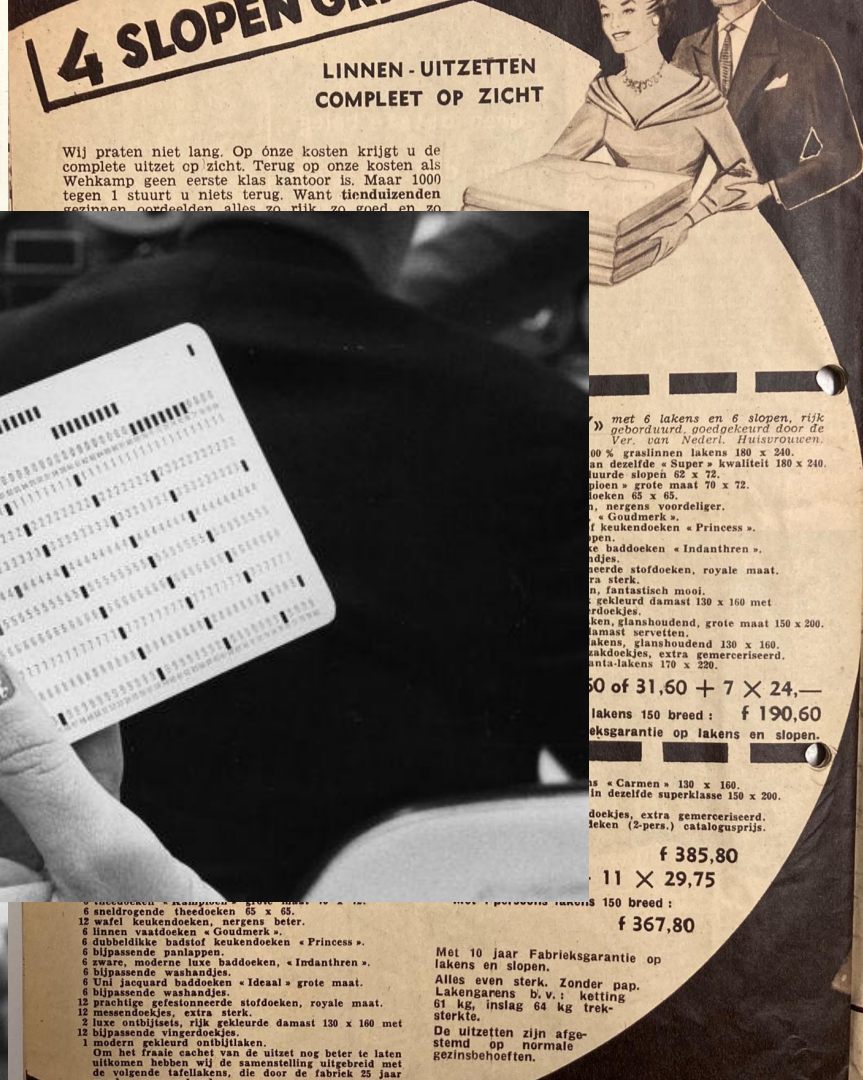
Met 1-persoons lakens 150 breed:
f 367,80

Met 10 jaar Fabrieksgarantie op lakens en slopen.

Alles even sterk. Zonder pap. Lakengarens b. v.: ketting 61 kg, inslag 64 kg trekkerkte.

De uitzetten zijn afgestemd op normale gezinsbehoeften.





