

Containers on AWS: State of the Union

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What are people building with containers on AWS?

Short answer: everything!



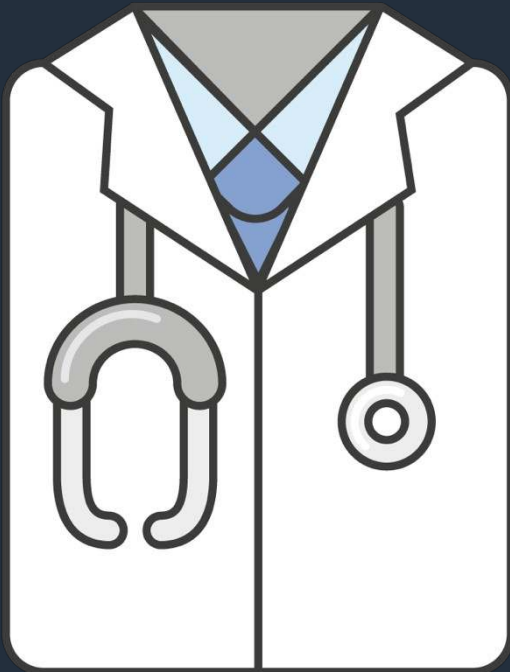
We started in 2014



Customers running Docker on EC2 from the very beginning...



But there were pain points.



Things like scheduling, placing, managing and deploying containers were difficult.

They wanted something to make those pain points better.

So we built ECS



EC
S

Highly scalable,
high performance
container
management
system



Cluster
managemen
t

A managed
platform



Container
orchestration



Deep AWS
integration

So we built ECS



**EC
S**

Highly scalable,
high performance
container
management
system



AWS VPC
networking mode



Advanced task
placement



Deep integration
with AWS platform



ECS CLI



Global footprint



Powerful scheduling
engines



Auto scaling



CloudWatch metrics



Load balancers

ECS helps customers scale containers



450+%
growth



Hundreds of millions
of containers started each week

Millions
of container instances



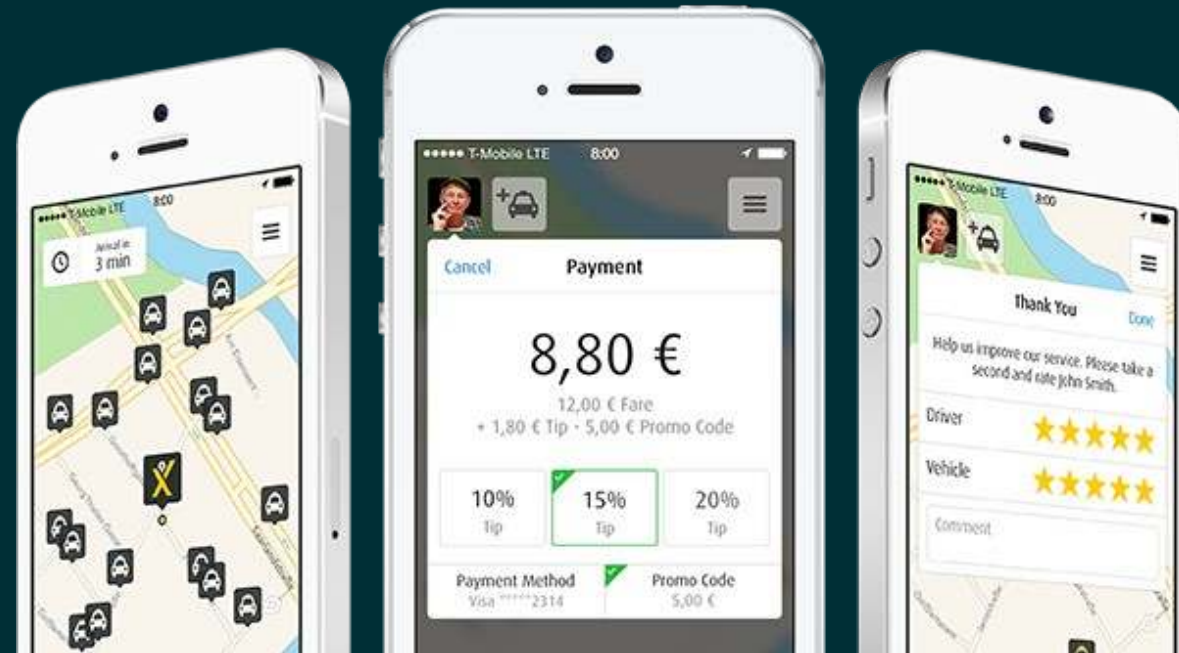
Europe's leading app for ordering taxis
Majority of services on ECS



