



# Common Platform v2

Better, faster, cheaper, happier

**Tom Clark**

DevOps Enterprise Summit, London | June 2019

# Tom Clark

Head of Common Platform

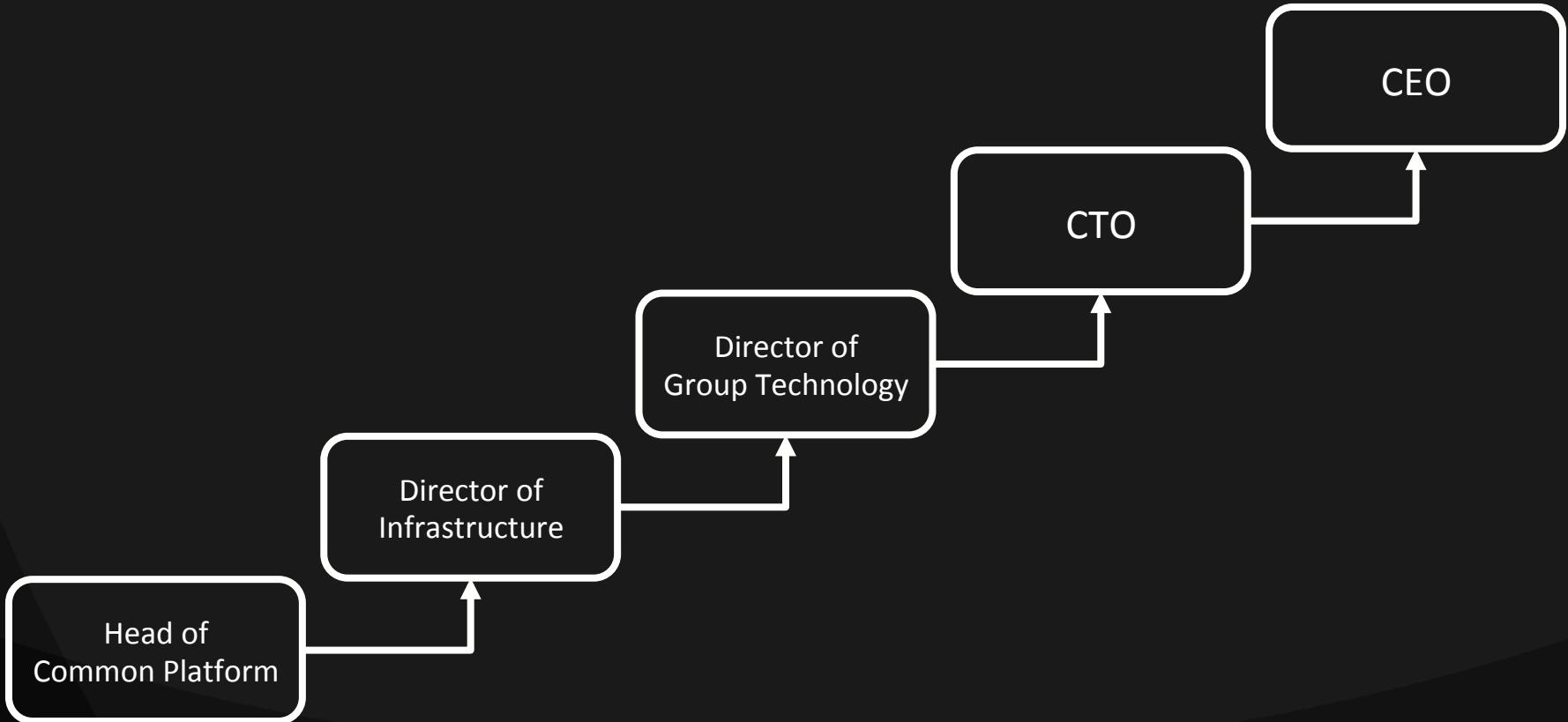
[tom.clark@itv.com](mailto:tom.clark@itv.com) | @tomonocle



#DOES19 @tomonocle



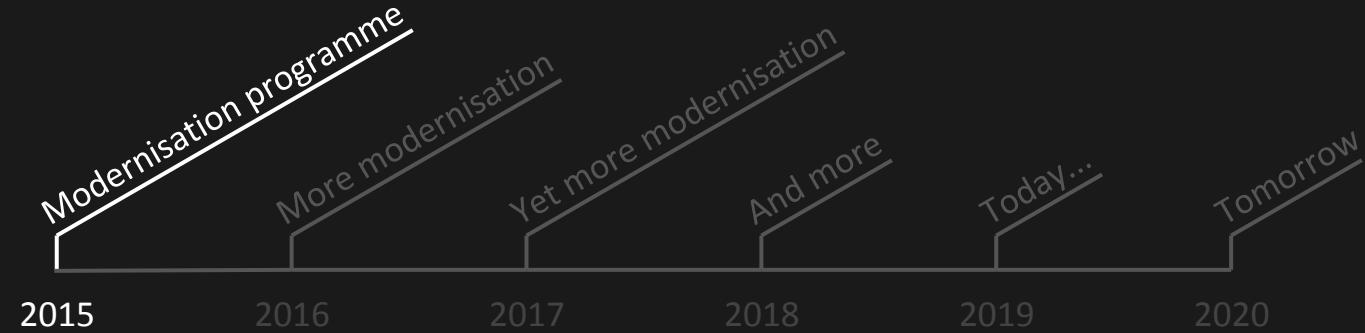
- UK's largest commercial producer/broadcaster
- Founded 1955
- 10,000 hours of content
- £3bn revenue
- 6,000 staff
- 300 in technology



# What is the Common Platform?



## CPv2: Better, faster, cheaper, happier



## Modernisation programme

Airtime Sales

Asset Management

Broadcast Scheduling

Campaign Management

Content Acquisition

Content Delivery

Content Management

Content Sales

Freelancer Contracting

Fulfilment Planning

Music Rights

Product Catalogue

Rights Management

Sales Forecasting

Spot Scheduling

Talent Payments

## Modernisation programme

### Airtime Sales

Asset Management  
Broadcast Scheduling  
Campaign Management  
Content Acquisition

### Content Delivery

Content Management  
Content Sales  
Freelancer Contracting  
Fulfilment Planning  
Music Rights

### Product Catalogue

Rights Management  
Sales Forecasting  
Spot Scheduling  
Talent Payments



## Modernisation programme

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Music Rights

### Product Catalogue

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Sales Forecasting

Spot Scheduling

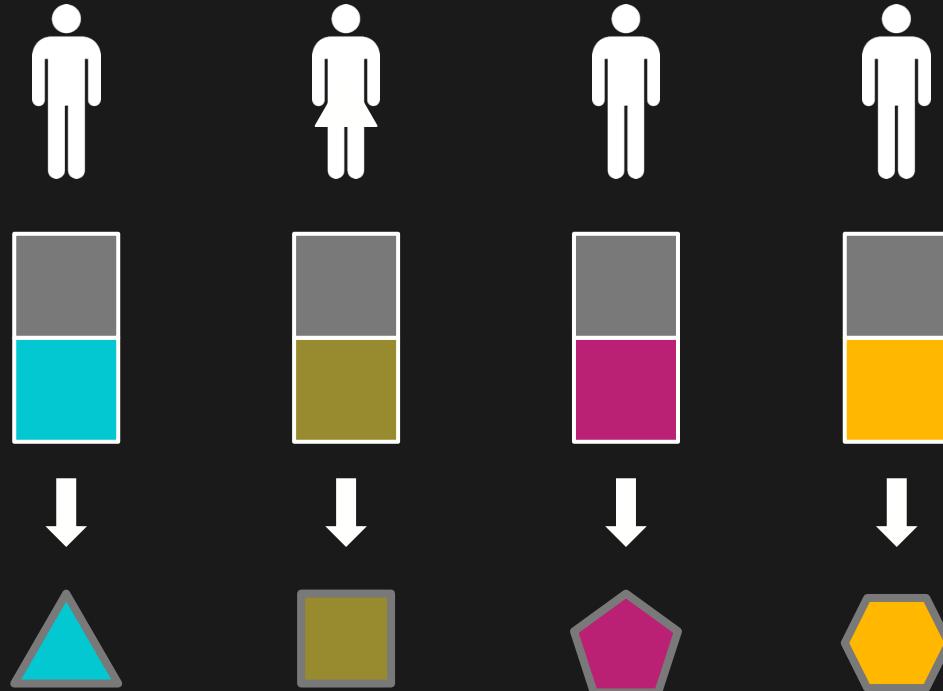
### Talent Payments



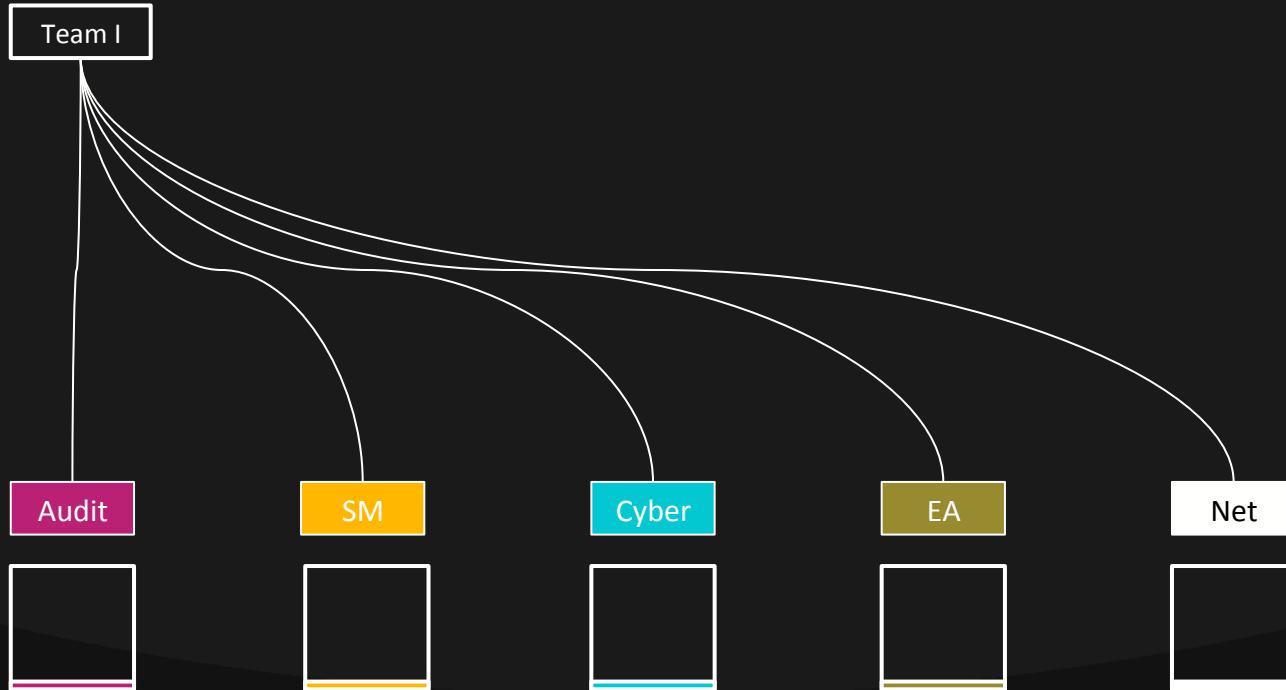
## Modernisation programme

Project	→	Product	Slow	→	Fast
Waterfall	→	Agile	Big	→	Small
On-prem	→	Cloud	CAPEX	→	OPEX
ETL	→	API	Dev & Ops	→	DevOps
Manual	→	Automated	Centralised	→	Devolved
Bespoke	→	Standard	Command & control	→	Trust & measure
Monolith	→	Microservice	MTBF	→	MTTR
Shared	→	Common	Outsourced	→	Insourced
Proprietary	→	Open-source	Infrequent	→	Frequent