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C02

Werkamp
Werkamp

Origin & Requirements

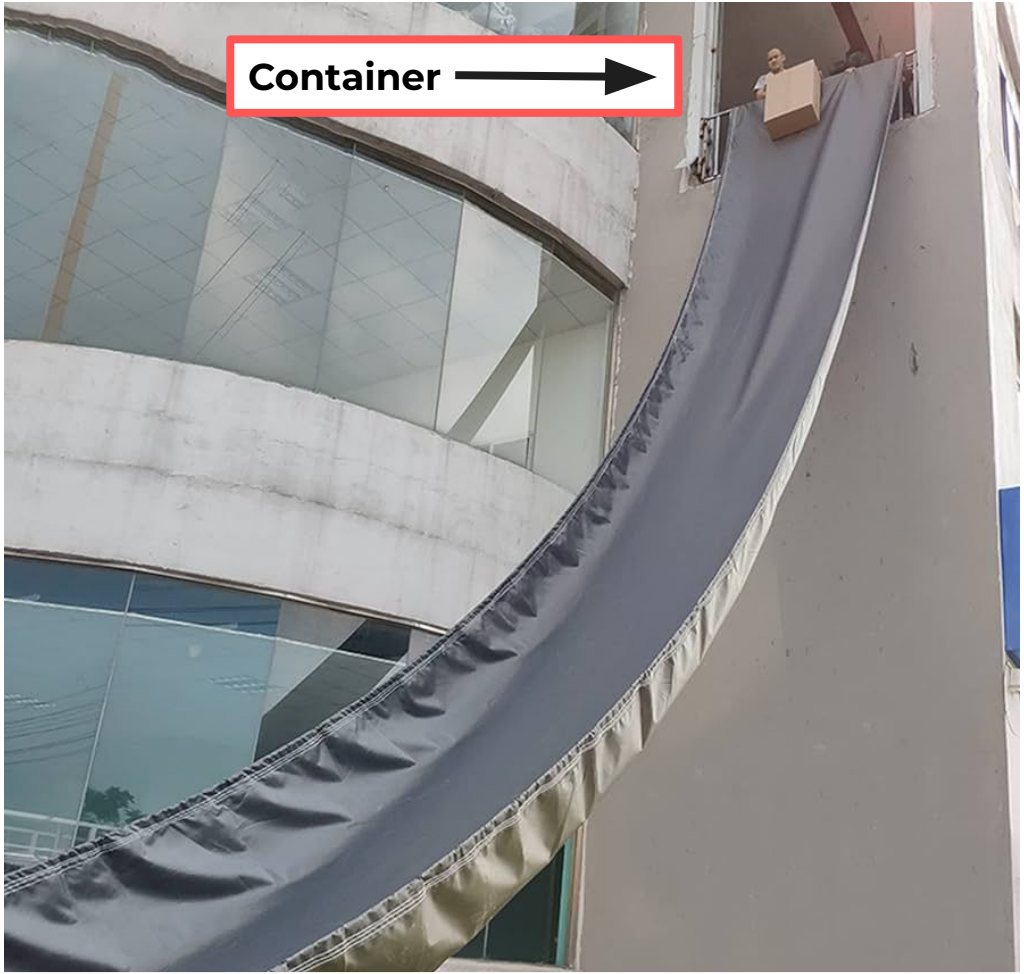
Blaze

The legacy

wehkamp

Blaze

The legacy



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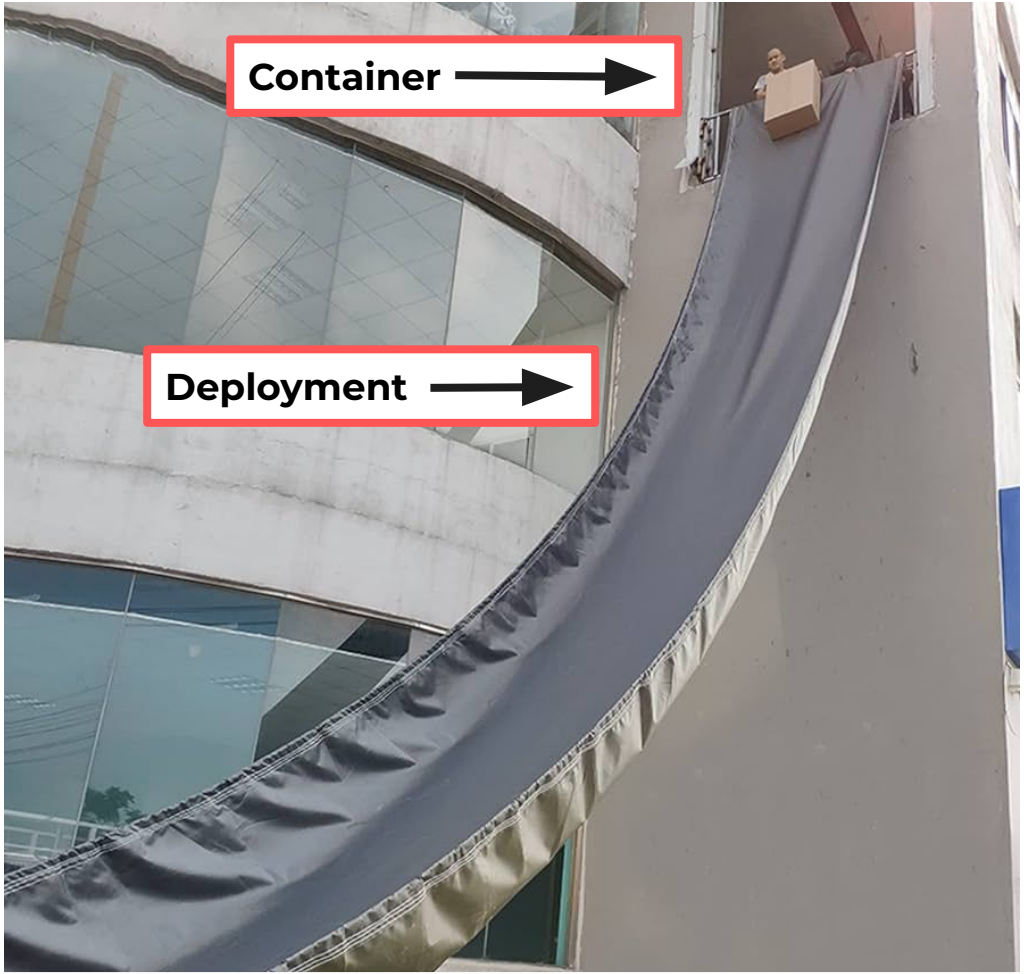
The legacy



wehkamp

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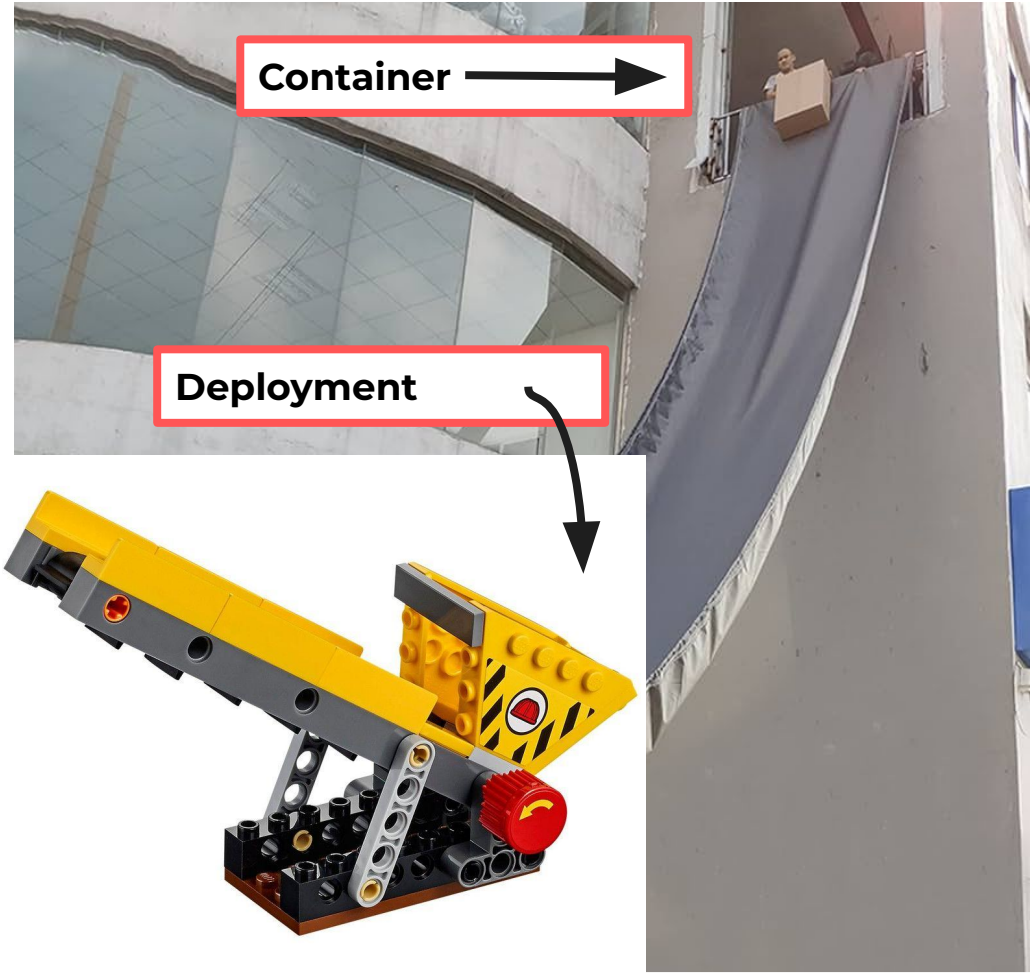
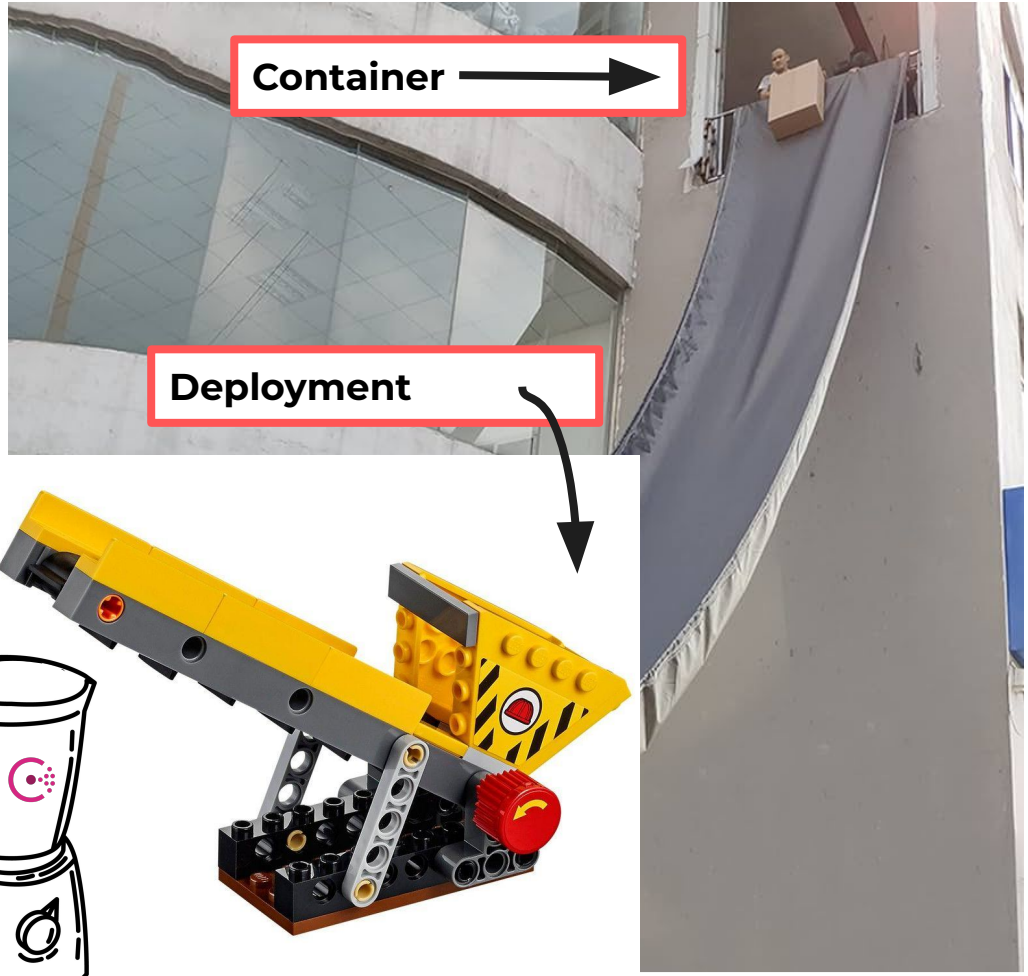