10+ million users with 45,000+ taxis across 40+ cities.

With the microservice architecture (140+ services) built on AWS, mytaxi can provide new features to users faster than ever before.

Running entirely on Spot.





„In November 2015 we moved our Docker **container architecture** to Amazon ECS, and for the first time ever in December we were able to celebrate a **new year** in which our system could **handle the huge number of requests** without any crashes or interruptions.“

–Sebastian Herzberg, System Engineer

Building an Ecosystem



Amazon ECS



Amazon ECR

DEMO

Not the only way to run containers in production...



More customers running
Kubernetes on AWS than
anywhere else.

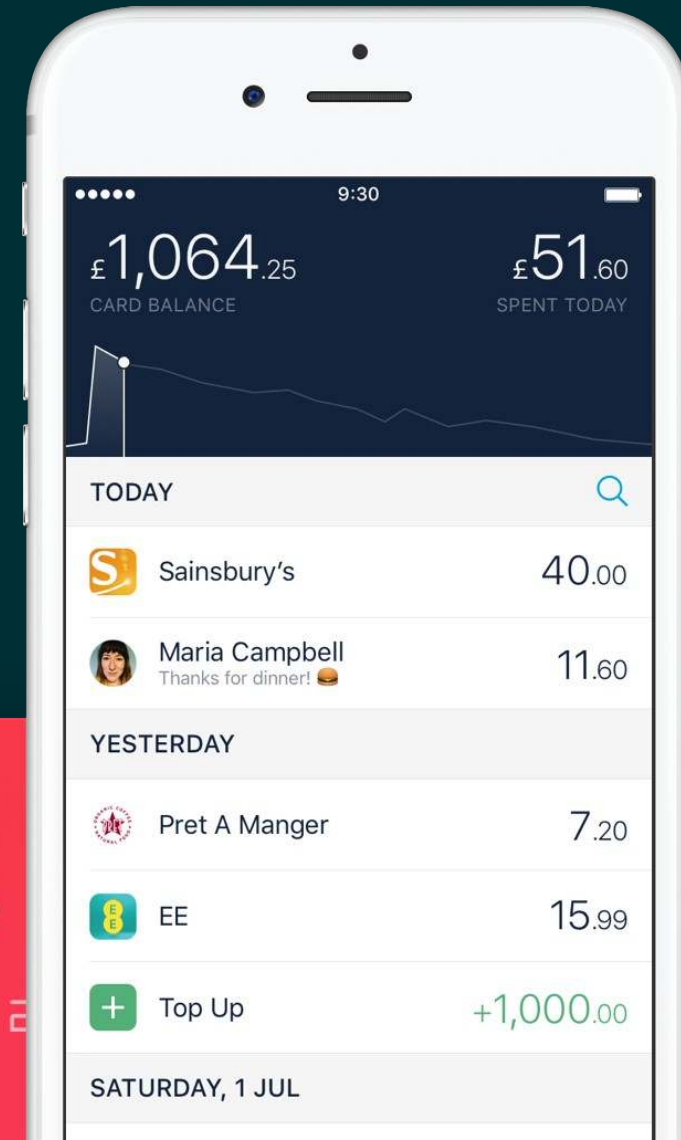


monzo

UK FinTech startup Kubernetes on AWS

