Amazon Web Services

Worldwide Public Sector, Education

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Modernizzazione delle applicazioni attraverso i Containers

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Webinar Tematici CRUI-AWS 2021

Garantire la propria Continuità Operativa attraverso il Cloud
giovedì 27 maggio 2021 | dalle 14:30 alle 16:00

Aumentare la resilienza dell'Identity Provider di Ateneo
giovedì 10 giugno 2021 | dalle 11:30 alle 13:00

Soluzioni AWS per la Didattica ed il Lavoro a distanza
venerdì 25 giugno 2021 | dalle 11:30 alle 13:00

Sfruttare l'infrastruttura ed i servizi di AWS per rispondere ai requisiti di Sicurezza e Conformità
giovedì 8 luglio 2021 | dalle 11:30 alle 13:00

Cloud Ibrido con AWS - Benefici e Casi d'uso
giovedì 9 settembre 2021 | dalle 11:30 alle 13:00

Migrare applicazioni esistenti nel Cloud – Benefici e Best Practice
venerdì 24 settembre 2021 | dalle 11:30 alle 13:00

Come automatizzare la gestione dei propri database
giovedì 7 ottobre 2021 | dalle 11:30 alle 13:00

Modernizzazione delle applicazioni attraverso i Containers
venerdì 22 ottobre 2021 | dalle 11:30 alle 13:00

Ricerca e calcolo tecnico su AWS
giovedì 4 novembre 2021 | dalle 11:30 alle 13:00

CRUI
Conferenza dei Rettori delle Università Italiane

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https://ict.crui.it/certificazione/certificazione-webinar-tematici-crui-aws-2021/

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Agenda

- ✓ Why Containers?
- ✓ Container Basics and Benefits
- ✓ AWS Container Services Overview
- ✓ DEMO
- ✓ Q & A

What customers ask for

Build applications, not infrastructure

Manage infrastructure to their requirements

Scale quickly and seamlessly

Security and isolation by design

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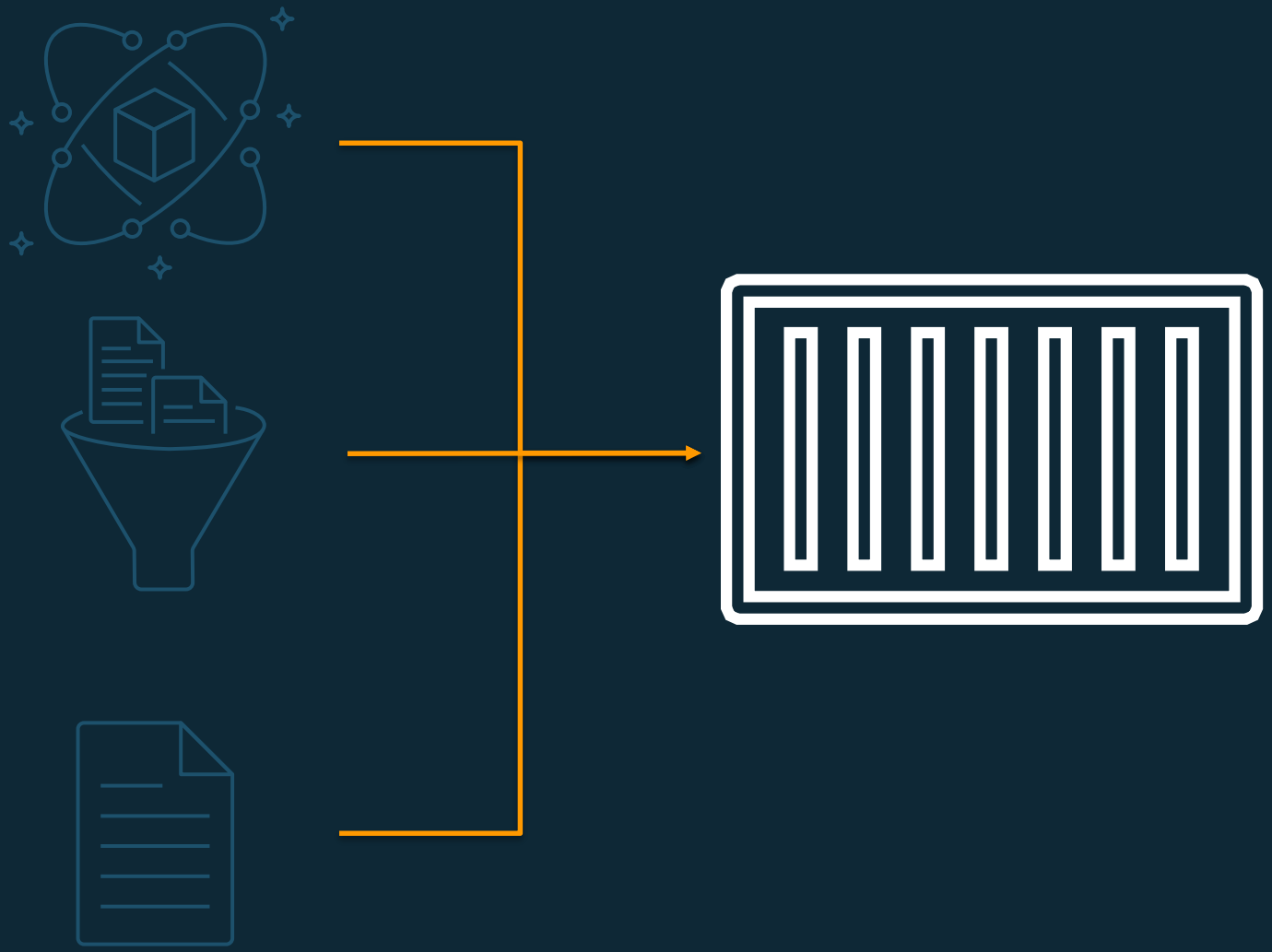
Why Containers?