A bunch of productionized hacks

wehkamp

Blaze

The legacy

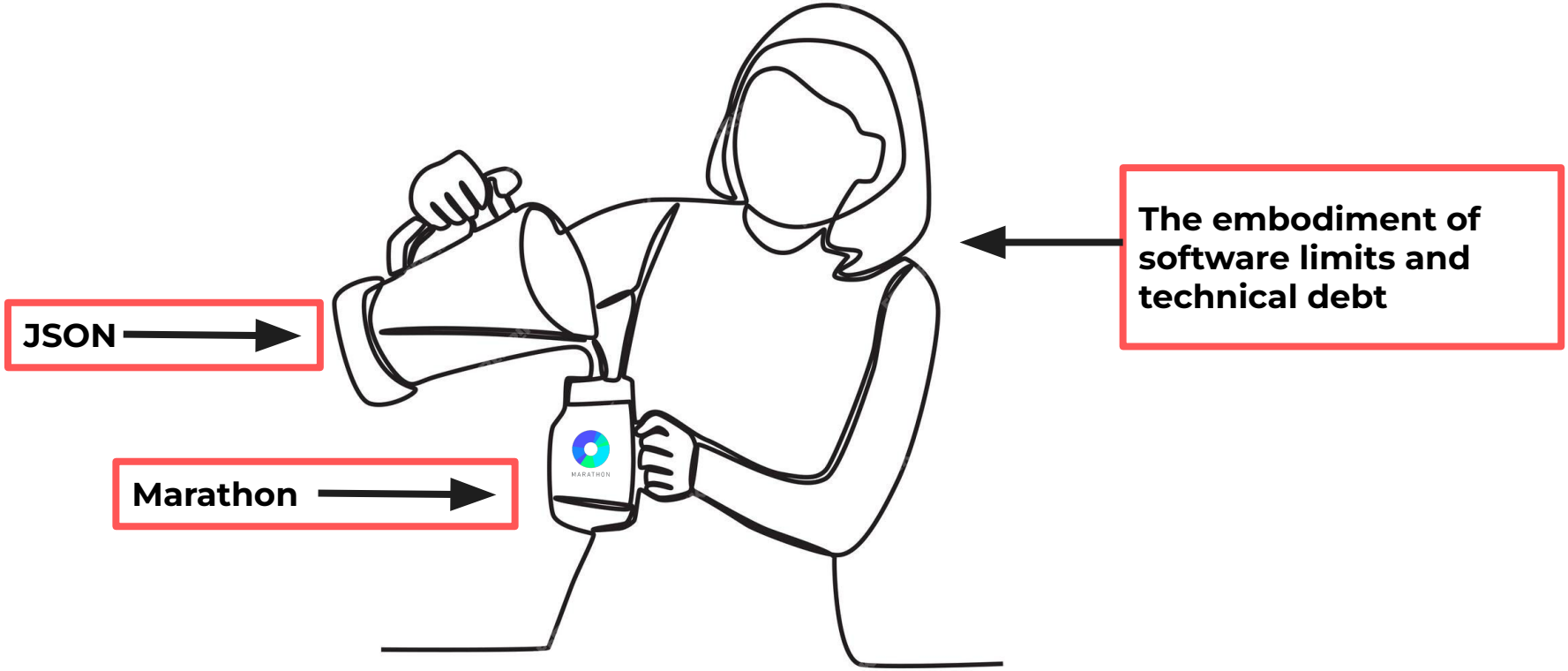


A bunch of productionized hacks

Mix some settings with Consul

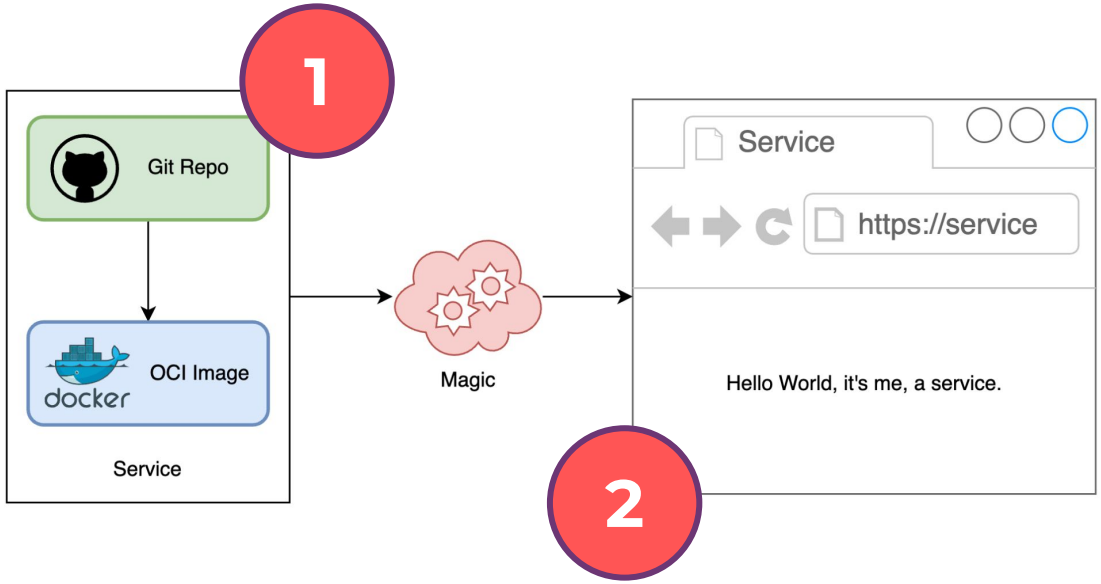
Blaze

The legacy



It’s not all bad!

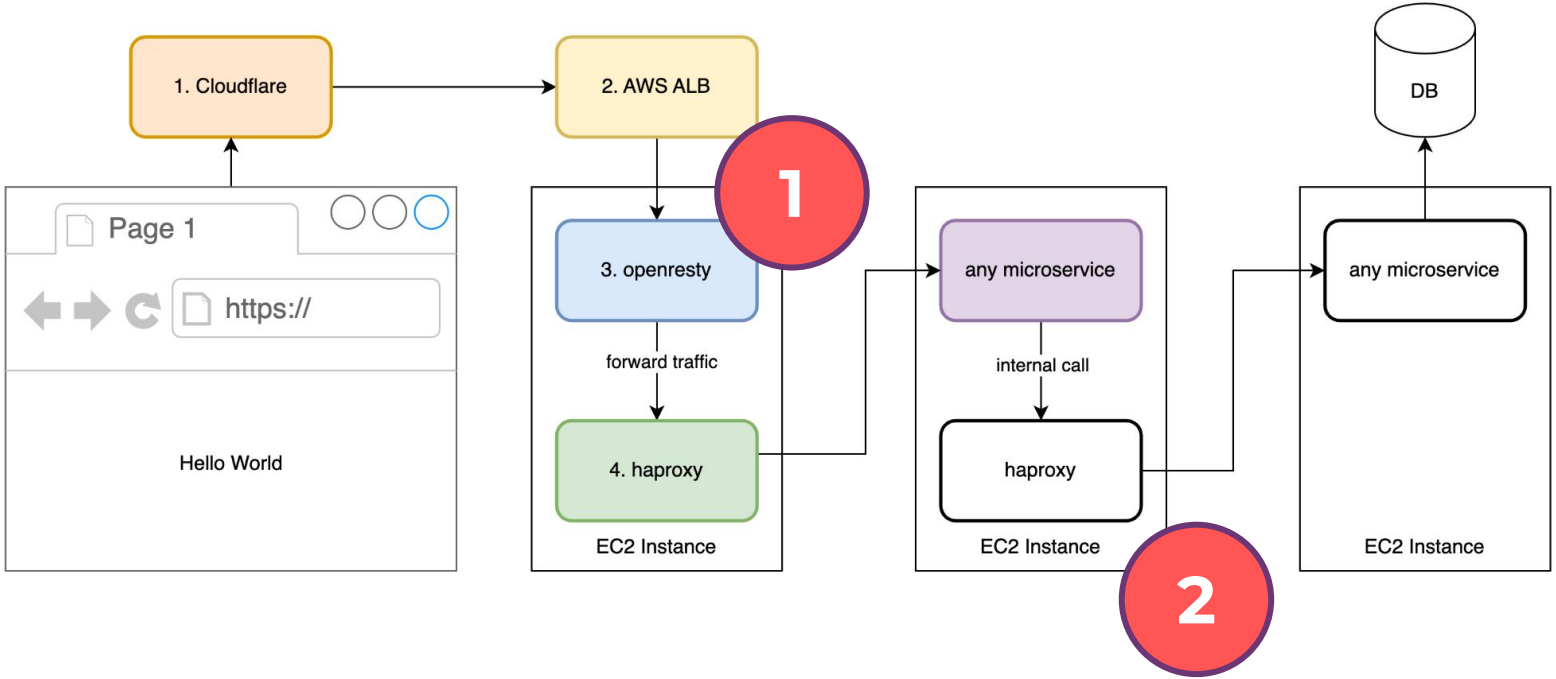
Complete autonomous self-service deployments, as much as you need