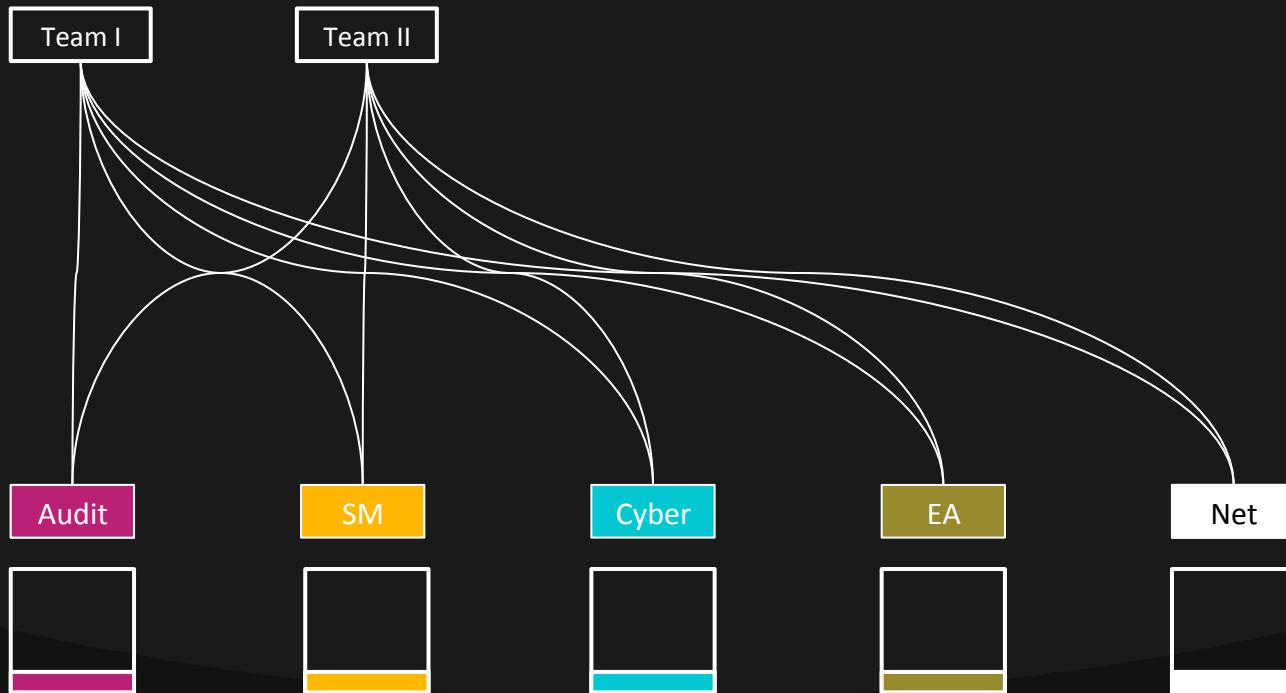
Before



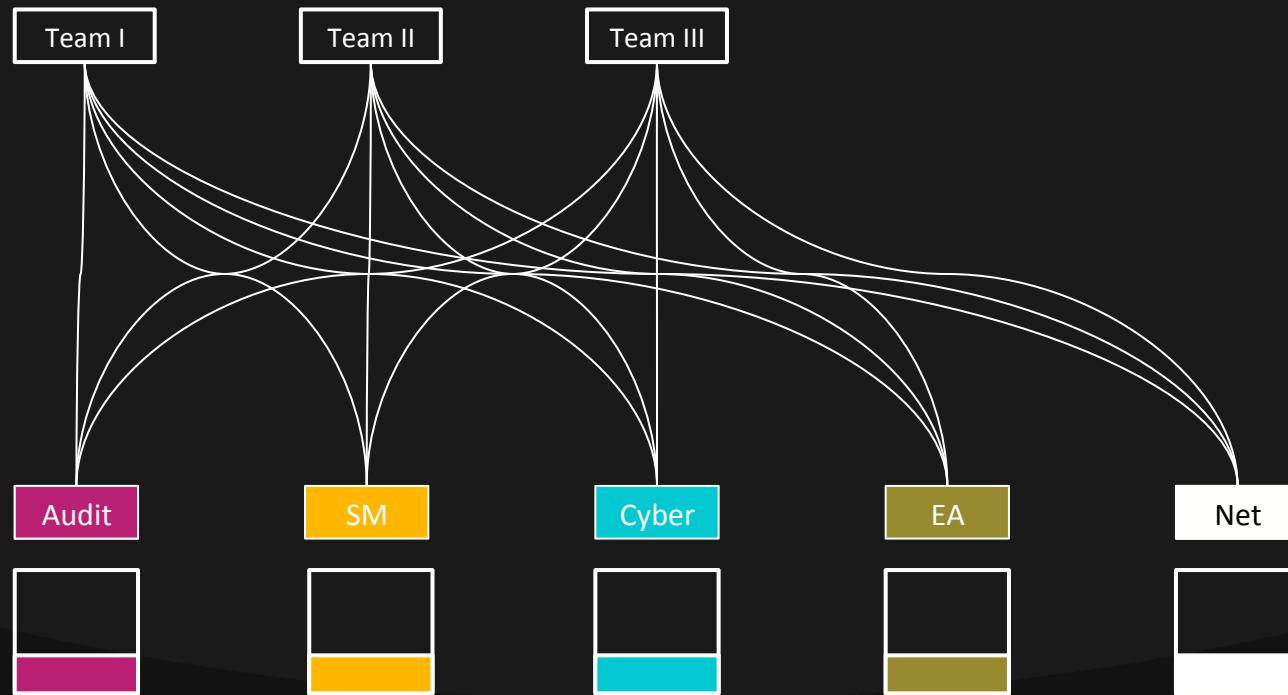
## CPv2: Better, faster, cheaper, happier



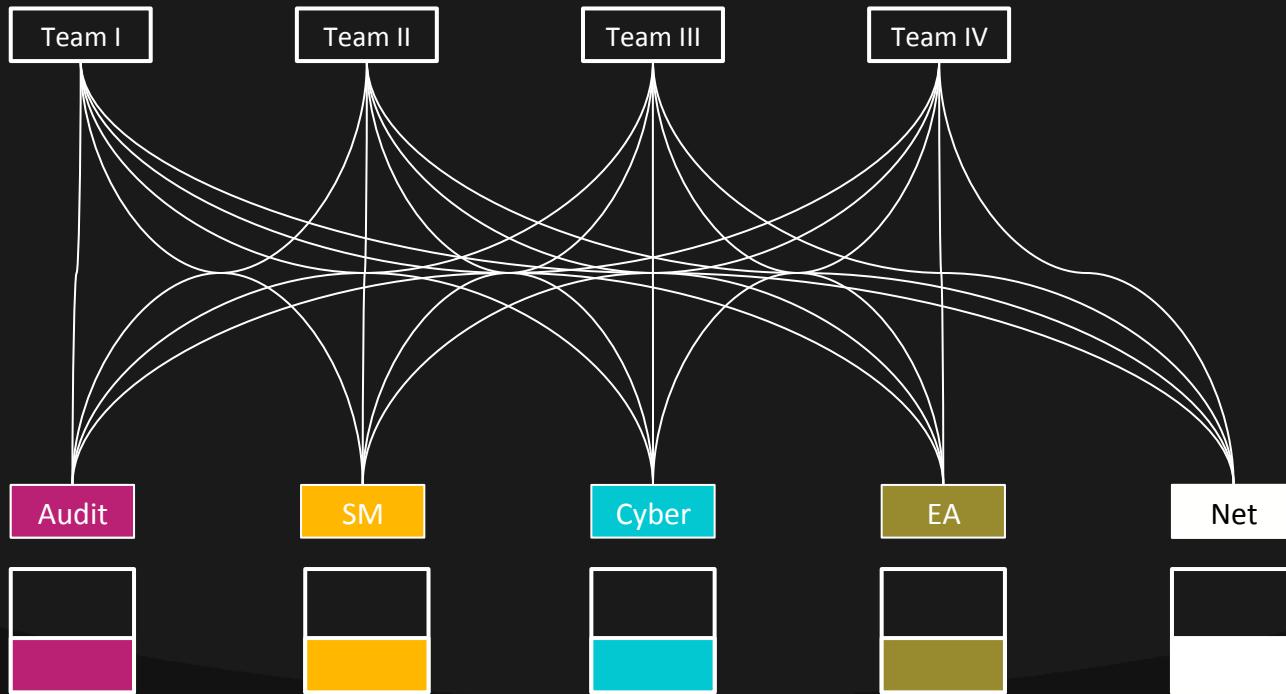
## CPv2: Better, faster, cheaper, happier



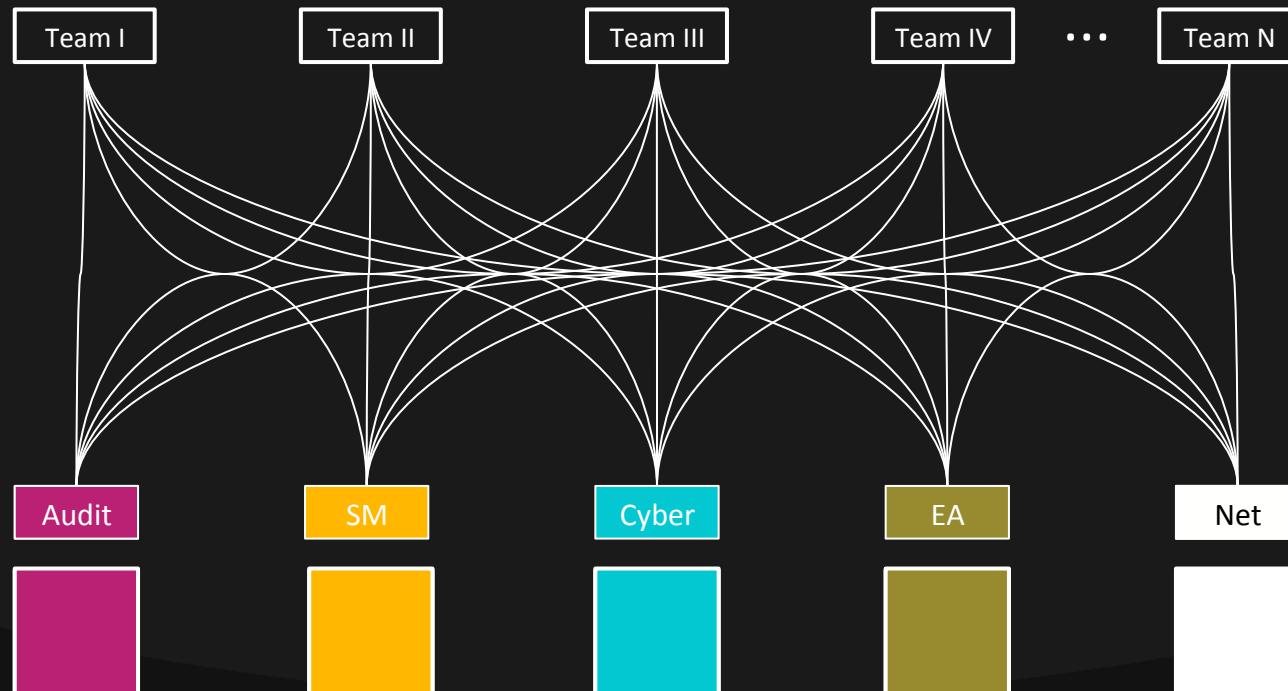
## CPv2: Better, faster, cheaper, happier