Runtime Engine

Dependencies

Code



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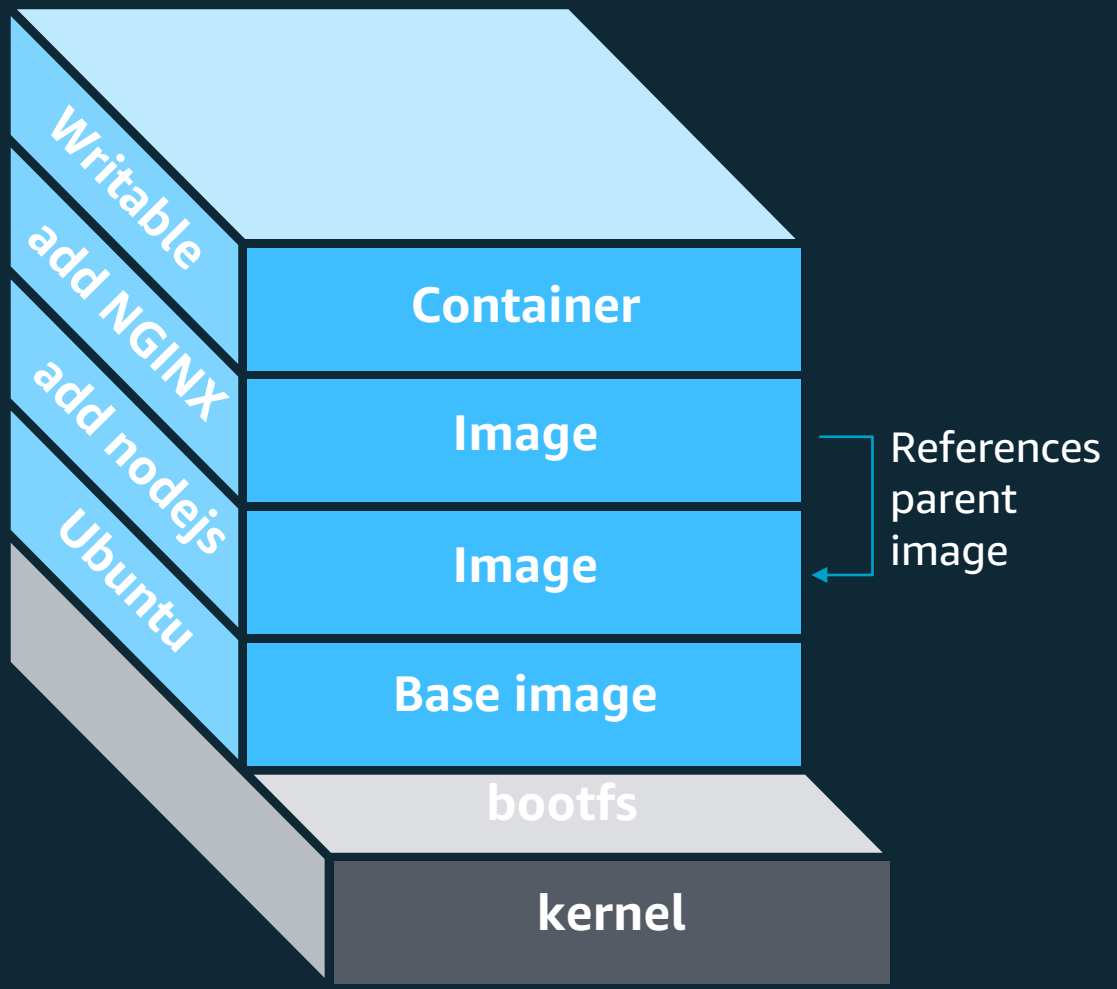
Docker container image

Read only image used as a template to launch a container

Start from base images that have your dependencies, add your custom code.

Dockerfile for easy, reproducible builds.

```
FROM ubuntu:latest
RUN apt-get update -y
RUN apt-get install -y python3-pip python-dev build-essential
RUN pip3 install --upgrade pip
COPY ./service/requirements.txt .
RUN pip3 install -r ./requirements.txt
COPY ./service /MythicalMysfitsService
WORKDIR /MythicalMysfitsService
EXPOSE 80
ENTRYPOINT ["python3"]
CMD ["mythicalMysfitsService.py"]
```



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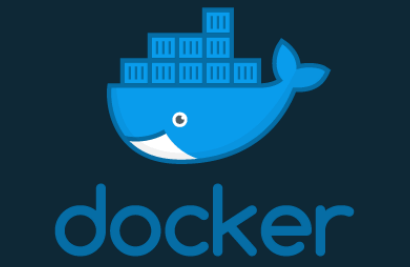
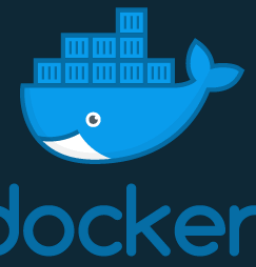
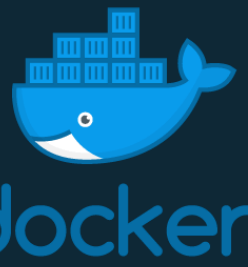
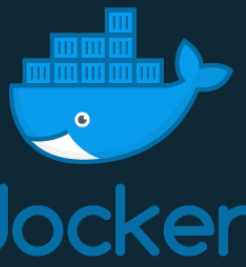
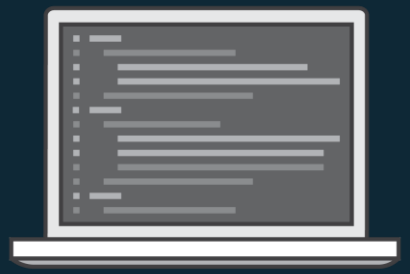
Four environments, same container











Local Laptop

Staging / QA

Production

On-Prem

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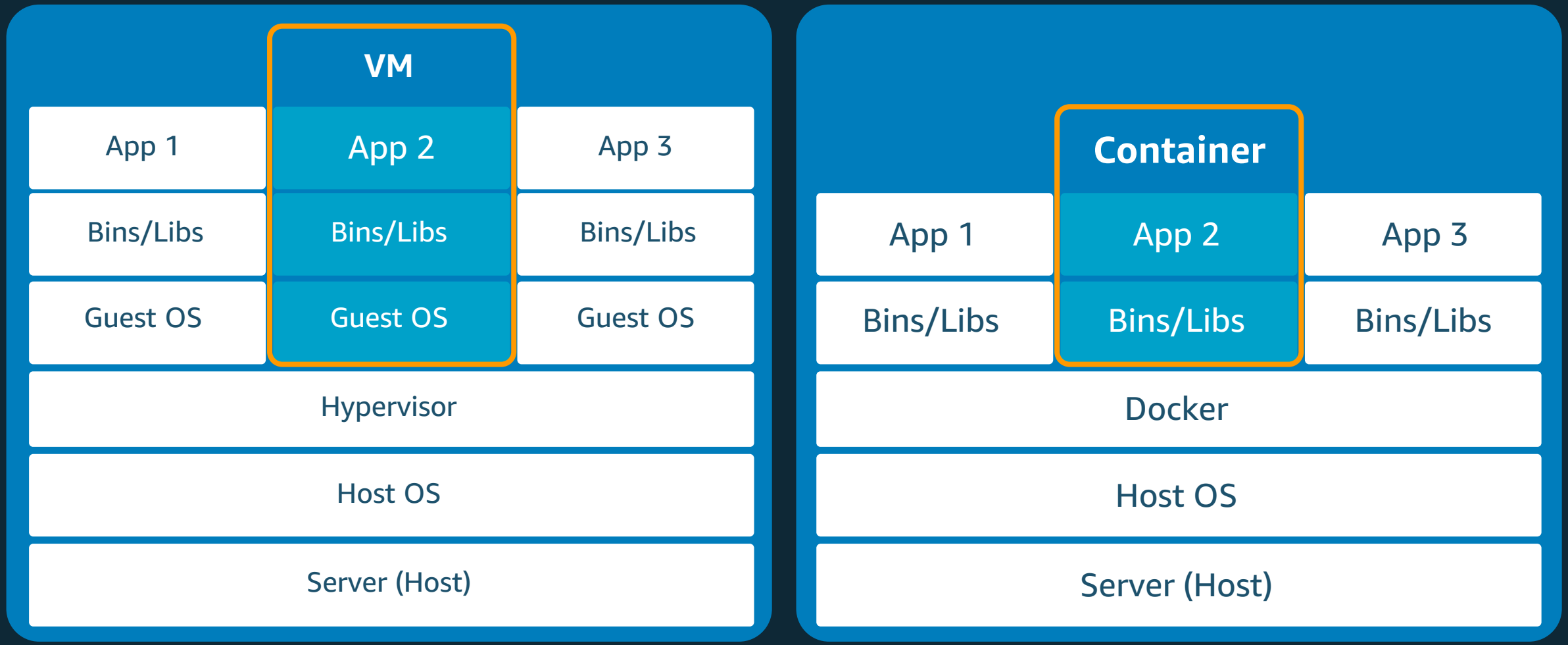
Virtual machine versus Docker