1. Code goes in one end
2. Functional service comes out the other end

It’s not all bad!

You get traffic management for free

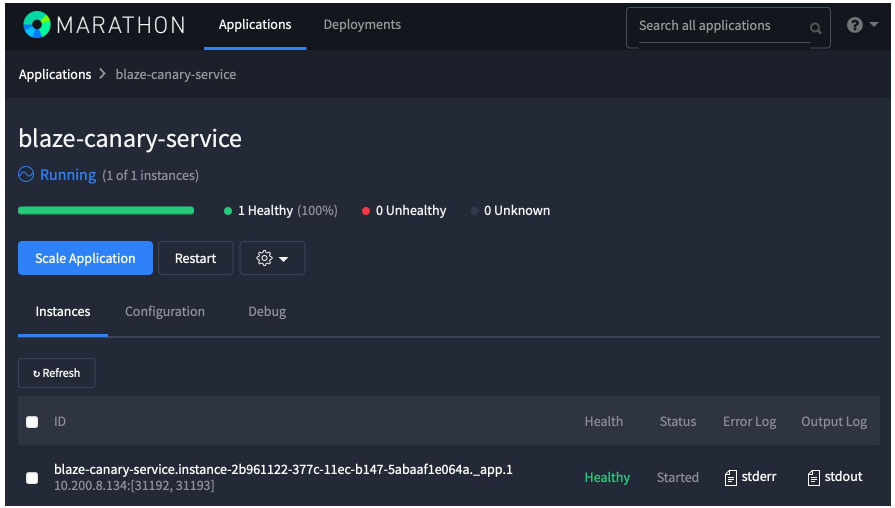


It’s not all bad!

A serverless experience

- Deploy in multiple environments
- Override service details per environment
- Service metrics
- Logs
- Alerts
- Restarts at will
- Scaling at will
- All ingress is handled for you

- It even has a bit of a GUI!



It’s not all bad… if you are the user

A platform engineering perspective

- Where do the resources go?
  - Upkeep 🙄
  - End-user Support
  - Baseline cost 💸
- What makes it reliable?
  - Stateless
  - Designed for failure
  - Automated as much as possible, cattle
- What about security?
  - HTTP ACL
  - No least-privilege 👎
  - No central IAM or Secrets 👎

Requirements

A serverless experience

wehkamp

Migration requirements:

1. Developer delivers CI results (OCI Images)
2. Platform returns reachable microservices
3. Don’t make anything worse
4. Don’t make everyone rewrite their code

Requirements

A serverless experience

wehkamp

Migration requirements:

1. Developer delivers CI results (OCI Images)
2. Platform returns reachable microservices
3. Don’t make anything worse
4. Don’t make everyone rewrite their code

5. **Don’t reinvent the wheel all the time**

Atlas

Atlas

What are we going to build? What do we keep?

- Infrastructure facilities
  - We'll need resources
  - Some administrative ownership
  - Networking
  - IAM
  - Automation

- Runtime facilities
  - Container scheduling
  - Delivery system
  - Traffic management

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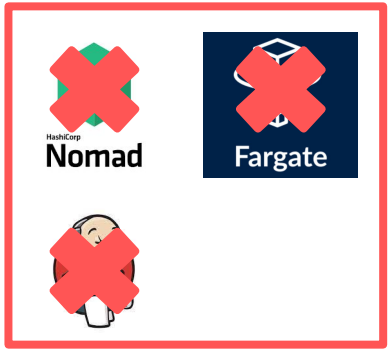