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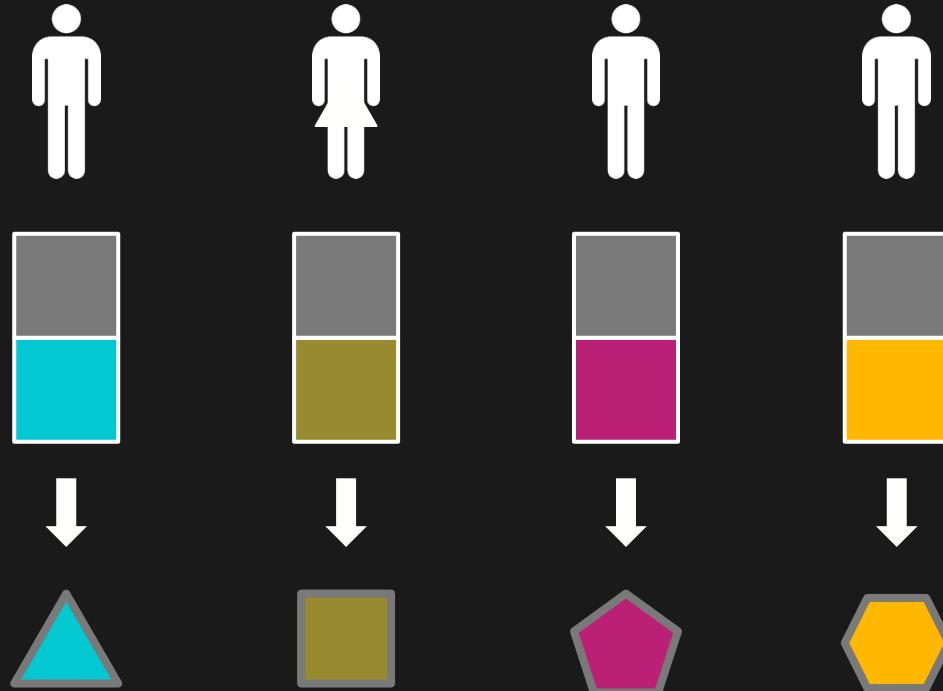
## CPv2: Better, faster, cheaper, happier



# Enter Common Platform

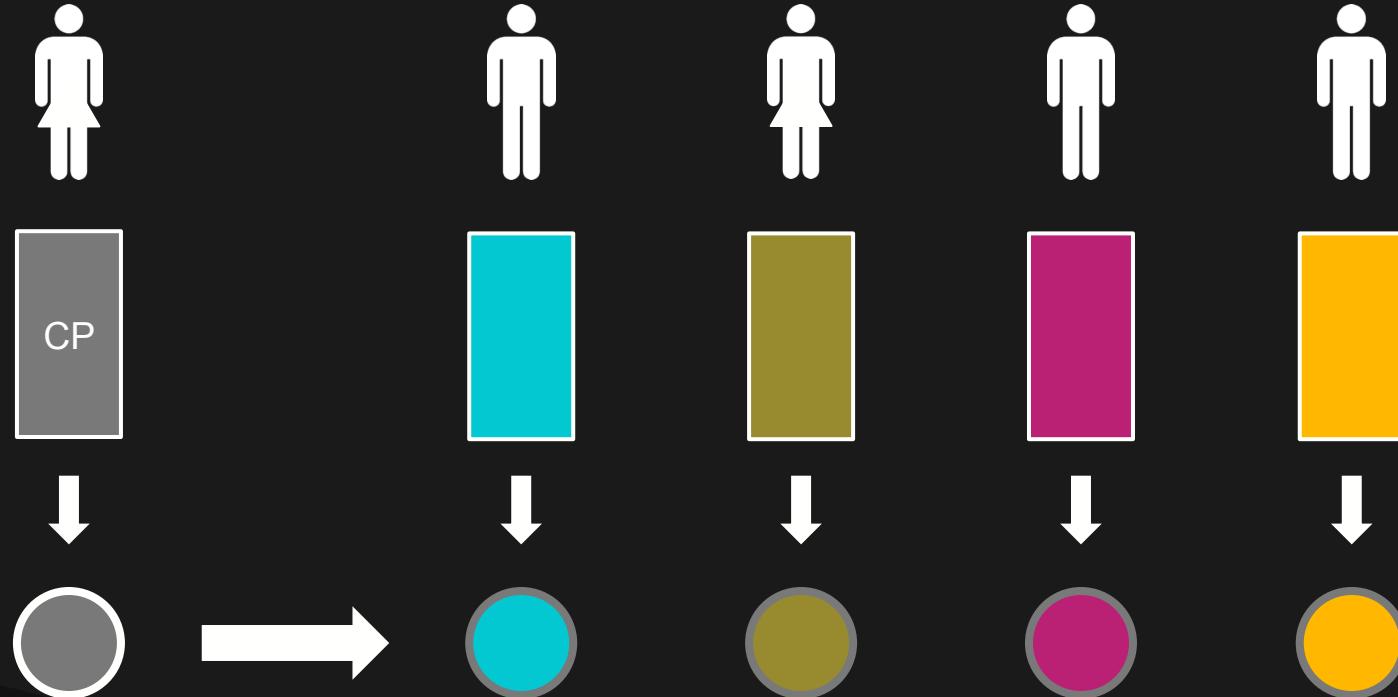


Before

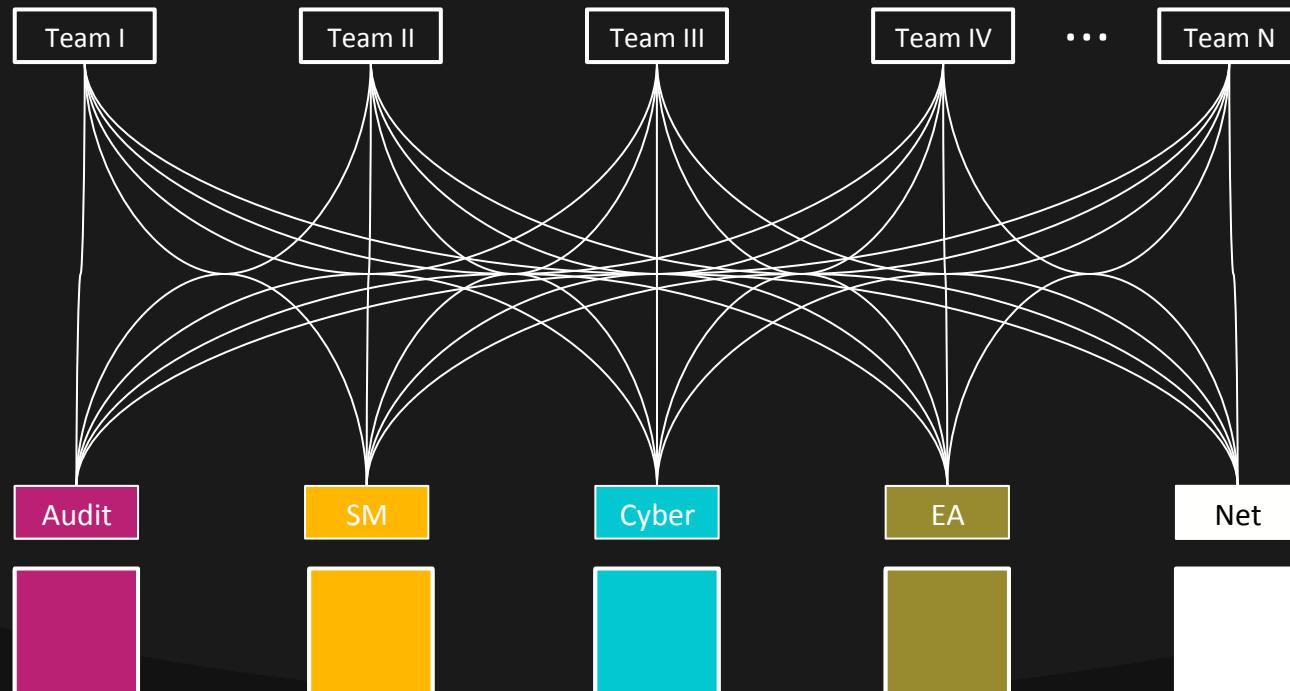


## CPv2: Better, faster, cheaper, happier

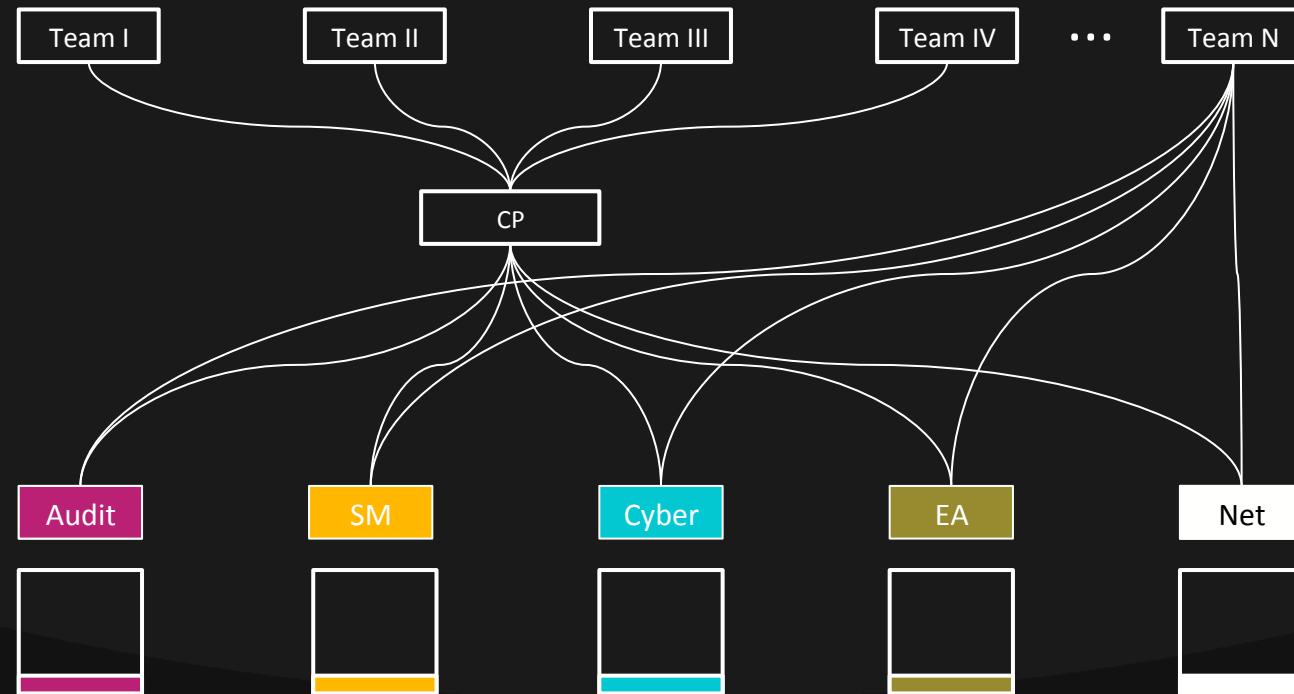
After



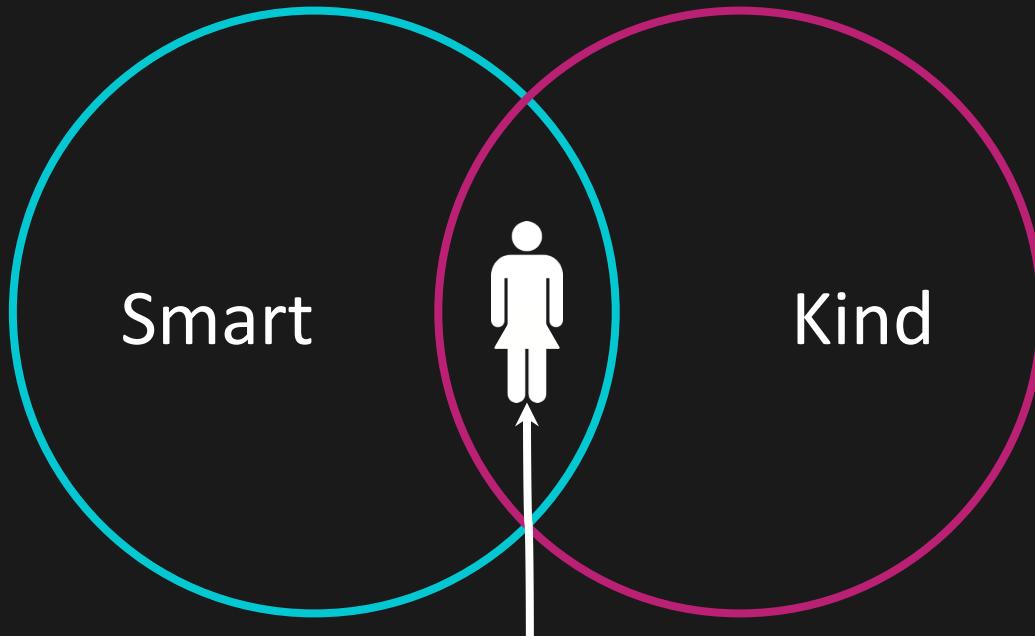
## CPv2: Better, faster, cheaper, happier