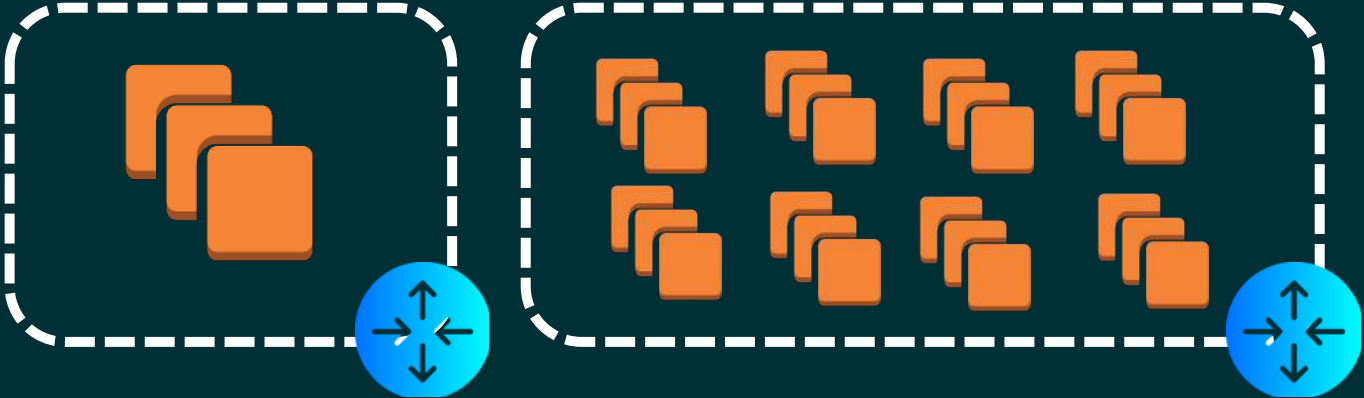


More than 350 microservices Kubernetes on EC2



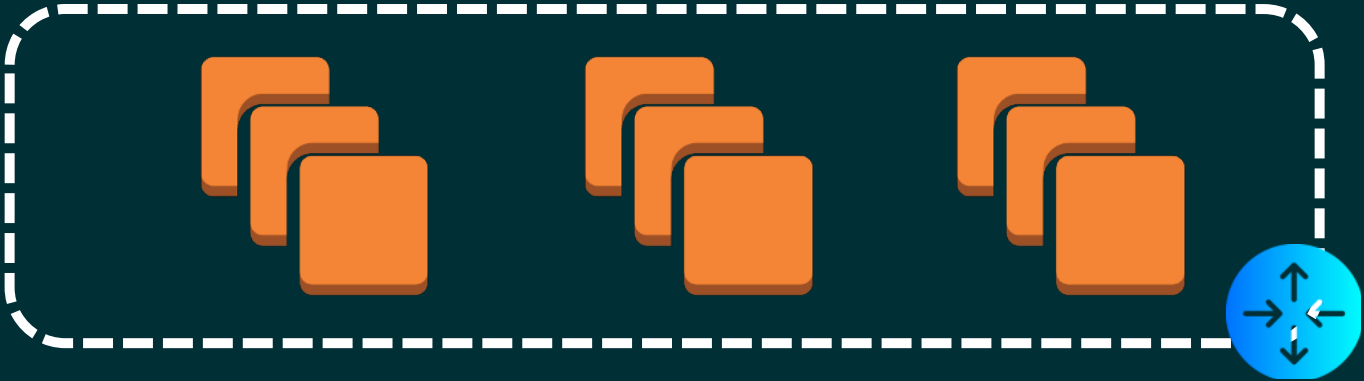


High availability
at every level



Multi-master

Hundreds of
workers



Highly-available backing store of
etcd



“Deploying **Kubernetes** in a **highly available** configuration on AWS is not for the faint of heart and requires you to get familiar with its internals, but we are very pleased with the results”



“Run Kubernetes **for** me”

So we built EKS



**EK
S**

**Platform for
enterprises to
run production-
grade
Kubernetes-grade
installations**



**Managed
and
upstream
experience**



**Seamless,
native
integration
with AWS
services**



**Contributes
back to
open
source
community**

“Run my containers **for** me”

Containers are great!