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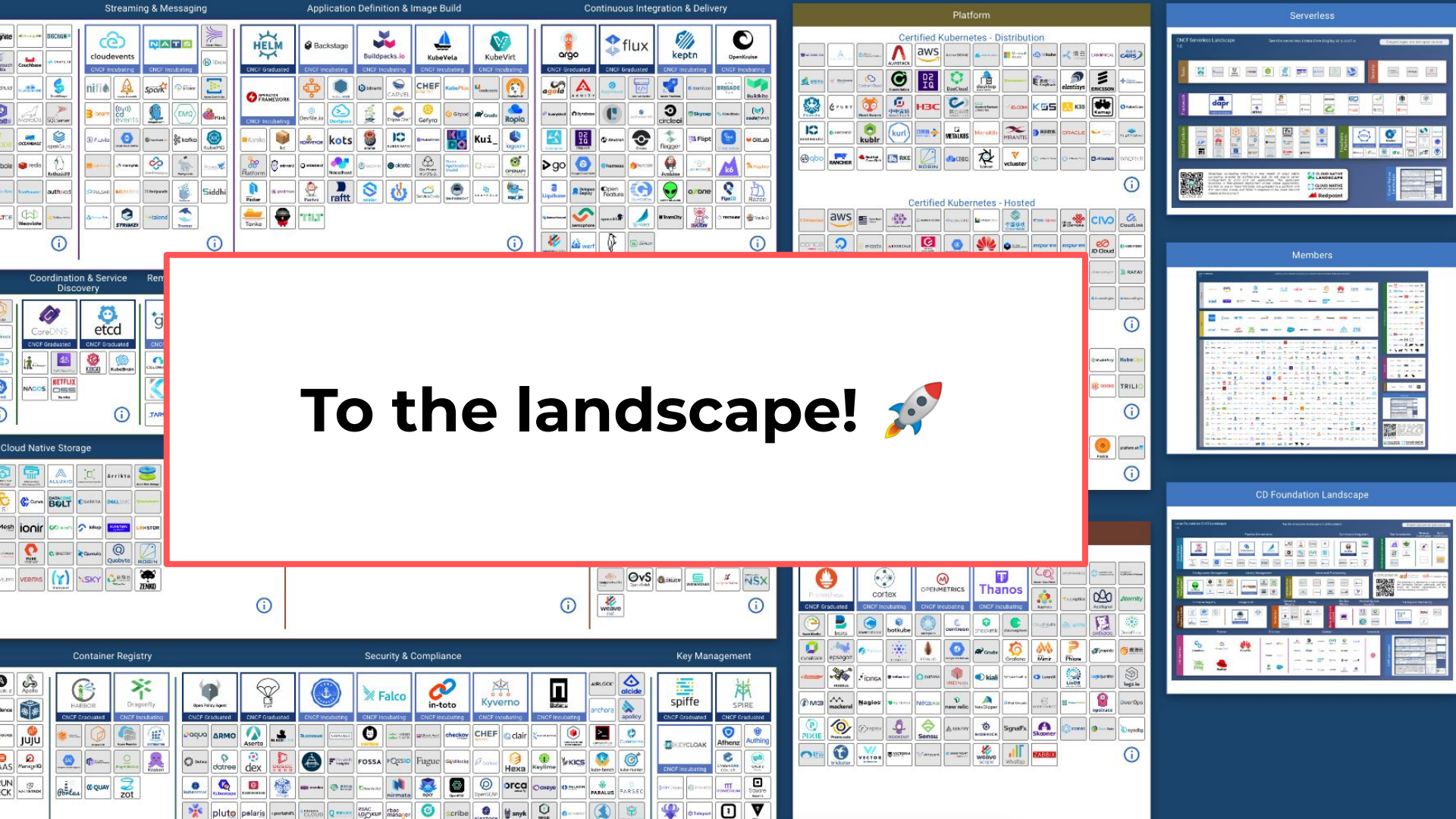
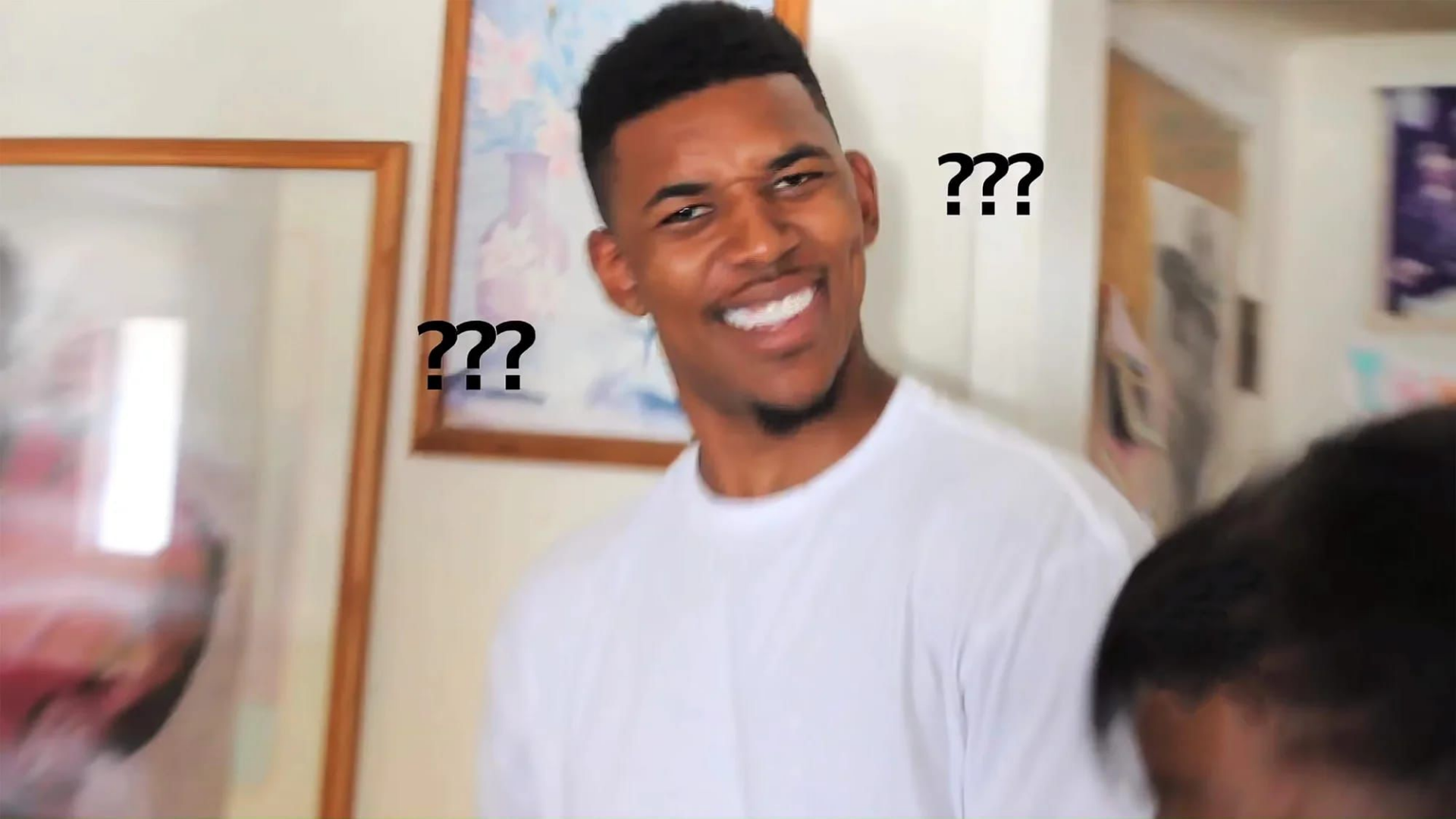
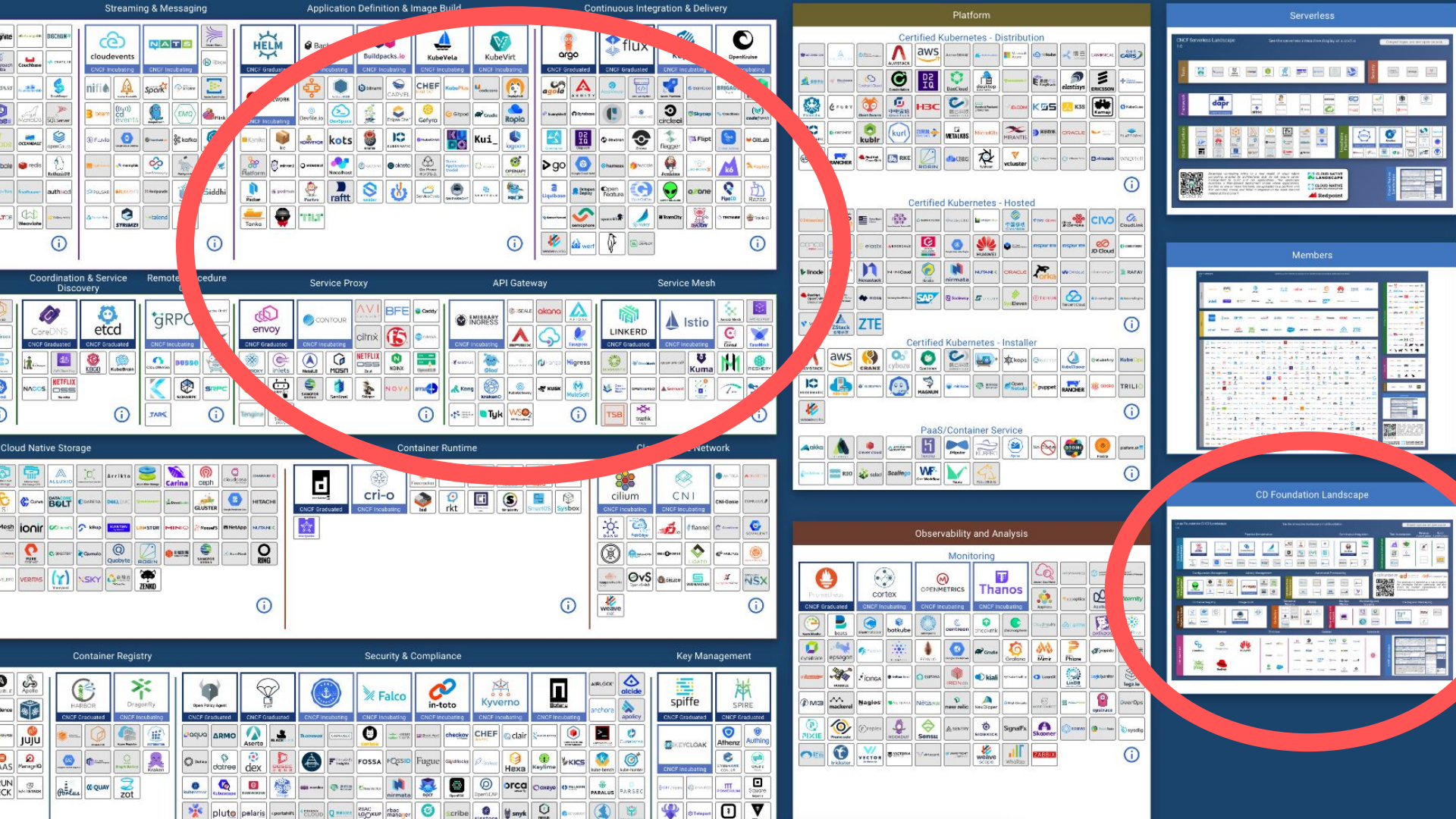
To the landscape! 🚀