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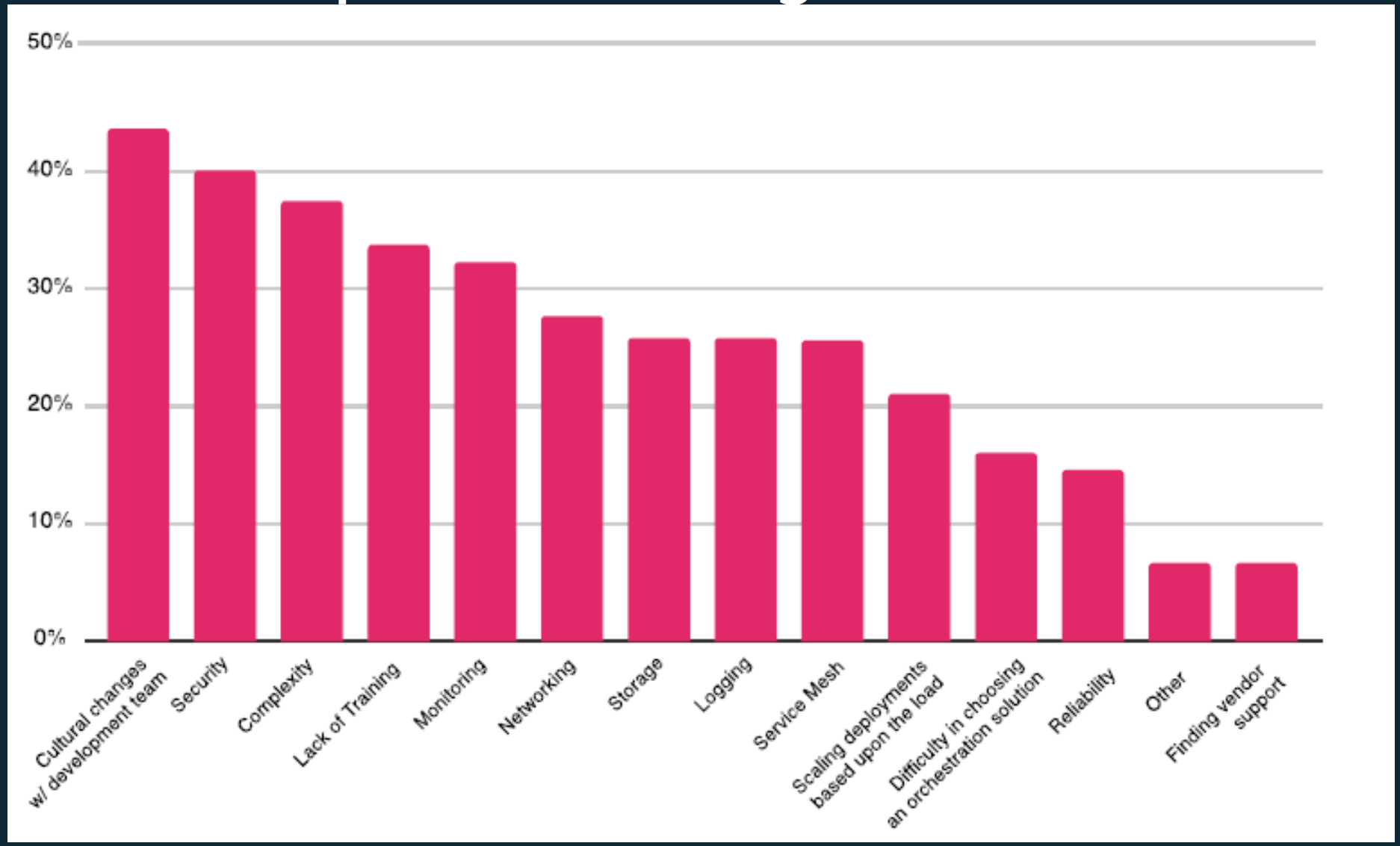
Container Benefits

- ✓ Portable application artifact that runs reliably everywhere
- ✓ Run different applications or application versions with different dependencies simultaneously
- ✓ Better resource utilization by running multiple lightweight containers per host

Container adoption challenges



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So what’s the catch?

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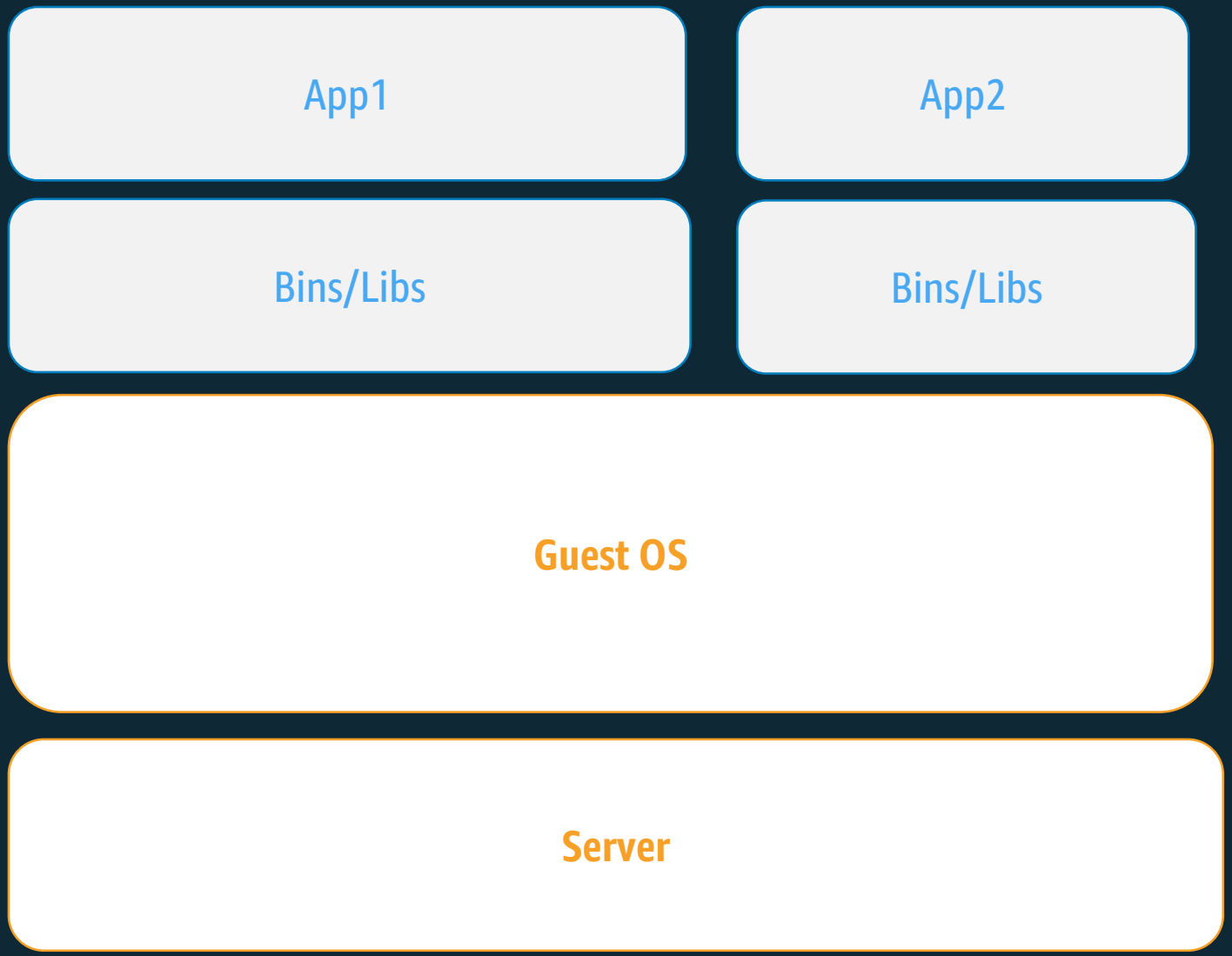
Managing one container is easy…