## CPv2: Better, faster, cheaper, happier



People



Platform  
Engineers



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# Core Platform Engineers



## Core Engineers



Platform curation



Flex



Incubating new hires



Research & development

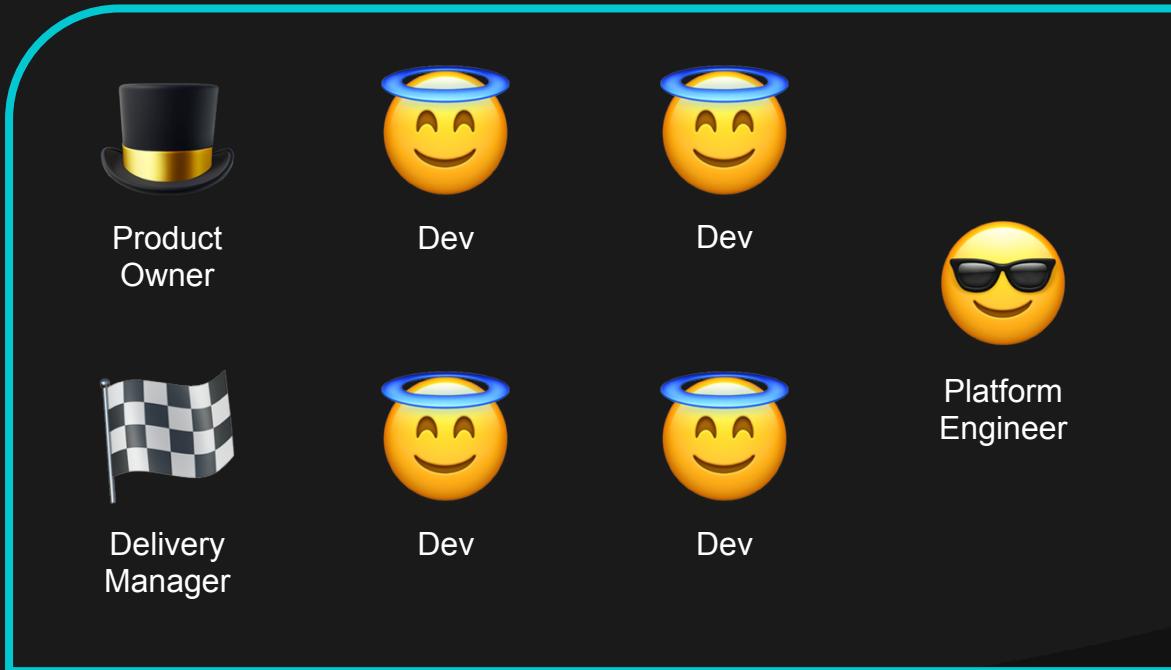


Second-Opinion-as-a-Service

# “Field” Platform Engineers



## Product teams



## Field Platform Engineers



Operations

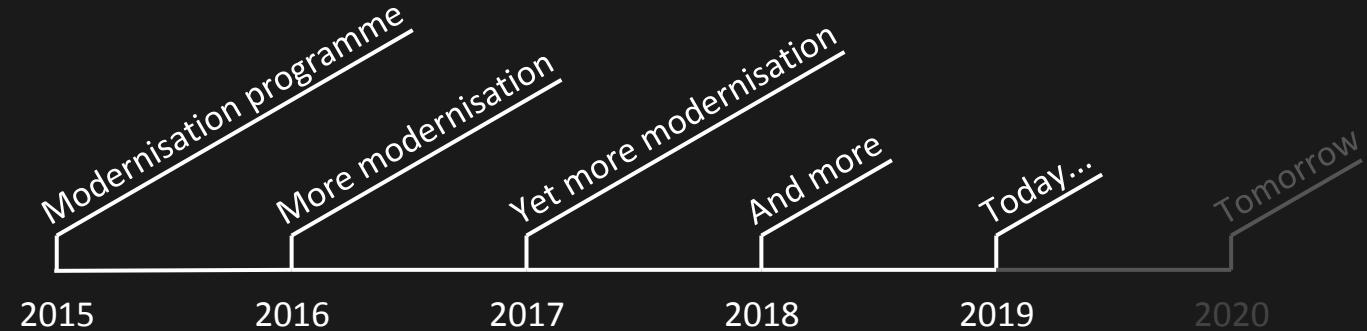


Force  
multiplication



Quality  
influence

## CPv2: Better, faster, cheaper, happier



# Problem I: Lonely Engineers



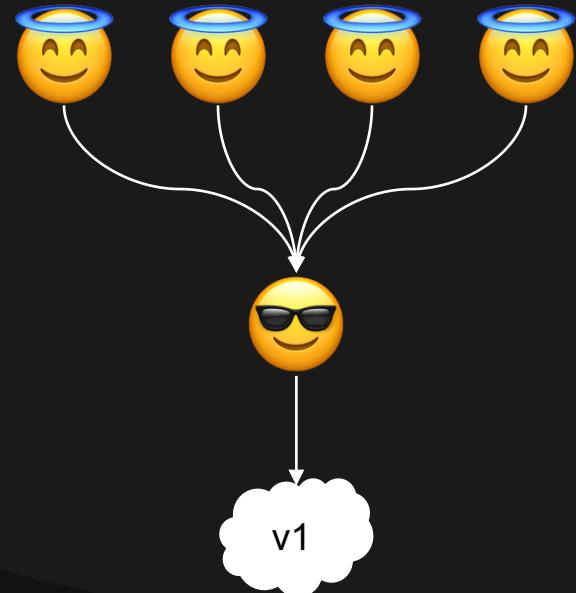


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CP v1 (2015-)



CPv1 (2015-)



-----  
-----  
Responsible  
Consulted



Developer



Platform Engineer

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# Problem II: PE-as-a-Service *not* PaaS



15m CI/CD cycle times 😭

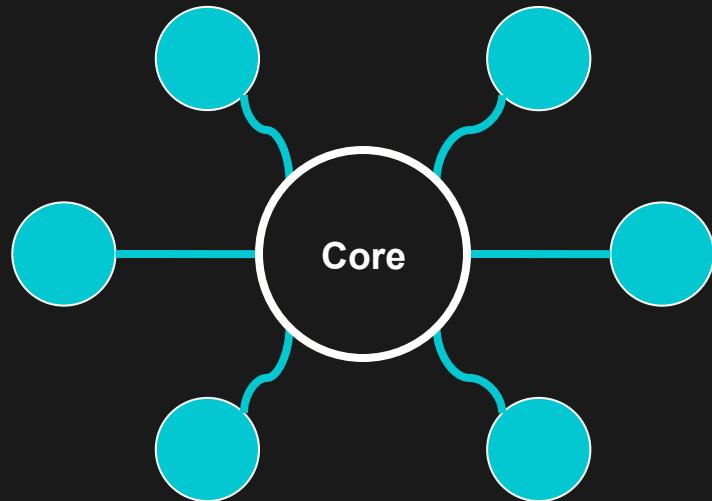
# Problem III: Poor Developer Experience

Meanwhile, on the Core team...