...but they're a lot of
heavy lifting!

AWS Fargate



**Underlying technology for
container management**



No cluster or
infrastructure to
manage or scale



Everything is
handled at the
container level



Scale
seamlessly on
demand

What does Fargate mean?

Not worrying about scaling, underlying infrastructure, cluster resources, capacity, setup.

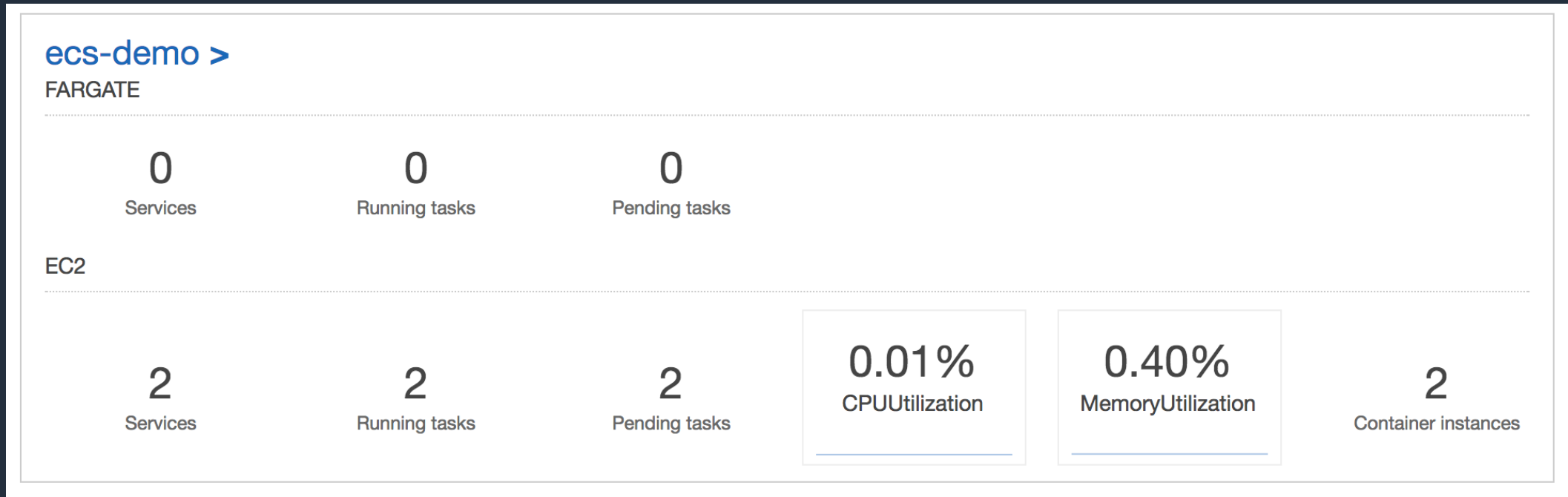
Just give it a task definition or pod (in 2018), set some resource limits, and away you go.



How does this work in practice?

Two launch types for ECS and EKS:

- EC2 (traditional, manage your cluster infrastructure)
- Fargate





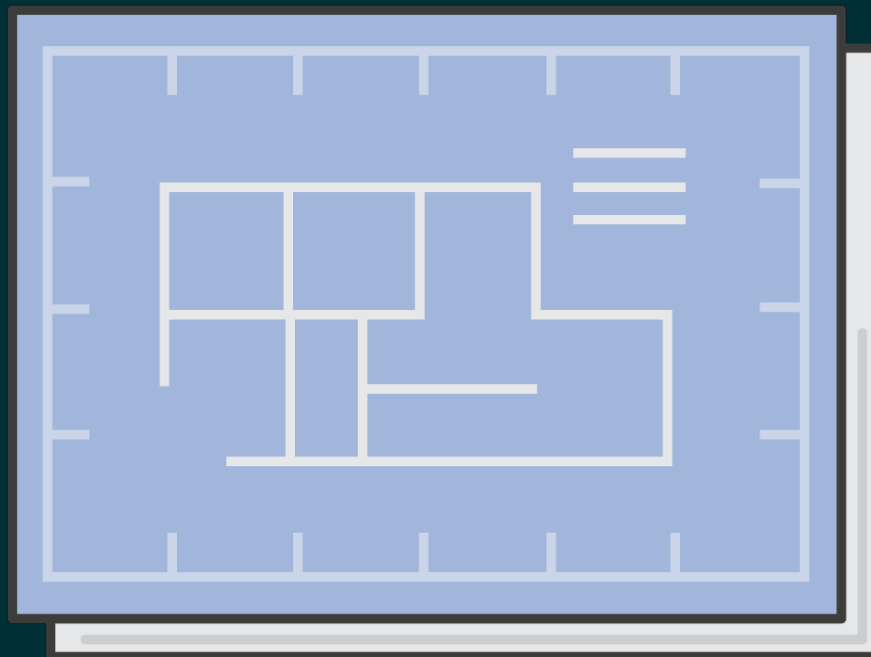
Focus on your workload
first.

How everyone thinks about
compute is changing.

First: treat containers as a fundamental, compute primitive.



**Now: treat TASKS as a fundamental,
compute primitive.**



IAM Roles for Tasks



Task Auto Scaling

Task Load Balancers



Task Networking

So what does all of this mean for you?

Bottom line:

Lots of options for running containers on AWS

OK, so why do you want options?

- Options are **good**! They make the community stronger.
- Use what works for **you**, all choices are good! Use what you can manage.
- Containers support **polyglot architectures**. Build in the language, choose the tool/orchestration platform that works for **YOU**.

Make **AWS** the
BEST PLACE
to run **ANY** containerized
applications

What does the landscape look like all together?



Amazon ECS
(available now)



Amazon
EKS
(preview)



Fargate mode for
ECS
(available now)



Fargate mode for
EKS
(available 2018)

Let's compare.

ECS

**Easiest way to deploy
and manage containers**

1

**Integration with entire AWS
platform**

**ALB, Auto Scaling, Batch, Elastic
Beanstalk, CloudFormation, CloudTrail,
CloudWatch Events, CloudWatch Logs,
CloudWatch Metrics, ECR, EC2 Spot, IAM,**