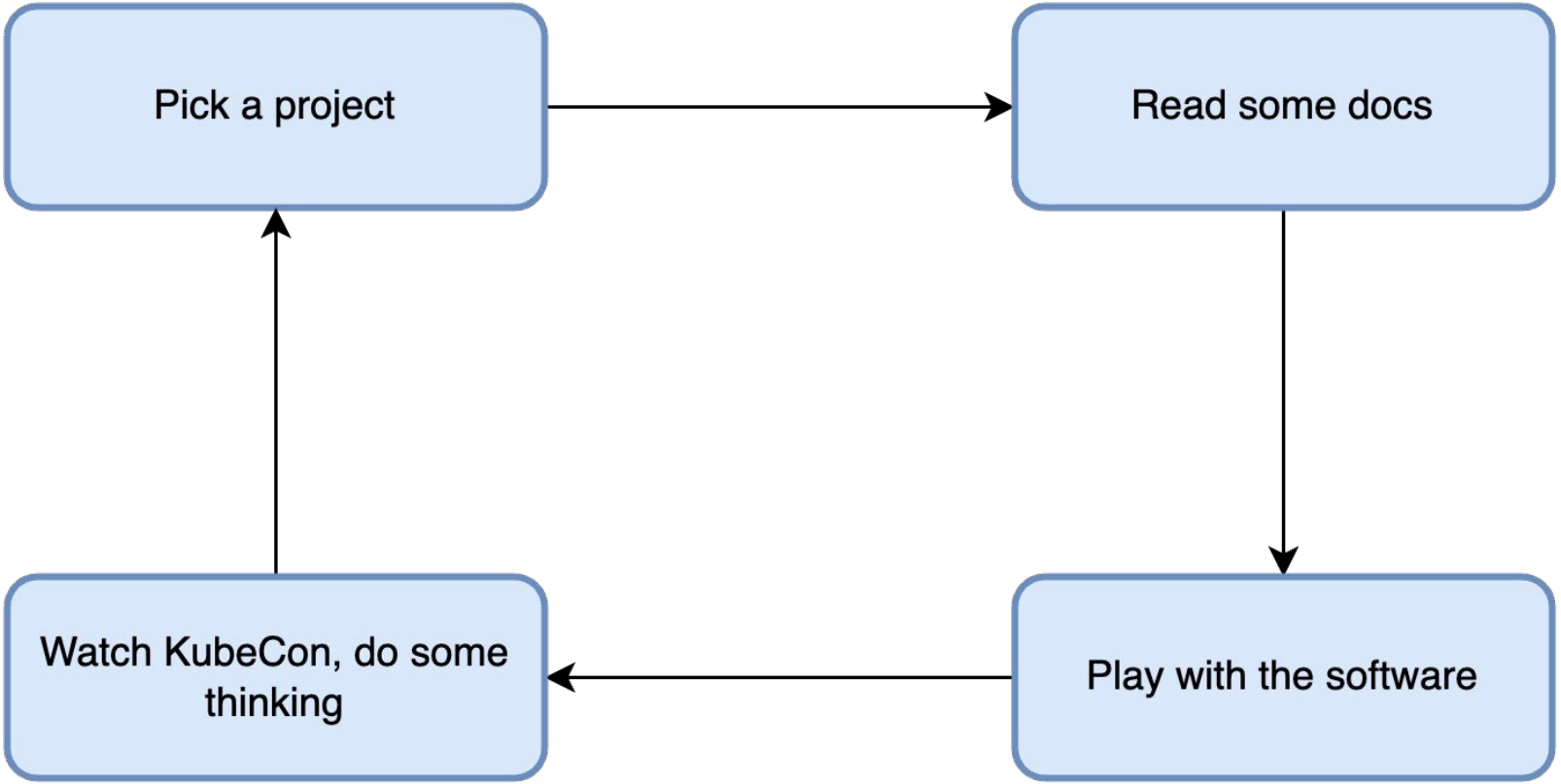





Streaming & Messaging
Application Definition & Image Build
Continuous Integration & Delivery
Coordination & Service Discovery
Service Proxy
API Gateway
Service Mesh
Cloud Native Storage
Container Runtime
Network
Container Registry
Security & Compliance
Key Management
Platform
Certified Kubernetes - Distribution
Certified Kubernetes - Hosted
Certified Kubernetes - Installer
PaaS/Container Service
Observability and Analysis
Monitoring
Serverless
Members
CD Foundation Landscape

Atlas

What are we going to build? What do we keep?



Atlas

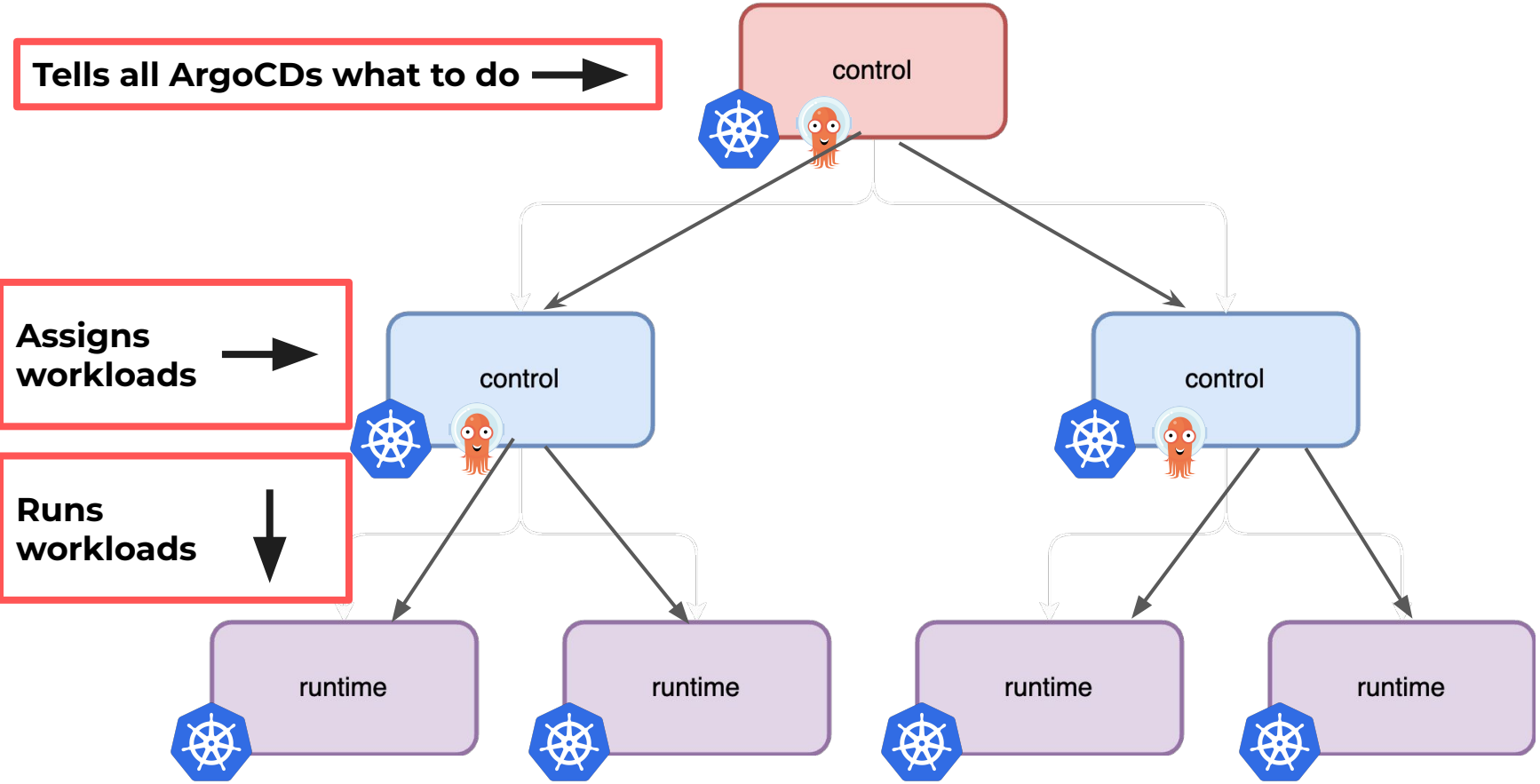
What are we going to build? What do we keep?