…but managing *many* containers is difficult

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The container becomes the unit of management

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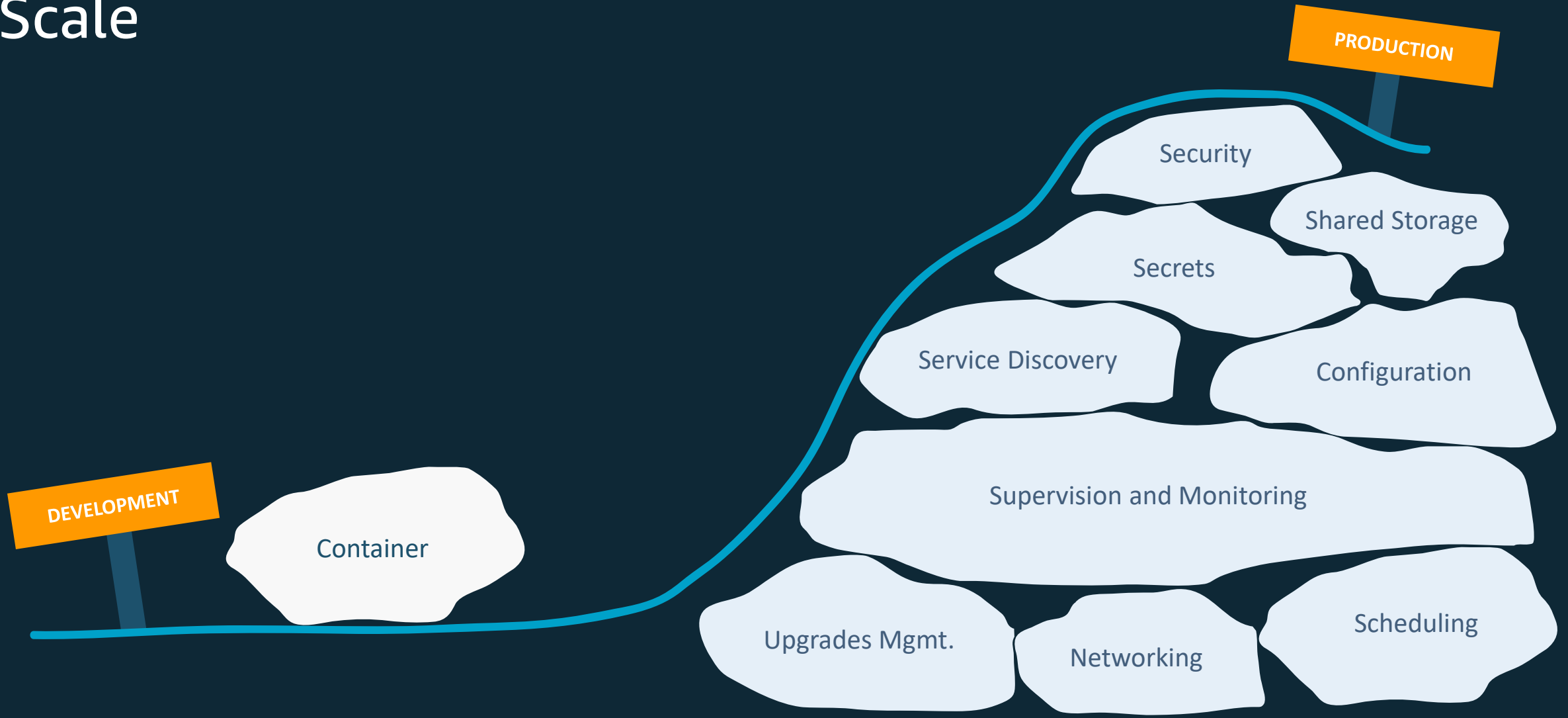
Containers Are Not Enough For Digital Operations At Scale



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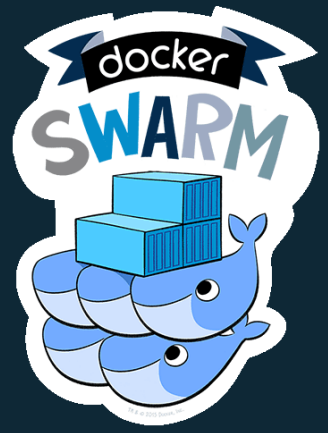

kubernetes

Enter containers orchestration tools

HashiCorp
Nomad

Apache
MESOS™

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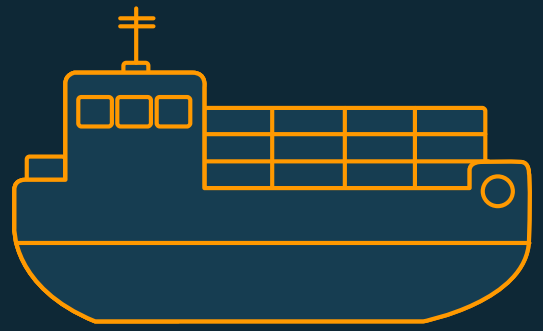
Helping customers scale containers

450+%

growth



Hundreds of millions

of containers started each week

of **millions**

of container instances

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Why customers love AWS container services

Deeply integrated with AWS

Broad selection of compute instances and IAM security, VPC networking, load balancing, and autoscaling

DevOps Workflow

Best place to build and operate a complete DevOps workflow for containers—AWS DevTools and Cloud9

Security and Compliance

ISO, HIPPA, PCI, SOC1, SOC2, SOC3
Infocomm Media Development Auth.