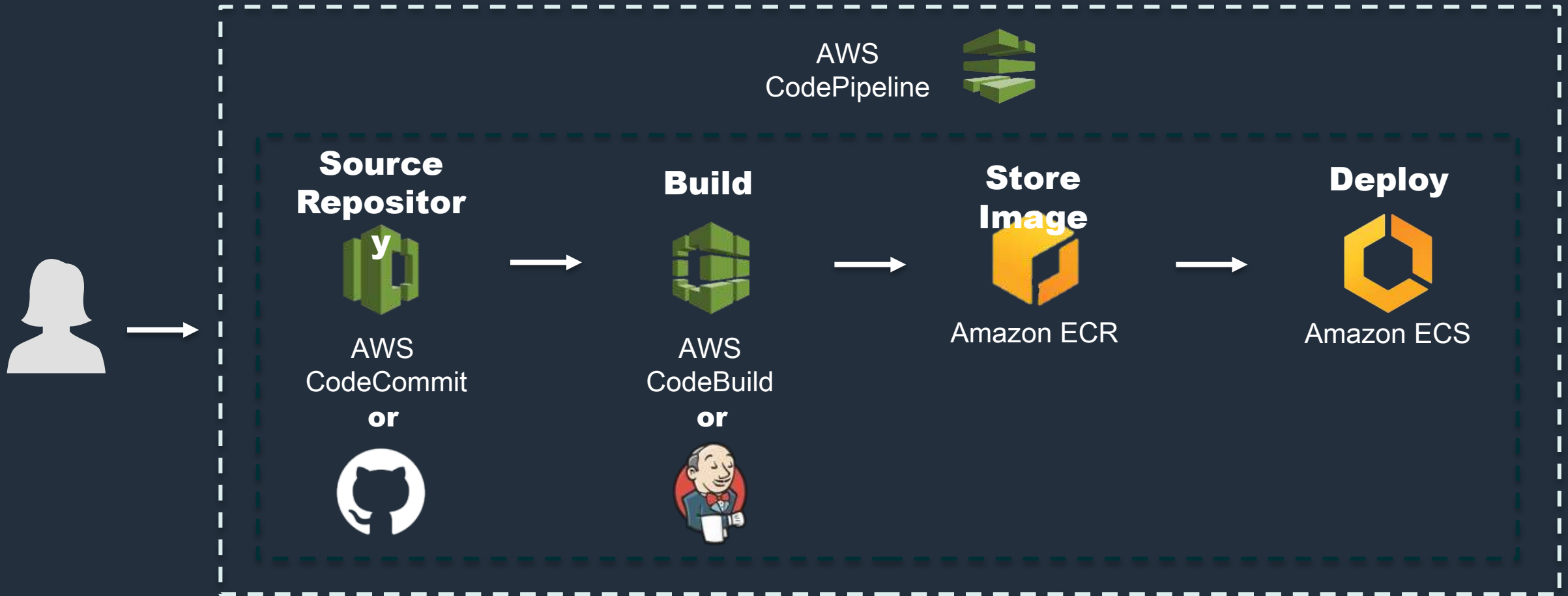
2

**Scales to support clusters of
any size**

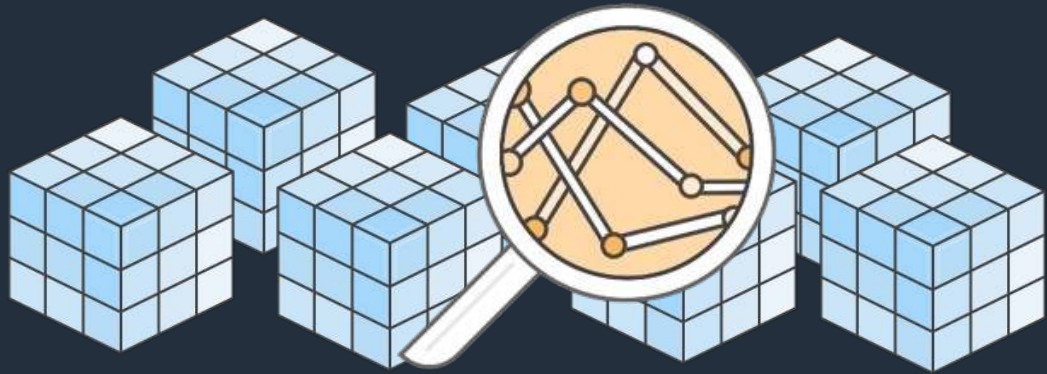
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**Service integrations (like ALB
and NLB) are at container level**