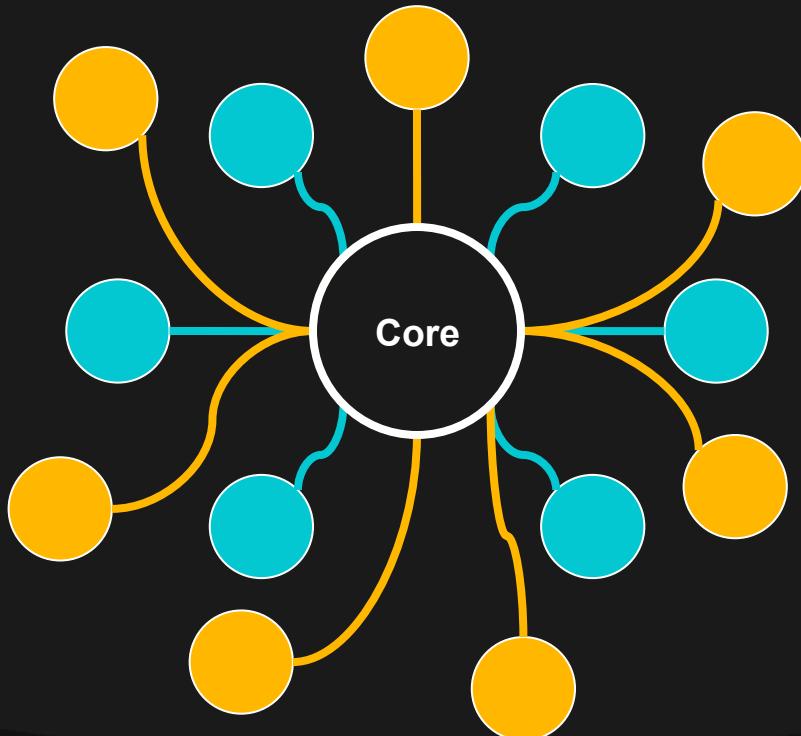
2015

6 teams



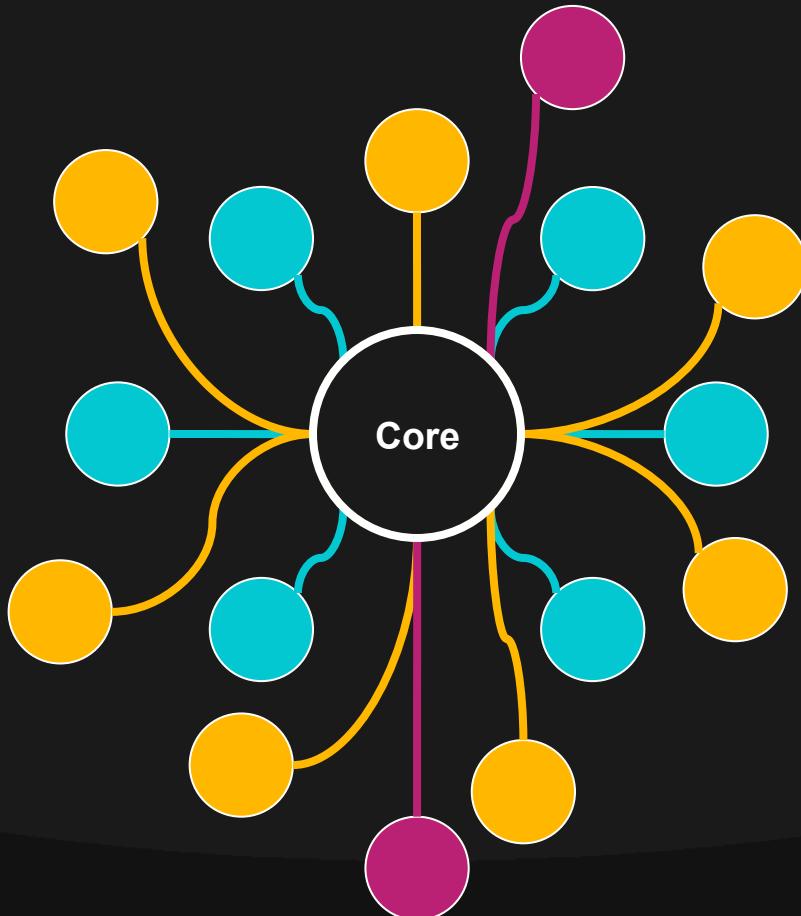
2016

13 teams



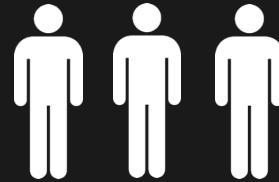
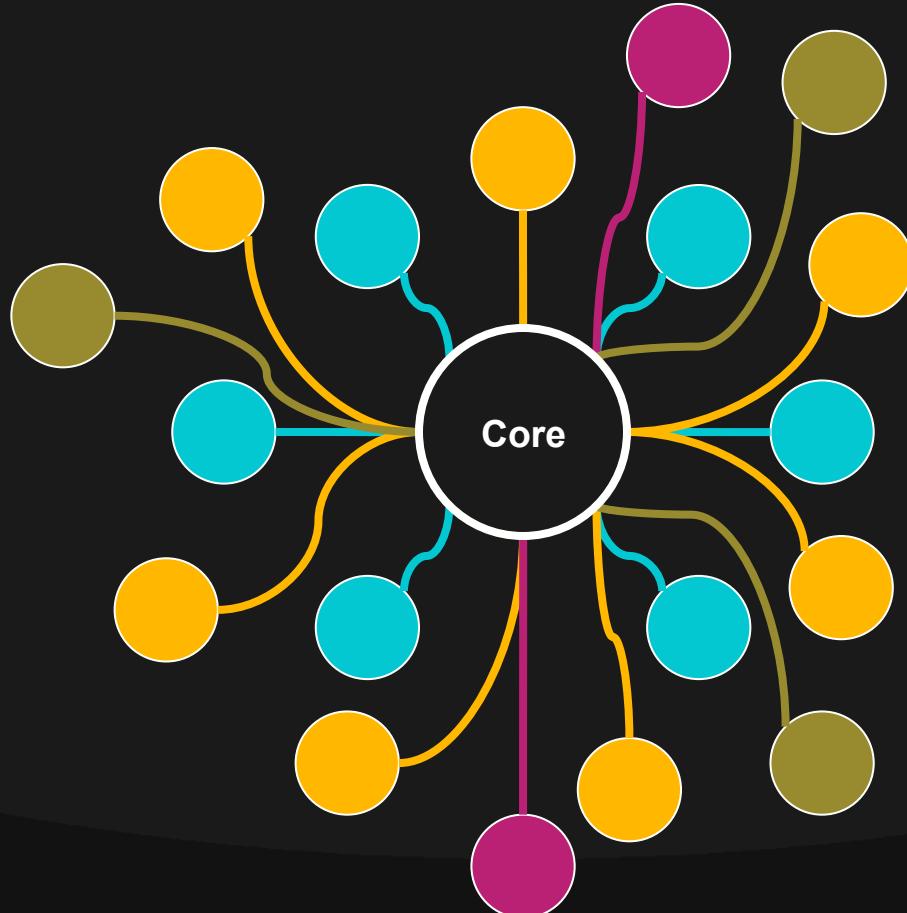
2017

15 teams



2018

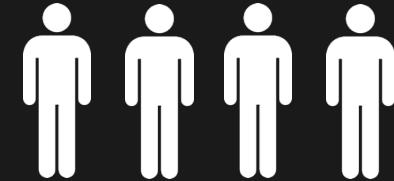
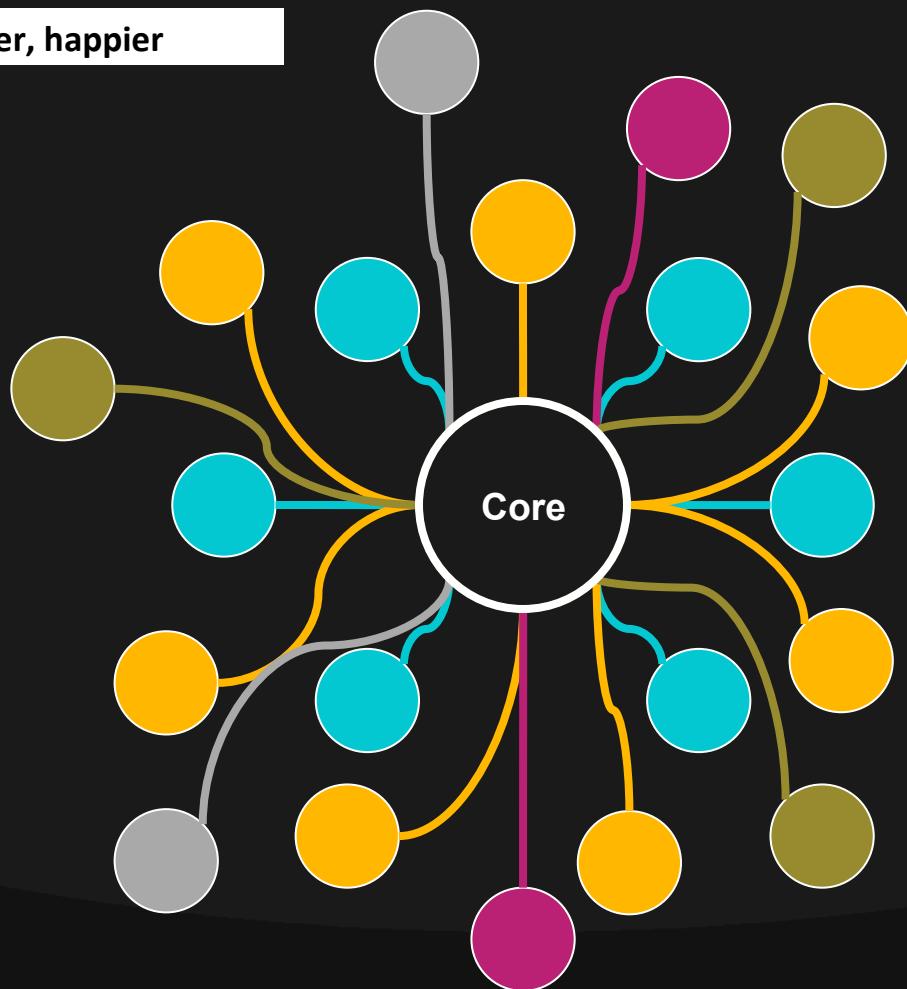
18 teams



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2019

20 teams



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## Core Engineers



Platform curation



Flex



Incubating new hires



Research & development



Second-Opinion-as-a-Service

## Core Engineers



Platform curation



Incubating new hires



Second-Opinion-as-a-Service



Flex



Research & development

Today



# Problem IV: Yesterday's tech

# Important lesson learned

Do



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Do something



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Do something when



Do something when you



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Do something when you can



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Do something when you can afford



Do something when you can afford to



NOT

when



#DOES19 @tomonocle

when you



#DOES19 @tomonocle

when you can't



when you can't afford



when you can't afford *not*



when you can't afford *not* to



Do something when you can afford to  
NOT  
when you can't afford *not* to

“The platform we *needed*, not the platform we *wanted*”



## Problem recap

I: Lonely PEs

II: PEaaS not PaaS

III: Poor DevEx

IV: Yesterday's tech



**ALERT**  
CONDITION: RED





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# CP Roadshow



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Retrospective

Net Promoter Score

Feature Requests



More: transparency/visibility



More: empowerment/self-serve



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NPS: 3.1



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# Feature: faster deploys



# Feature: auto scaling



love island



Love Island's secret formula...

(hot people - clothes)

× drama

÷ voting

= 

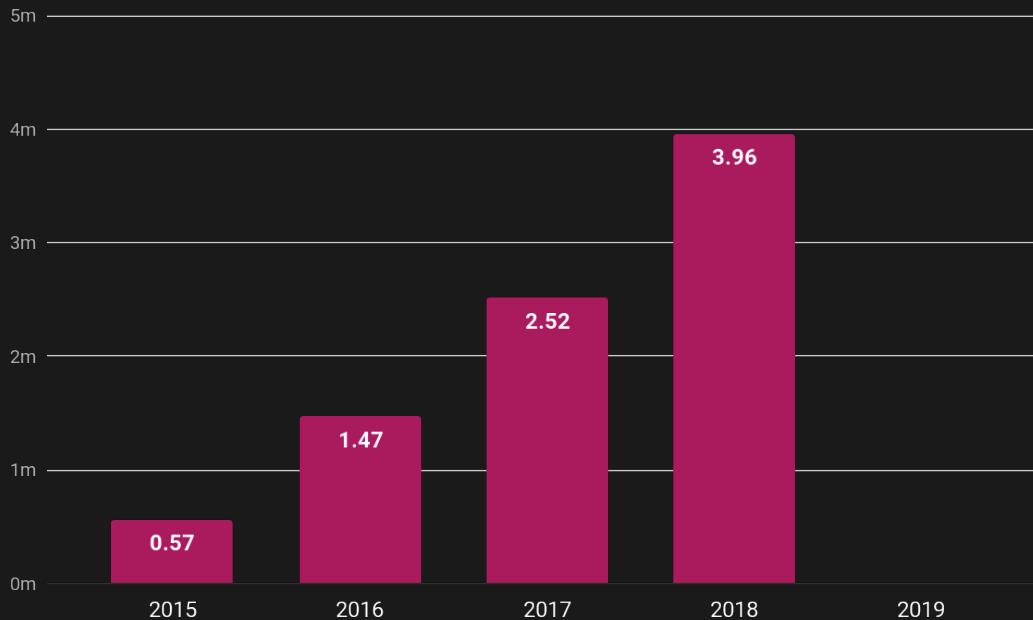
= profit

*Quite* popular...