Containers are a first-class citizen of the AWS Cloud

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Typical use cases

- Microservices: Java, Node.js, Go, Web Apps, etc.
- Continuous Integration and Continuous Deployment (CICD)
- Batch Processing and ETL jobs
- Common PaaS Stack for Application Deployment
- Legacy Application Migration to the Cloud
- Hybrid Workloads
- AI/ML
- Scale Testing
- Backend for IoT use cases


Make AWS the BEST PLACE to run
ANY containerized applications
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AWS has the richest container portfolio anywhere

APPLICATION NETWORKING
Service discovery and service mesh


AWS Cloud Map


AWS App Mesh

MANAGEMENT
Deployment, scheduling, scaling, and management of containerized applications


Amazon Elastic Container Service (Amazon ECS)


Amazon Elastic Kubernetes Service (Amazon EKS)


Red Hat OpenShift Service for AWS (ROSA)

HOSTING
Where the containers run


Amazon Elastic Compute Cloud (Amazon EC2)


AWS Fargate

IMAGE REGISTRY
Container image repository


Amazon Elastic Container Registry (Amazon ECR)

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Run your containers anywhere based on your workload needs

Serverless

AWS Fargate

EC2 options

Amazon EC2

Spot instance

Edge and 5G

AWS Local Zones

AWS Wavelength

On-premises

AWS Outposts

EKS Anywhere
ECS Anywhere

Key Stats

two thirds
of all containerized applications running in the cloud run on AWS

84%
of all Kubernetes applications running in the cloud run on AWS

150%
YoY growth of AWS containers services

10X
EKS usage growth in 1 year

2B+
weekly image pulls using ECR

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Management: Amazon EKS, Amazon ECS and now ROSA