- Delivery system ✅
- Traffic management ✅

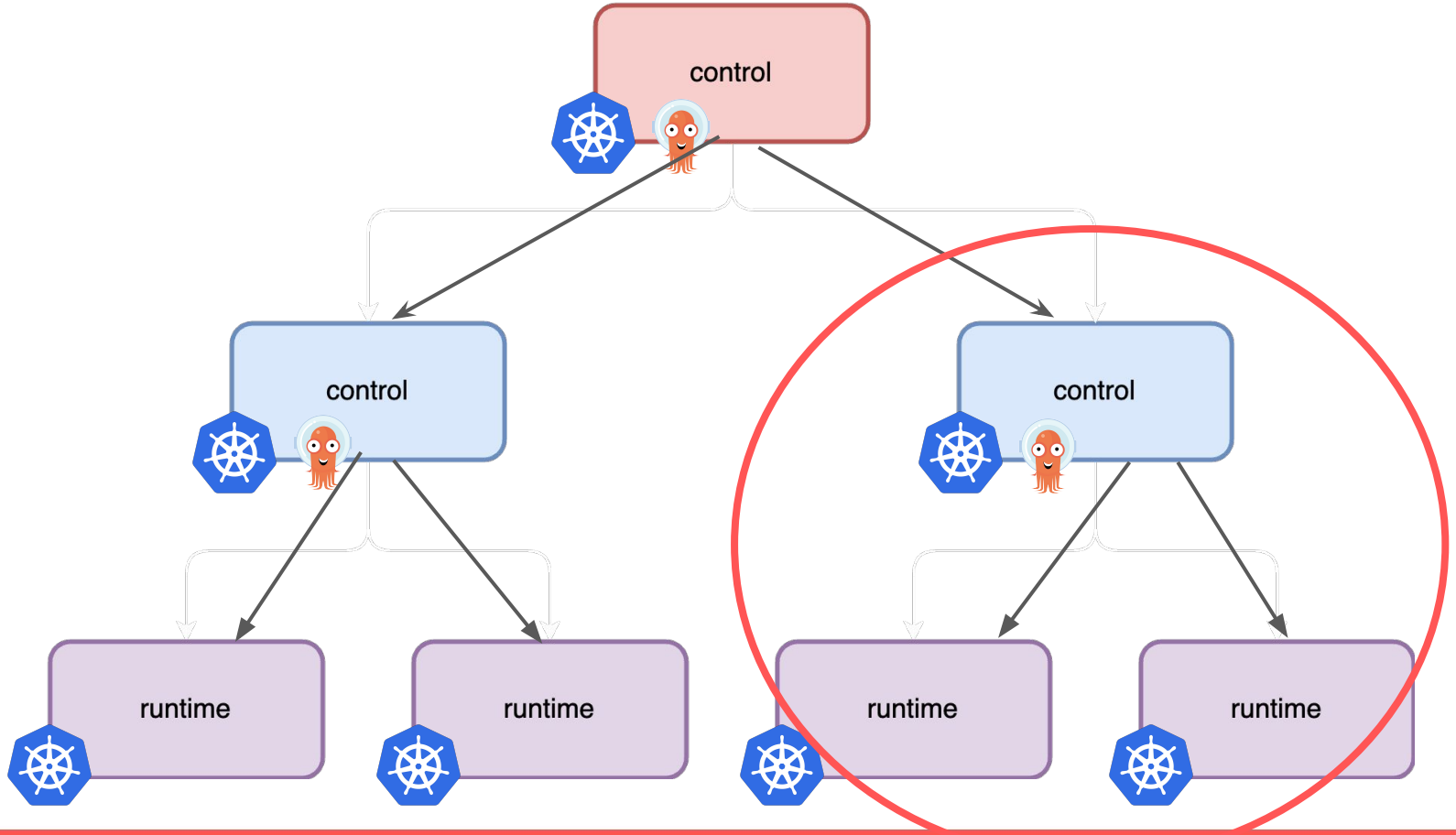
HELM

Istio

Atlas


Tells all ArgoCDs what to do
Assigns workloads
Runs workloads
control
control
control
runtime
runtime
runtime
runtime

Atlas

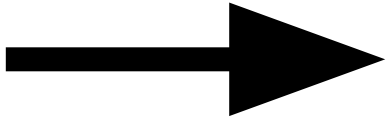


Migration

Migration

Getting from B to A

- Live (so minimal downtime)
- No code rewrites (just packaging)
- Similar-enough behaviour



Migration

Getting from B to A

```
LABEL blaze.service.id="payment" \
      blaze.service.name="blaze-payment-service" \
      blaze.service.deployment.minimum-instances="1" \
      blaze.service.deployment.internal-port="5000" \
      blaze.service.routing.consumer.exposed="true" \
      blaze.service.routing.third-party.exposed="false" \
      blaze.service.routing.trusted.exposed="true"
```

Migration

Getting from B to A

```
apiVersion: argoproj.io/v1alpha1
kind: ApplicationSet
metadata:
  name: a-super-cool-service
  namespace: argo-cd
spec:
  generators:
    - matrix:
        generators:
          - list:
              elements:
                - envType: dev
                  values:
                    maxReplicaCount: "1"
                - envType: prod
                  values:
                    maxReplicaCount: "2"
          - clusters:
              selector:{}
```

Generate applications on workload clusters

Using the following specific elements per environment type

Migration

Getting from B to A

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kind: ApplicationSet
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                  values:
                    maxReplicaCount: "2"
          - clusters:
              selector:{}
```

Cluster known to ArgoCD	Value becomes
wl01-dev	maxReplicaCount: “1”
wl02-dev	maxReplicaCount: “1”
wl01-prod	maxReplicaCount: “2”
wl02-prod	maxReplicaCount: “2”

Migration

Getting from B to A

```
traffic:
  trusted:
    exposed: true
  thirdParty:
    exposed: false
  consumer:
    exposed: false
    allowUnsafeMethods: false
```

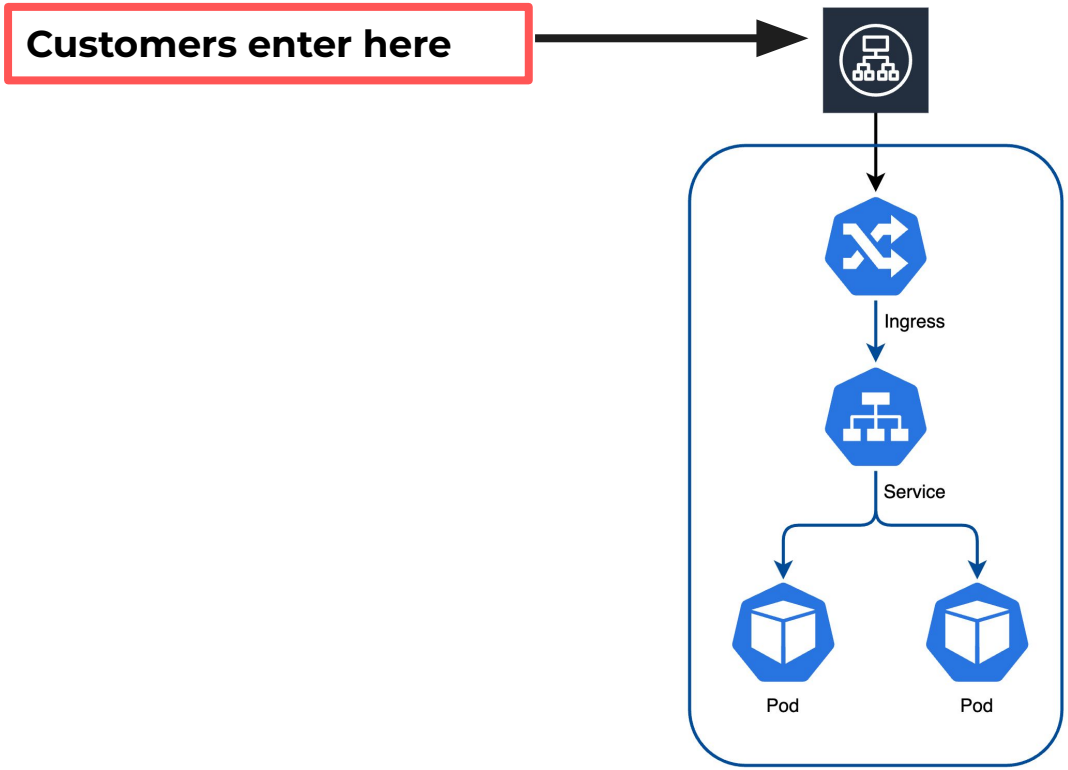
Migration

Getting from B to A