## CPv2: Better, faster, cheaper, happier

### Love Island audience (millions)



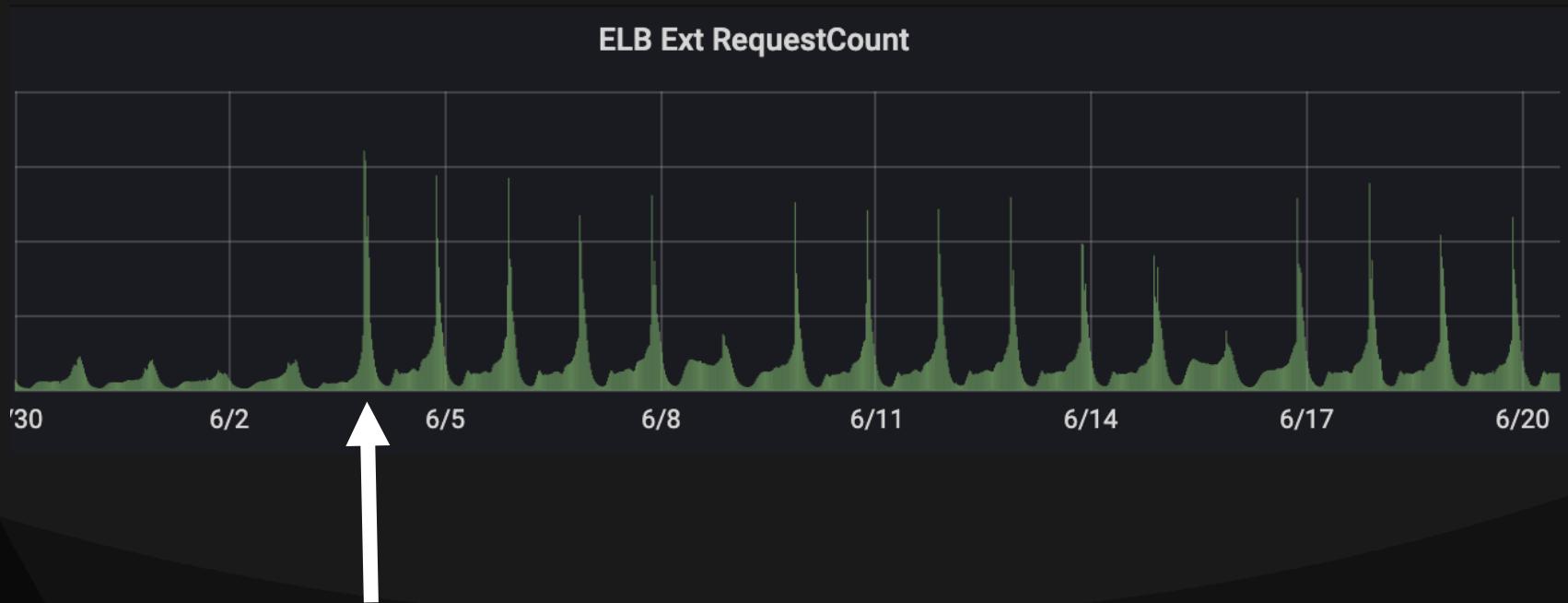
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~0.75 million viewers on simulcast



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CPv2: Better, faster, cheaper, happier

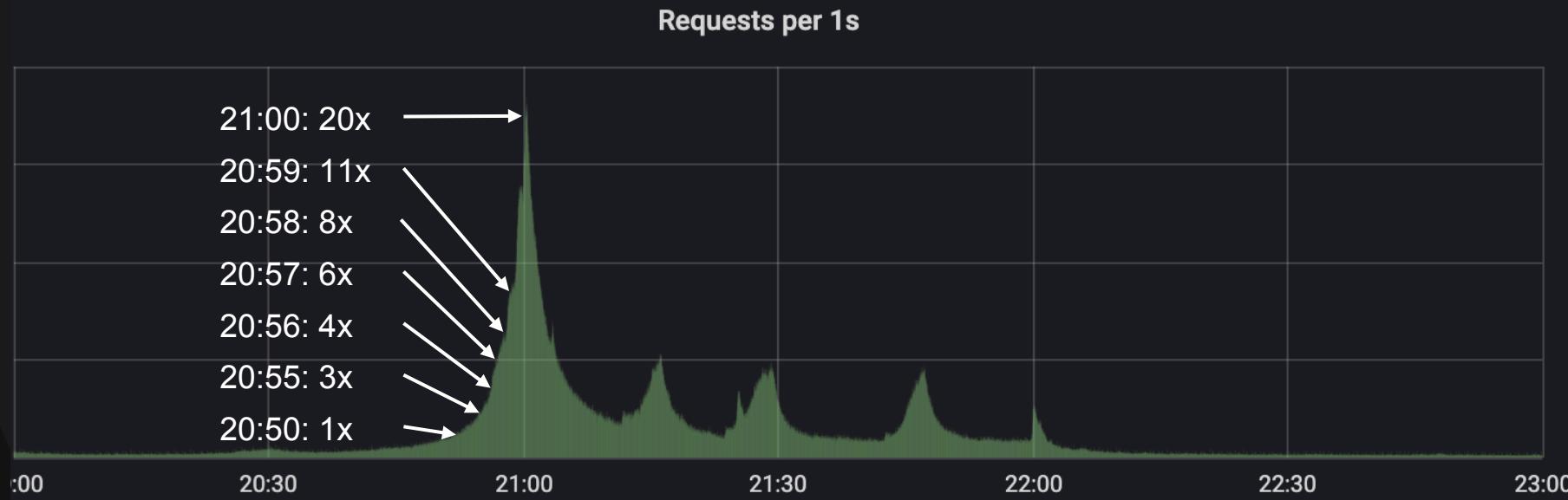


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Popular with 16-24 demographic



## Anatomy of a night



## CPv2: Better, faster, cheaper, happier



Dev



Dev



Platform  
Engineer



Platform  
Engineer



Delivery  
Manager



Coffee



Cake

Transparency...

- Roadmap + backlog
- Slack channel
- Contributors group



Vision...

*“Provide a brilliant hosting and development platform”*



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Vision...

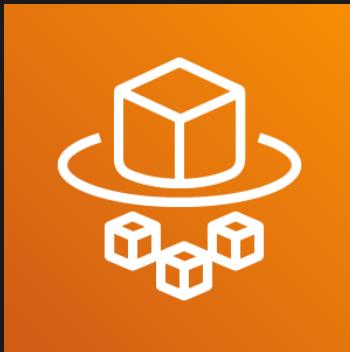
*“Provide a brilliant hosting and  
development platform”*



# Minimum viable change

# Biggest win: Runtime/scheduler





Fargate

VS



EKS



255-257

Fargate



EKS

Phasing...

MVP	Alpha	Beta	Gold
1	2	5	$\infty$



*Optimise for the **common case***





Easy mode  
(80%)



Hard mode  
(20%)

## CPv2: Better, faster, cheaper, happier

```
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    name: hub-auth
    env: stg
    product: user
    ecosystem: dev
  name: hub-auth-stg-deployment
  namespace: stg
spec:
  replicas: 3
  selector:
    matchLabels:
      name: hub-auth
  template:
    metadata:
      annotations:
        lastAploUpdate: "1560924706"
      labels:
        name: hub-auth
        env: stg
        product: user
        ecosystem: dev
    spec:
      affinity:
        podAntiAffinity:
          preferredDuringSchedulingIgnoredDuringExecution:
            - weight: 100
podAffinityTerm:
  labelSelector:
    matchExpressions:
      - key: "name"
        operator: In
        values:
          - hub-auth
  topologyKey: "failure-
domain.beta.kubernetes.io/zone"
  containers:
    - name: hub-auth
      image: 111111111111.dkr.ecr.eu-
west-1.amazonaws.com/user-auth:0.0.2-c1b67de.63
      livenessProbe:
        httpGet:
          path: /ping
          port: 8080
        initialDelaySeconds: 60
        periodSeconds: 10
        failureThreshold: 6
      readinessProbe:
        httpGet:
          path: /ping
          port: 8080
        periodSeconds: 5
        failureThreshold: 6
```



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Easy mode tooling

# Apolo



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## CPv2: Better, faster, cheaper, happier

```
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    name: hub-auth
    env: stg
    product: user
    ecosystem: dev
  name: hub-auth-stg-deployment
  namespace: stg
spec:
  replicas: 3
  selector:
    matchLabels:
      name: hub-auth
  template:
    metadata:
      annotations:
        lastAploUpdate: "1560924706"
      labels:
        name: hub-auth
        env: stg
        product: user
        ecosystem: dev
    spec:
      affinity:
        podAntiAffinity:
          preferredDuringSchedulingIgnoredDuringExecution:
            - weight: 100
podAffinityTerm:
  labelSelector:
    matchExpressions:
      - key: "name"
        operator: In
        values:
          - hub-auth
  topologyKey: "failure-
domain.beta.kubernetes.io/zone"
  containers:
    - name: hub-auth
      image: 111111111111.dkr.ecr.eu-
west-1.amazonaws.com/user-auth:0.0.2-c1b67de.63
      livenessProbe:
        httpGet:
          path: /ping
          port: 8080
        initialDelaySeconds: 60
        periodSeconds: 10
        failureThreshold: 6
      readinessProbe:
        httpGet:
          path: /ping
          port: 8080
        periodSeconds: 5
        failureThreshold: 6
```



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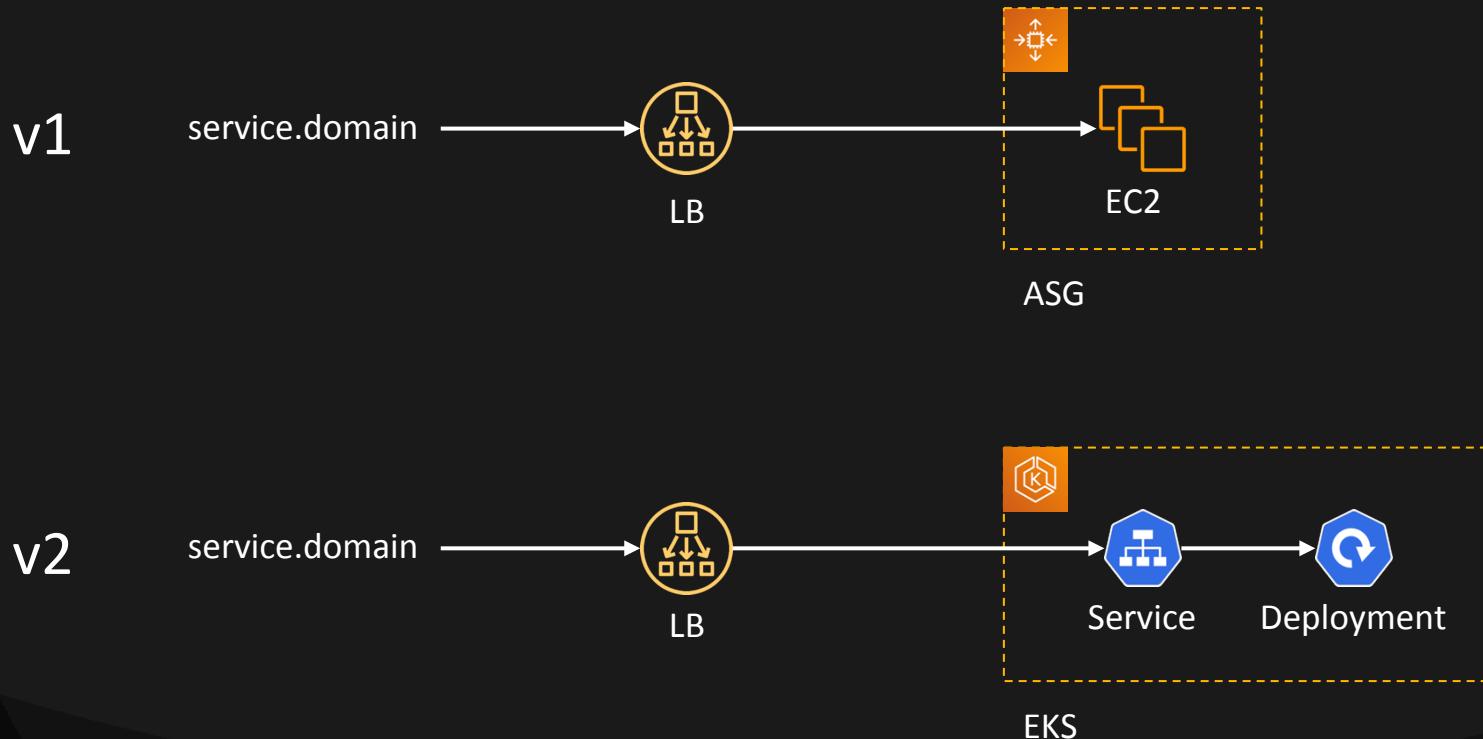
Aplo

```
$ aplo -m itv.yaml -f service.env -t latest
```



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## CPv2: Better, faster, cheaper, happier