FULL CD WITH AWS CODEPIPELINE



Managed Service Discovery



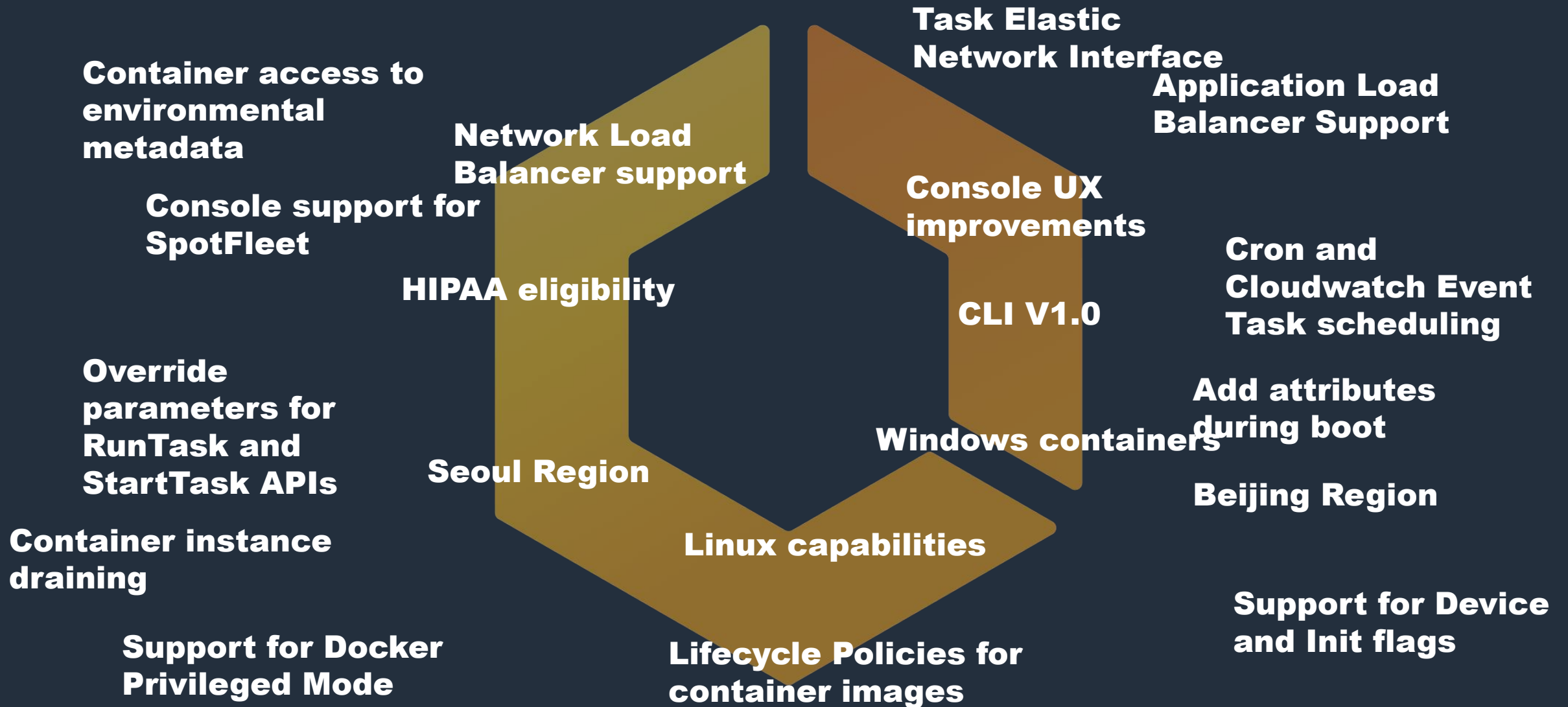
Applications invoked by name

Automatically resolved to IP or port

Native to Amazon ECS services

No infrastructure to manage

What we did with ECS in 2017



EKS



Managed Kubernetes on AWS



Managed
Kubernetes
control plane



Highly available



Automated
version
upgrades



Integration with
other AWS
services

CloudTrail,
CloudWatch, ELB,
IAM, VPC, PrivateLink

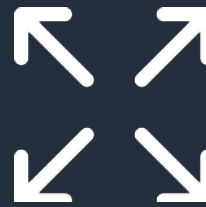
Fargate



**Containers on
demand**



No infrastructure



Launch quickly
Scale easily



Manage everything at
container level



Resource based
pricing

What's next?

How can I get started?

- ECS: <https://aws.amazon.com/ecs/>
- Fargate: <https://aws.amazon.com/fargate/>
- EKS preview: <https://aws.amazon.com/eks/>
- Blogs:
 - <https://aws.amazon.com/blogs/aws/aws-fargate/>
 - <https://aws.amazon.com/blogs/aws/amazon-elastic-container-service-for-kubernetes/>

Thank you!

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