ECS

Powerful simplicity

EKS

Open flexibility

ROSA

Opinionated platform

Powerful simplicity

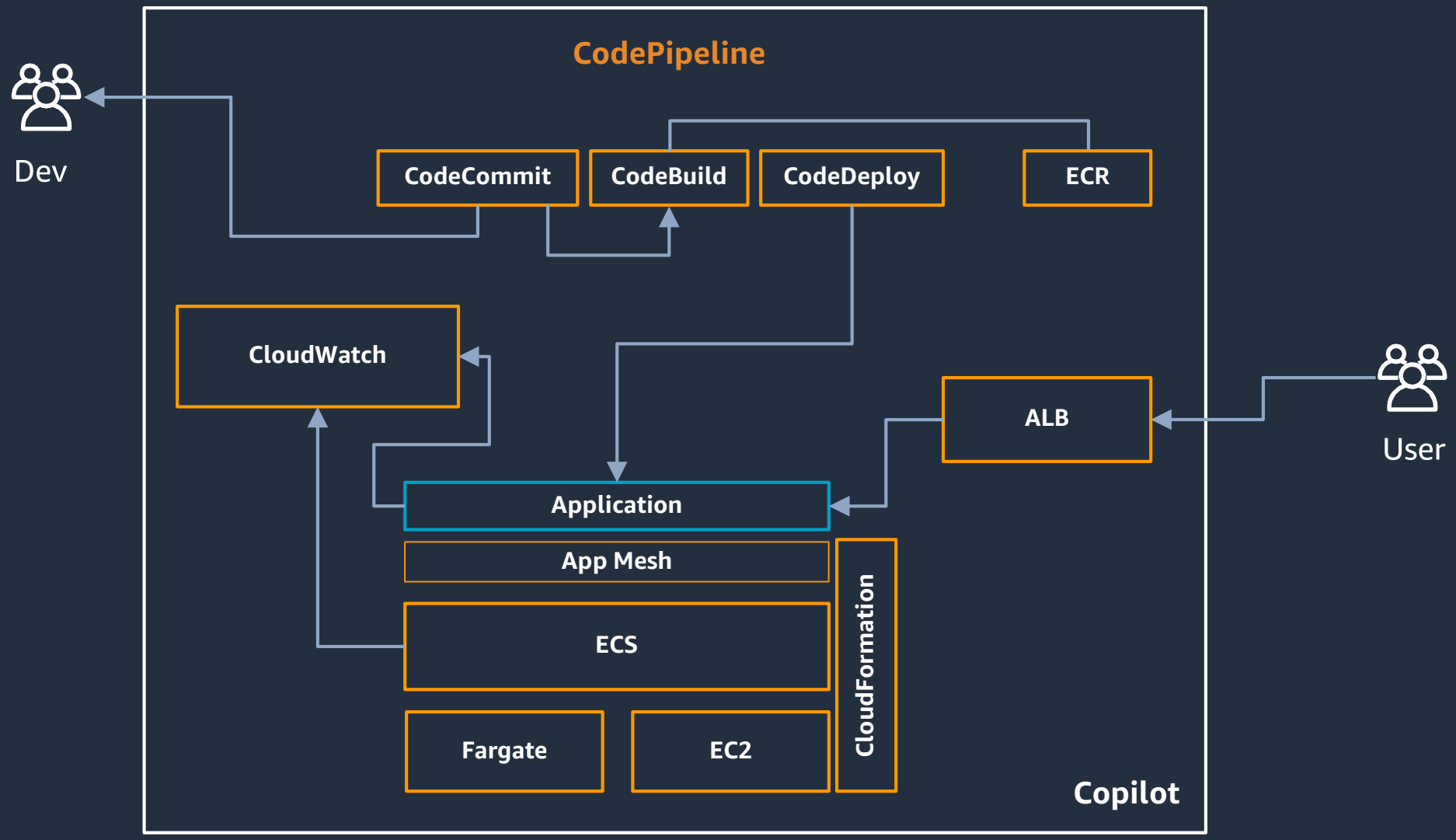
ECS

AWS-opinionated way to run containers at scale

Reduce decisions without sacrificing scale or features

Reduce time to build, deploy, and migrate applications

Powerful simplicity



Open flexibility

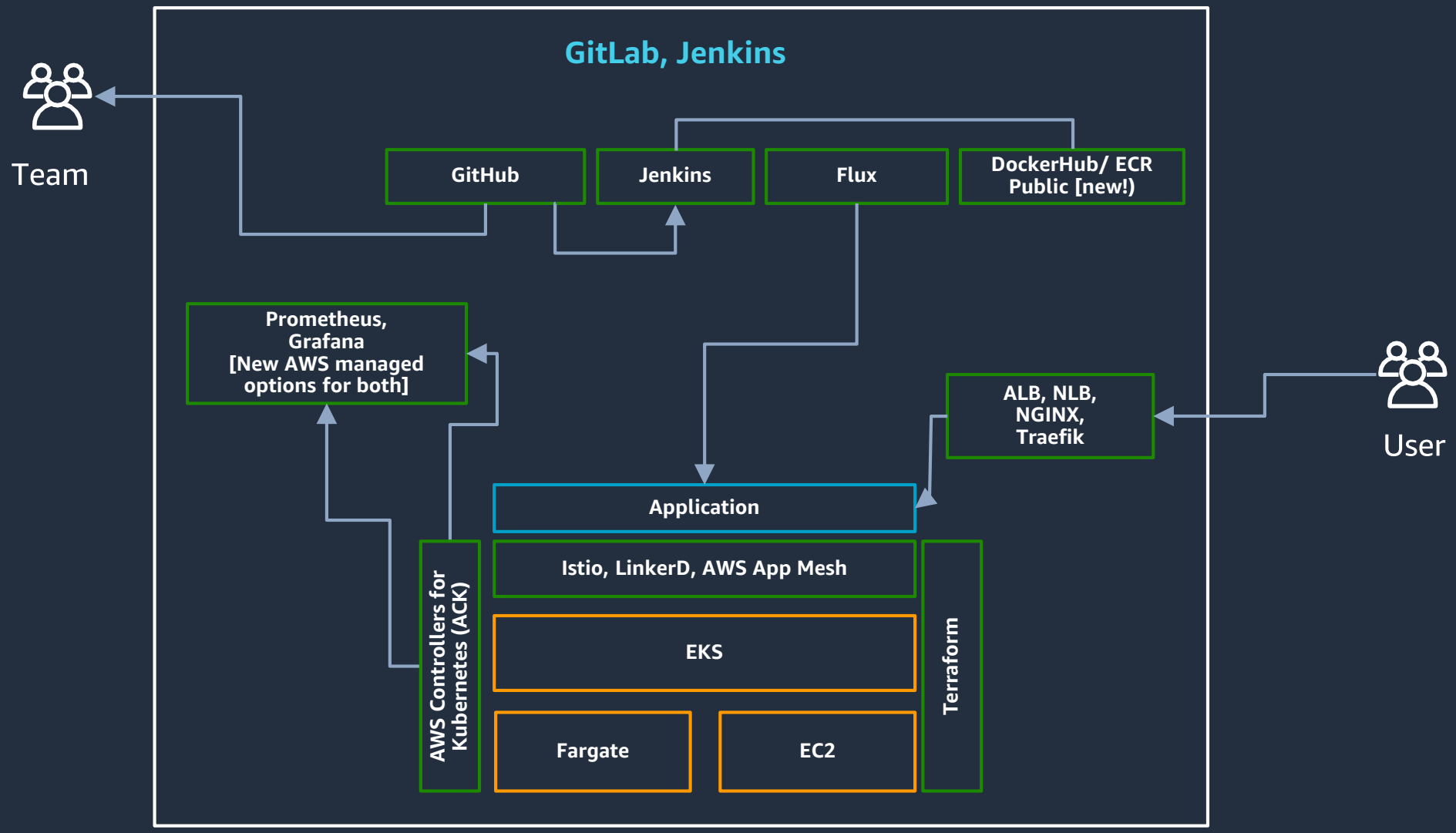
EKS

Gain agility and efficiency with AWS-optimized Kubernetes, and standardize operations everywhere