# DEVOPS ENTERPRISE SUMMIT

*"Detail the progress to date. Assume MVP live in March"*

***Assume MVP live in March***



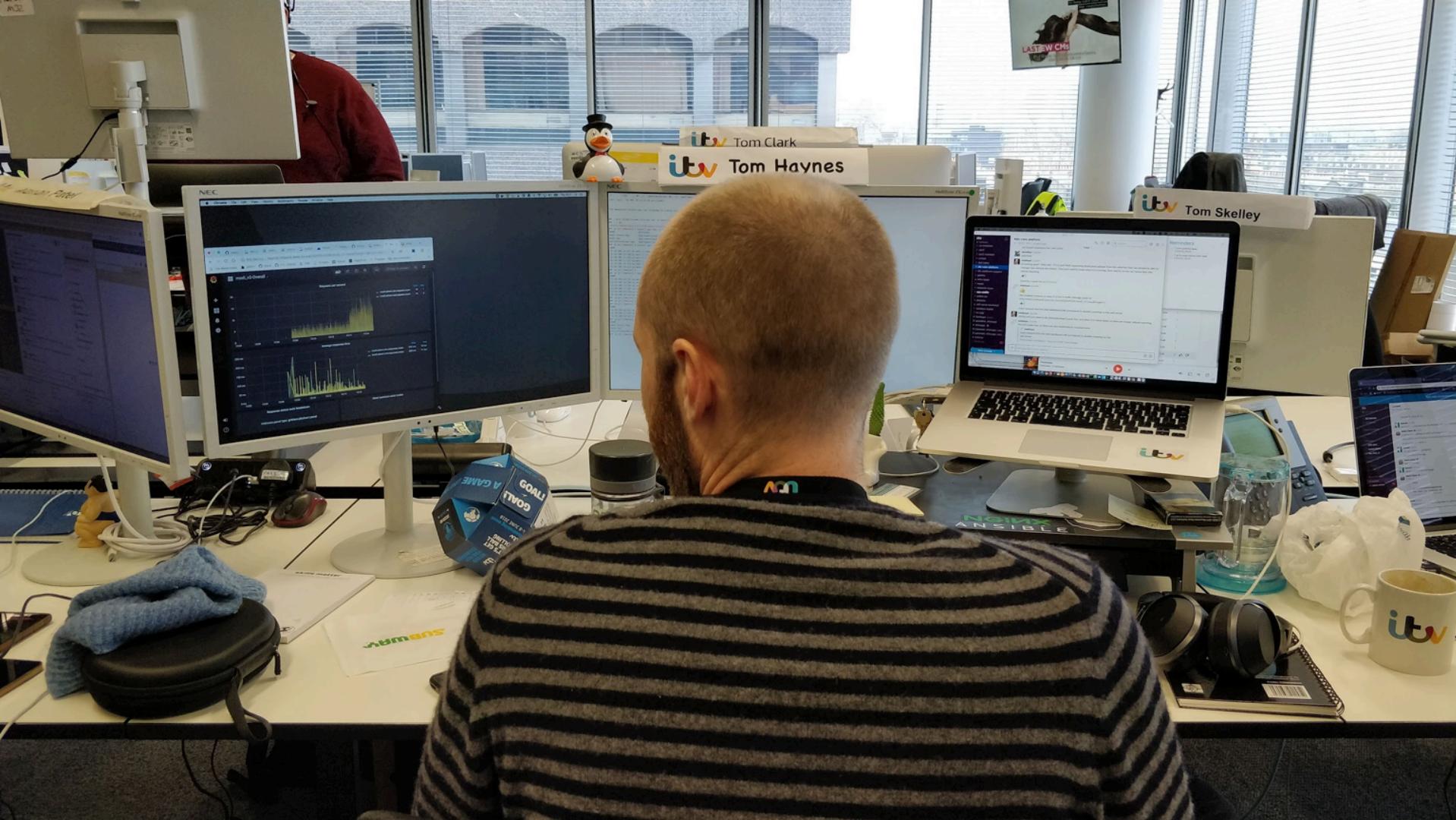
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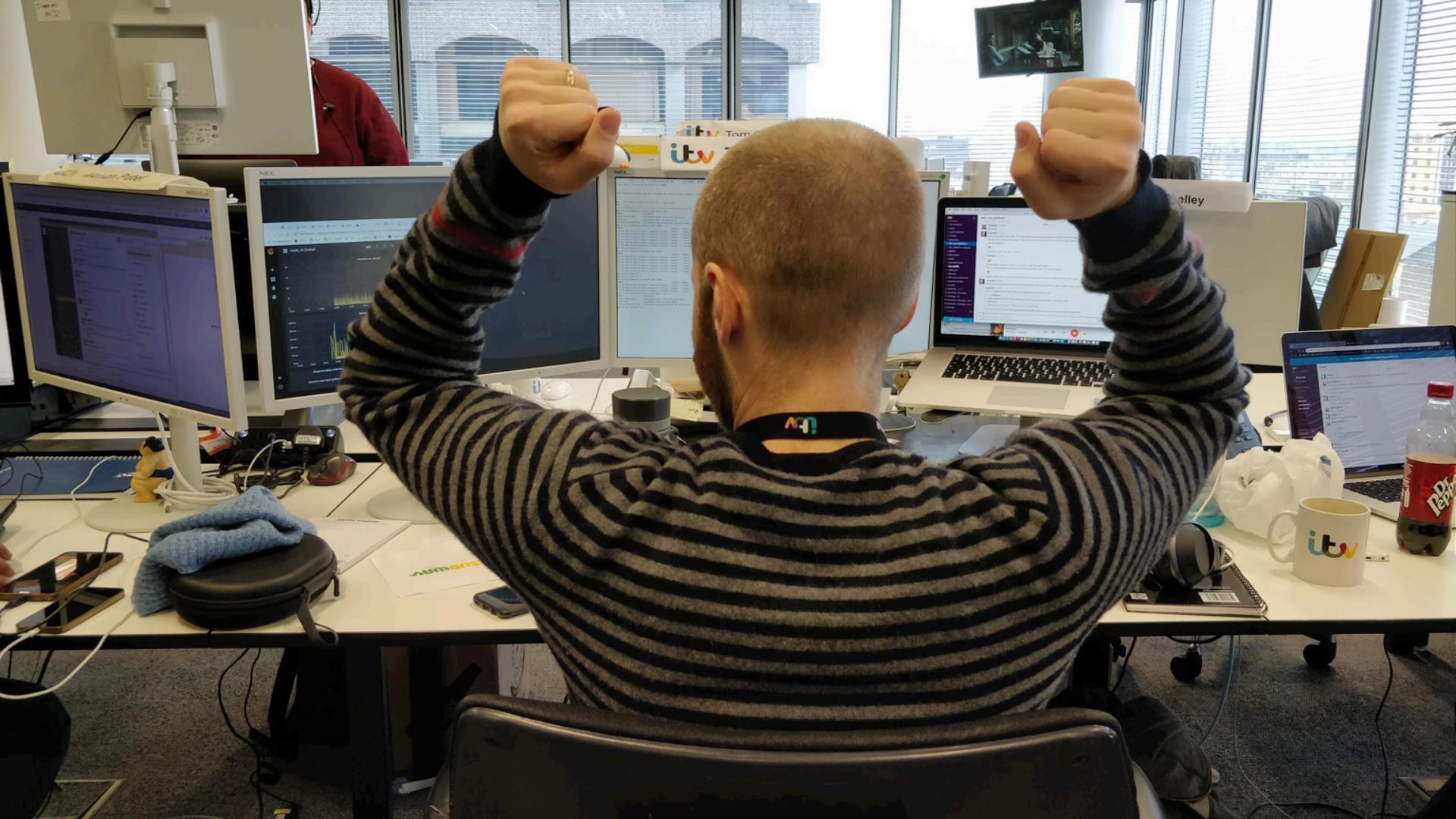
CPv2: Better, faster, cheaper, happier

MVP...



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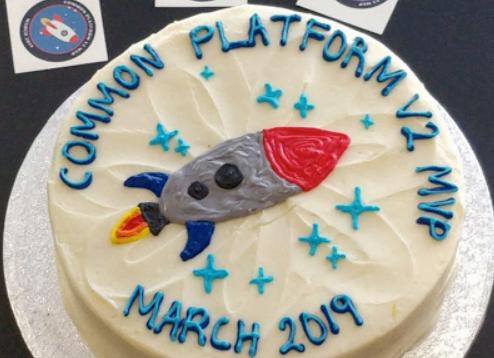




CPv2: Better, faster, cheaper, happier



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## Benefits

- > Developers can self-serve more actions
- > Cycle time 10x faster (15m to 1m30s)
- > Fewer failed deploys
- > 30% more efficient
- > Autoscaling!

## CPv2: Better, faster, cheaper, happier

From: David Smith  
To: Online Developers  
Subject: The Slow but Imminent Death of CPv1

We - and by we I mean you! - will over the course of H2, be moving as much as possible / sensible from Common Platform V1 to V2. The performance is better, it's cheaper to run, the config is nicer, the deployment times are delightful and the scaling is sublime!

What that means to you as a Scala engineer:

No new services should be built in CPv1 without good cause.

If you find yourself working on a CPv1 service, you should attempt to move it to CPv2 as part of your normal work. (Come and talk to us if you're unsure.)



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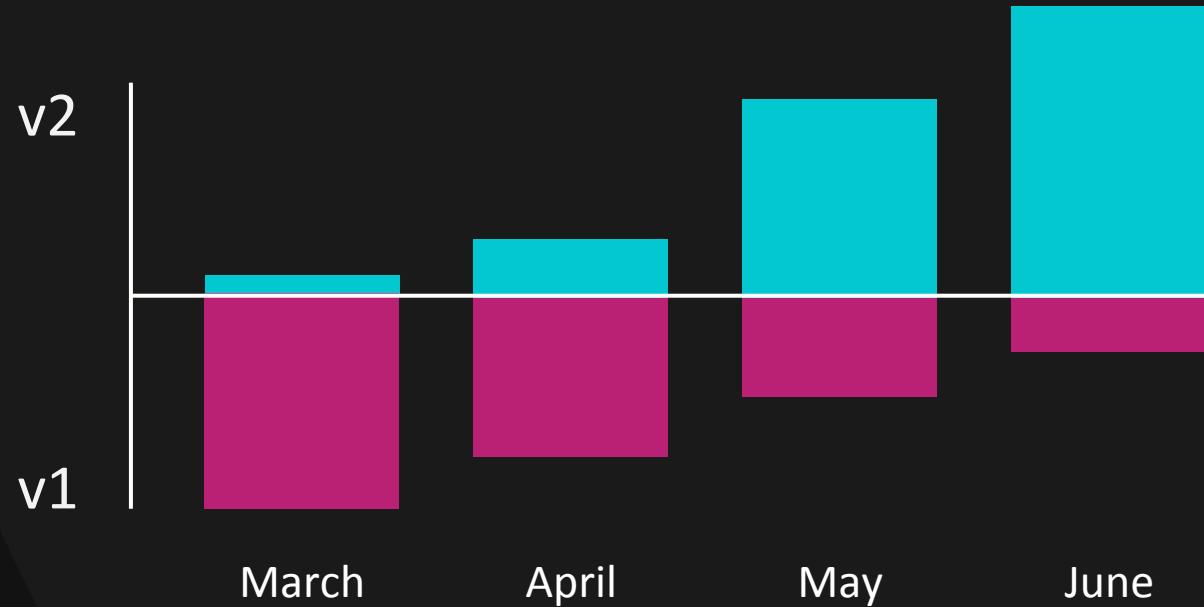
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## Online v1->v2 migration (load bearing)