```
apiVersion: security.istio.io/v1beta1
kind: AuthorizationPolicy
metadata:<snip>
spec:
  action: DENY
  rules:
    - from:
        - source:
            principals:
              - cluster.local/ns/istio-ingress/sa/istio-consumer-ingressgateway
      to:
        - operation:
            methods:
              - POST
              - PUT
              - DELETE
```

Migration

Getting from B to A



Migration

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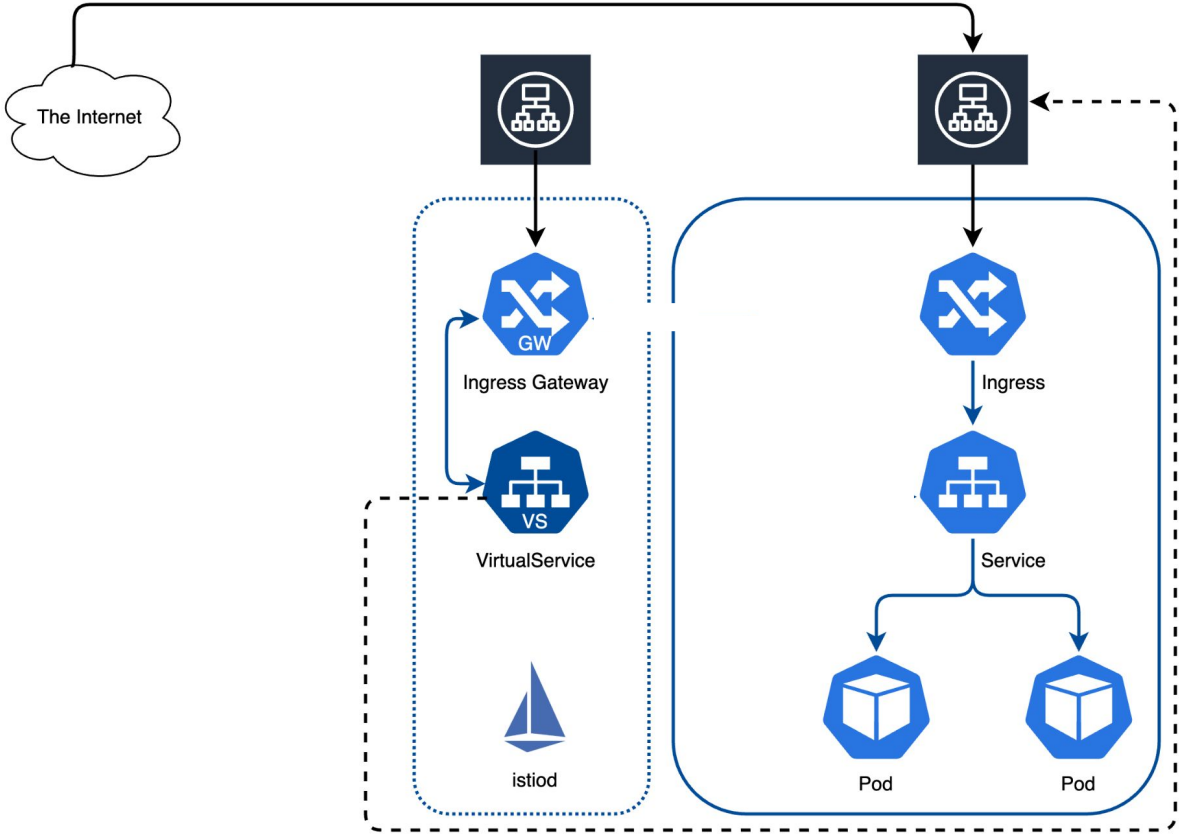

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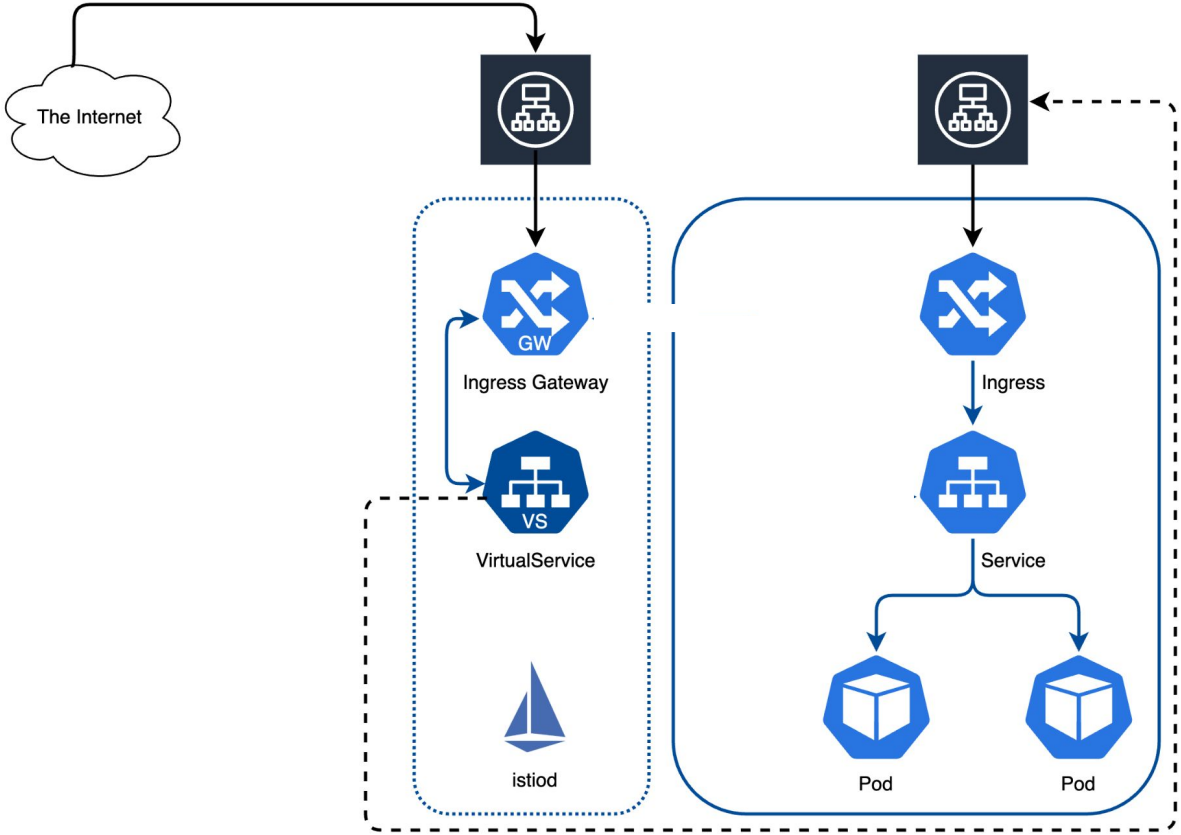

Migration

Getting from B to A

wehkamp

Final thoughts

- Saved an order of magnitude of money
- Use projects like KEDA and Karpenter
- The reconciliation speed is amazing
- Developer insight is so much better with tools like ArgoCD

Thank you!

Bonus Options

If somehow we didn't run out of time...

- Q&A
- We are hiring!
- Check out other presentations

- Look at Terraform
- Look at an ApplicationSet Manifest
- Check our internal Helm chart

Live (scary!):

- Check out the ArgoCD UI
- Have a peek at Kiali

Thank you!