Secure, highly available, with observability across all Kubernetes deployments

Build with choice of solutions from the broader community around Kubernetes

Open flexibility



Opinionated container platform

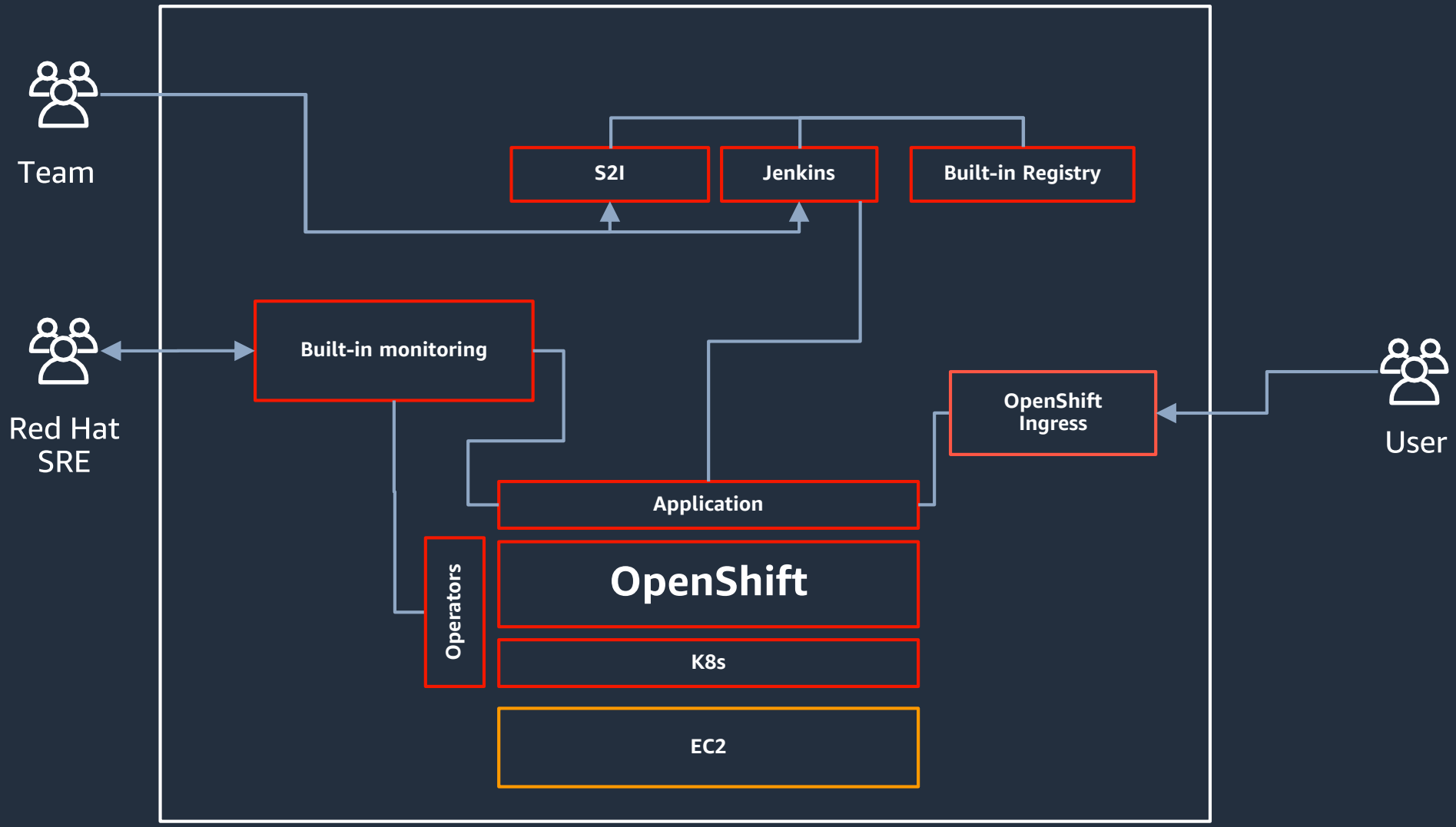
ROSA

Leverage integrated tools and services for developers and operators

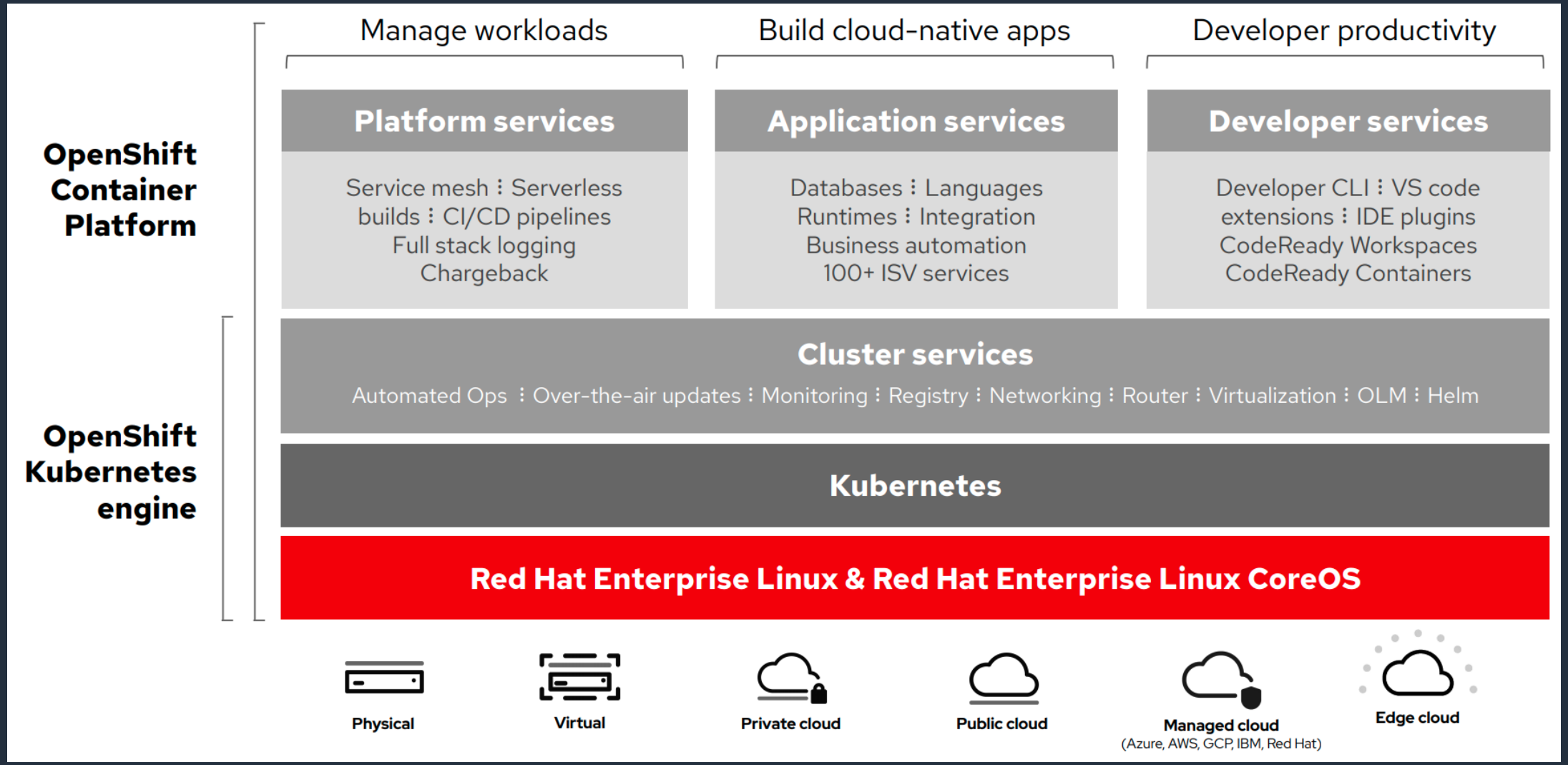
Transfer OpenShift skills and processes from on-prem environments

Simplify management, support and billing of OpenShift environments

Built-in tools and services with ROSA



What is Red Hat OpenShift?



Overview of Deployment Models

	OpenShift Container Platform Build and manage in house	OpenShift Dedicated Consume as service	Red Hat OpenShift Service on AWS Consume as service
Key Uses	Customers with skills to manage their own environment	Customers who want to avoid managing the environment and focus on the application	
Customer Value	Customizable installation, integration points, tooling, and management	Consistency across environments and is fully managed	Consistency, managed, purchased, supported and pay-as-you-go pricing through AWS
Best For	Customers who need to self manage and have a requirement for a high degree of customization	Customers with a large Red Hat footprint and want a fully managed service from Red Hat	Customers who want an AWS OpenShift experience with close integration to AWS services

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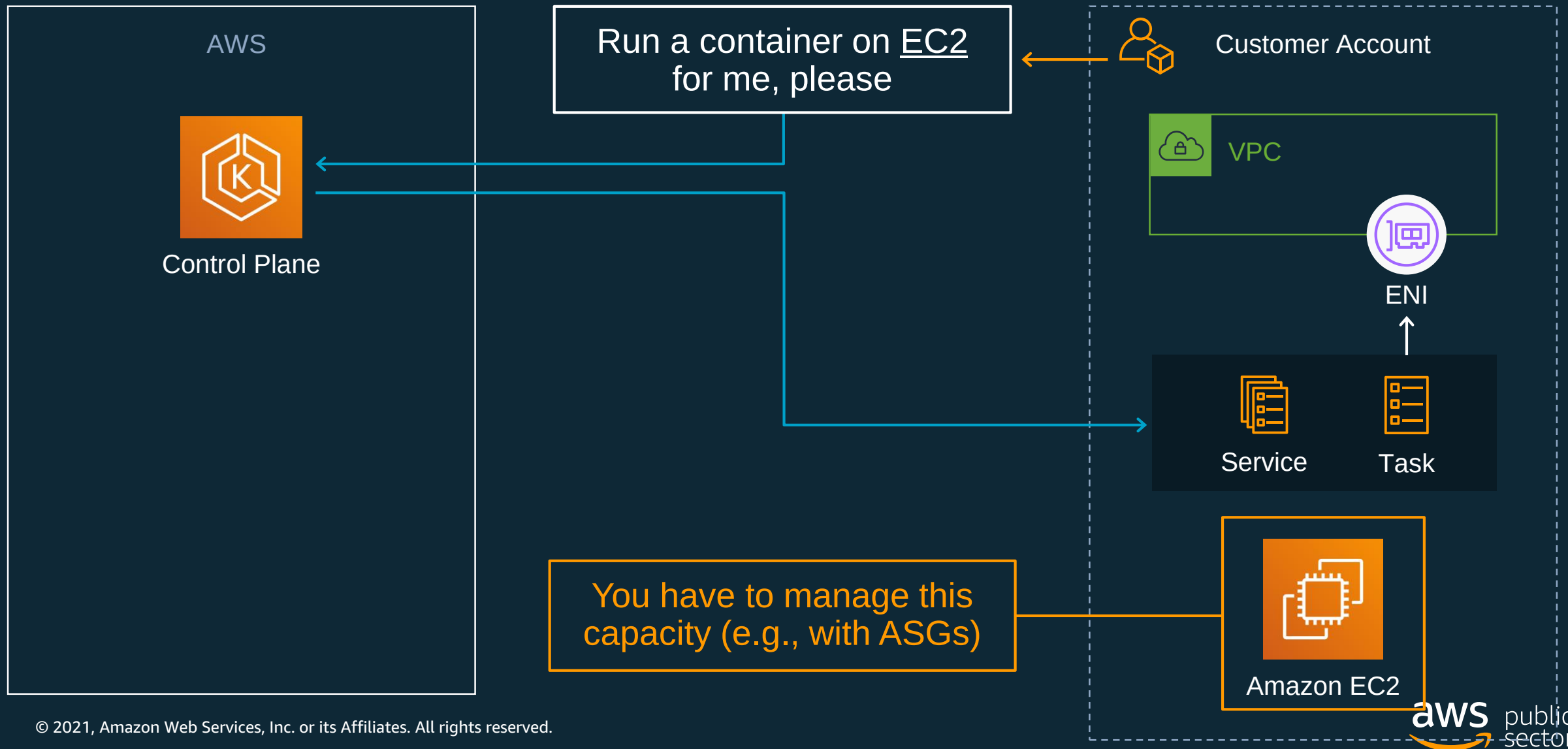
How ECS works on EC2