CPv2: Better, faster, cheaper, happier

# Love Island premiere night



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Monday 03 June 2019 - 20:01



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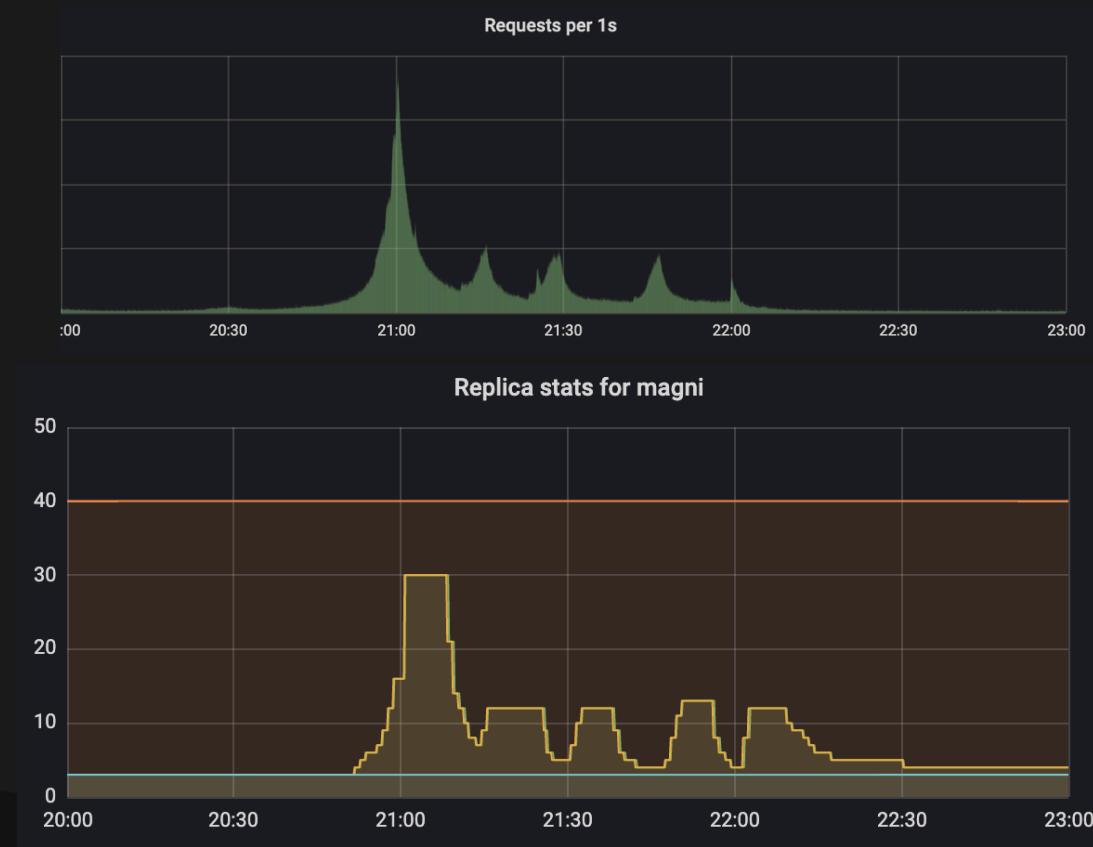
[20:01] **dano:** was anything changed around  
3:30? User-Auth has been  
returning a steady stream of  
500 errors.



[20:33] **jamer:** deploy to prd finished

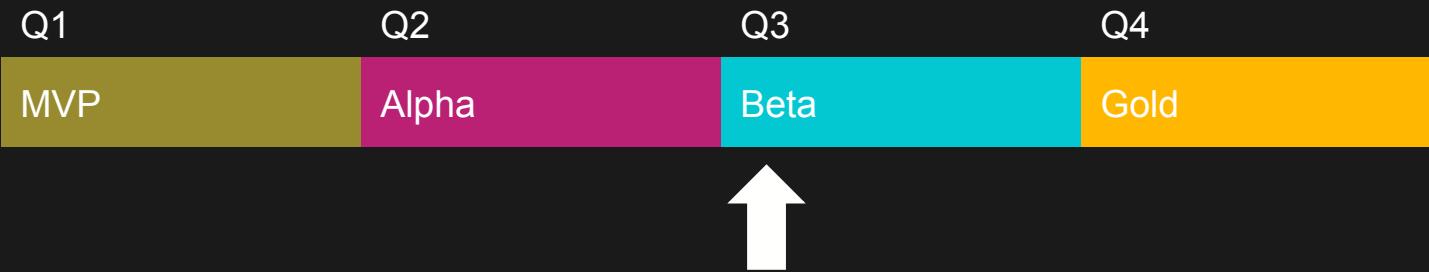


## CPv2: Better, faster, cheaper, happier



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## CPv2: Better, faster, cheaper, happier



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And then?

- Workflow?
- Observability?



## Problem recap

I: Lonely PEs

II: PEaaS not PaaS

III: Poor DevEx

IV: Yesterday's tech

# Final thoughts...



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Optimise for the common case

Focus on the minimum viable change

Never too late to do the right thing

Do something when you can afford to  
NOT when you can't afford *not* to



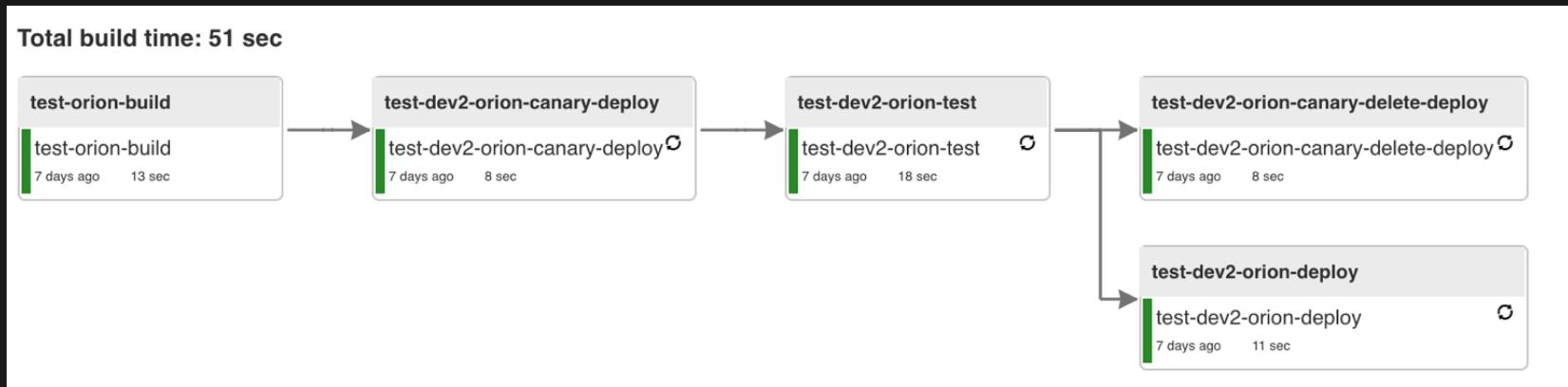
MORE THAN TV

Thank you

@tomonocle | [tom@tomonocle.me](mailto:tom@tomonocle.me)

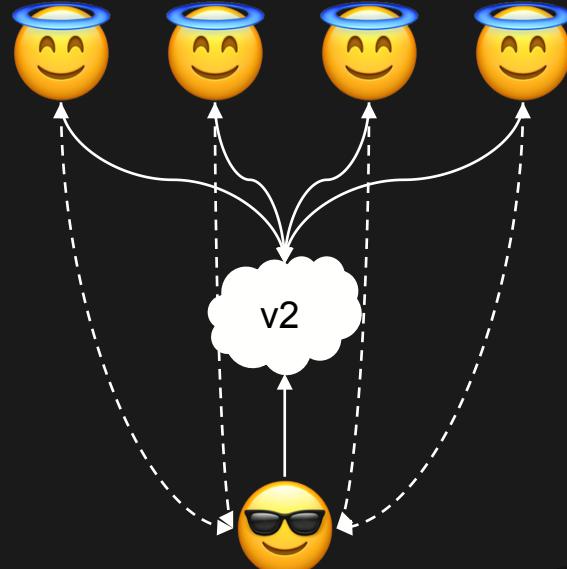
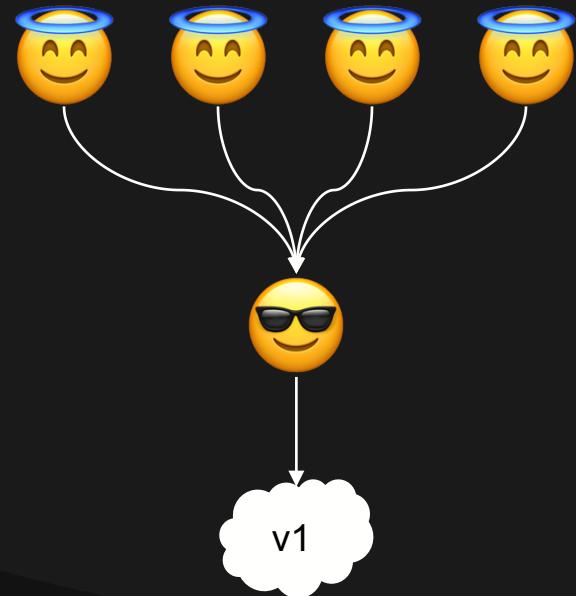
Service manifest: meta info. name, desc, etc

## CPv2: Better, faster, cheaper, happier



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CP v2 (2019-)



————— Responsible  
Consulted

Developer

Platform Engineer

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# Principle of least power

# Problem V: Inefficiency

Never too late to do the right thing

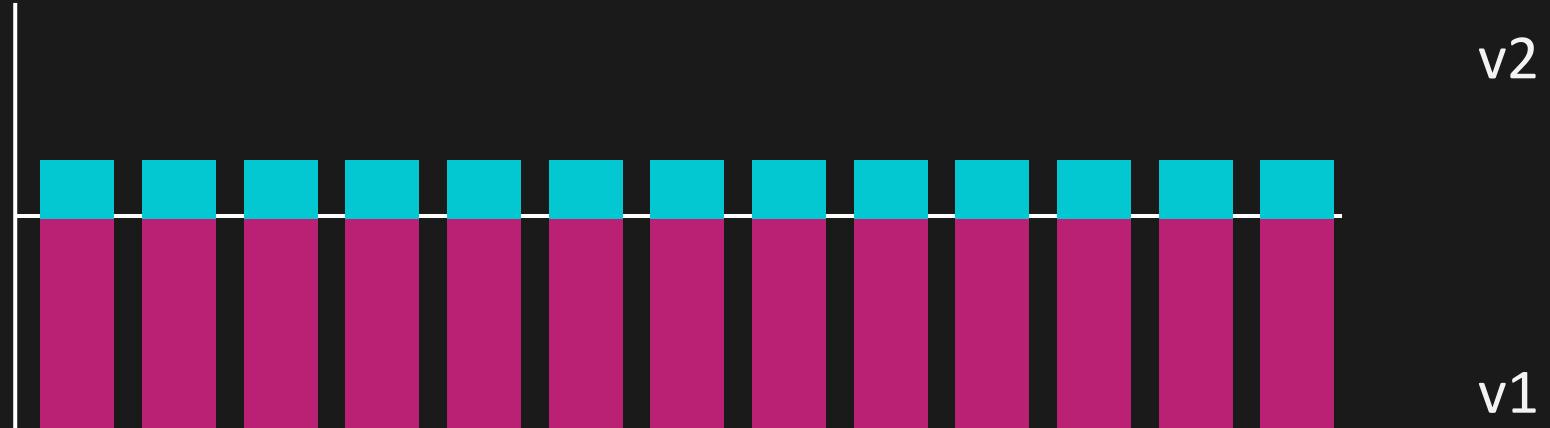


Recap

Better    Faster    Cheaper    Happier



## CPv2: Better, faster, cheaper, happier



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CPv2: Better, faster, cheaper, happier

<<<ITV promo VT>>>



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Cycle time, Deploys/day, MTTR, Failed  
deploys, NPS, efficiency  
Efficiency.

(Jevon's paradox) <<BEFORE+AFTER>>



Now into beta. 3m. Rate of change  
expected to plateau <<TODAY>>



## CP v2 (2019-)