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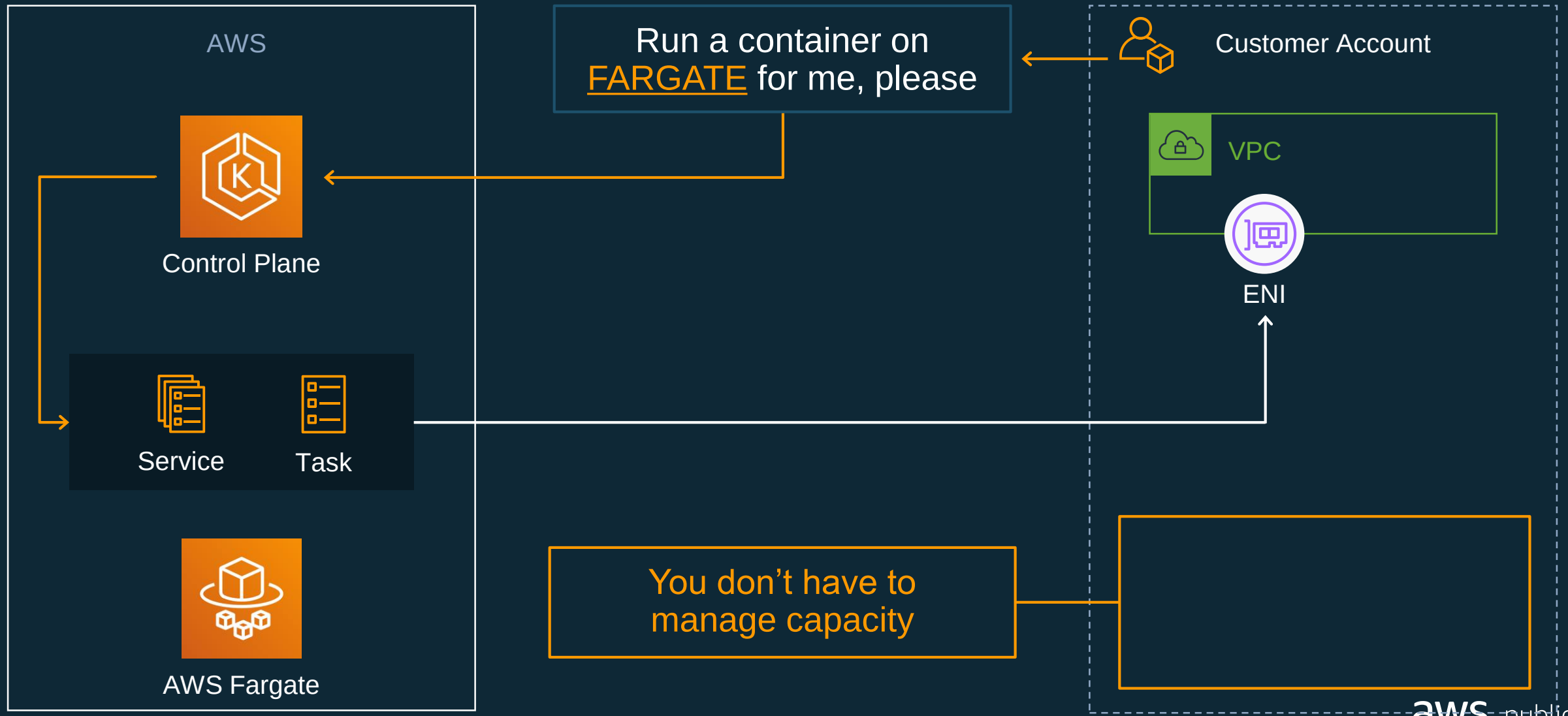
How ECS works on Fargate



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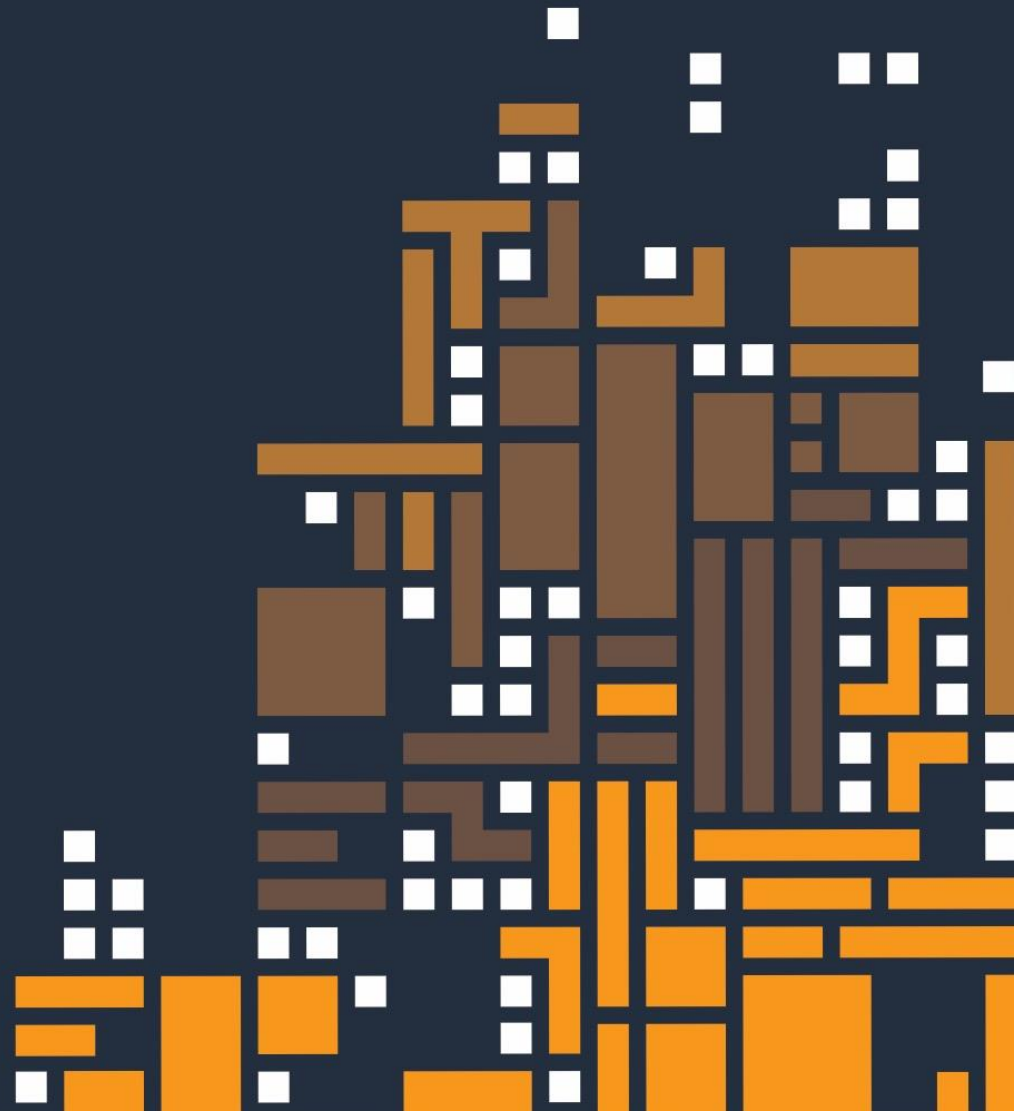
Q&A



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