



AWS Introduction

Building / Deploying Applications in the Cloud

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02.06.2020

About us...



Agenda

12:15 - 13:00h Theorie Teil 1

- AWS Einführung
- AWS Global Infrastructure
- AWS Service Portfolio
- Example Architecture: Grails App on AWS

Pause 13:00 - 13:10h

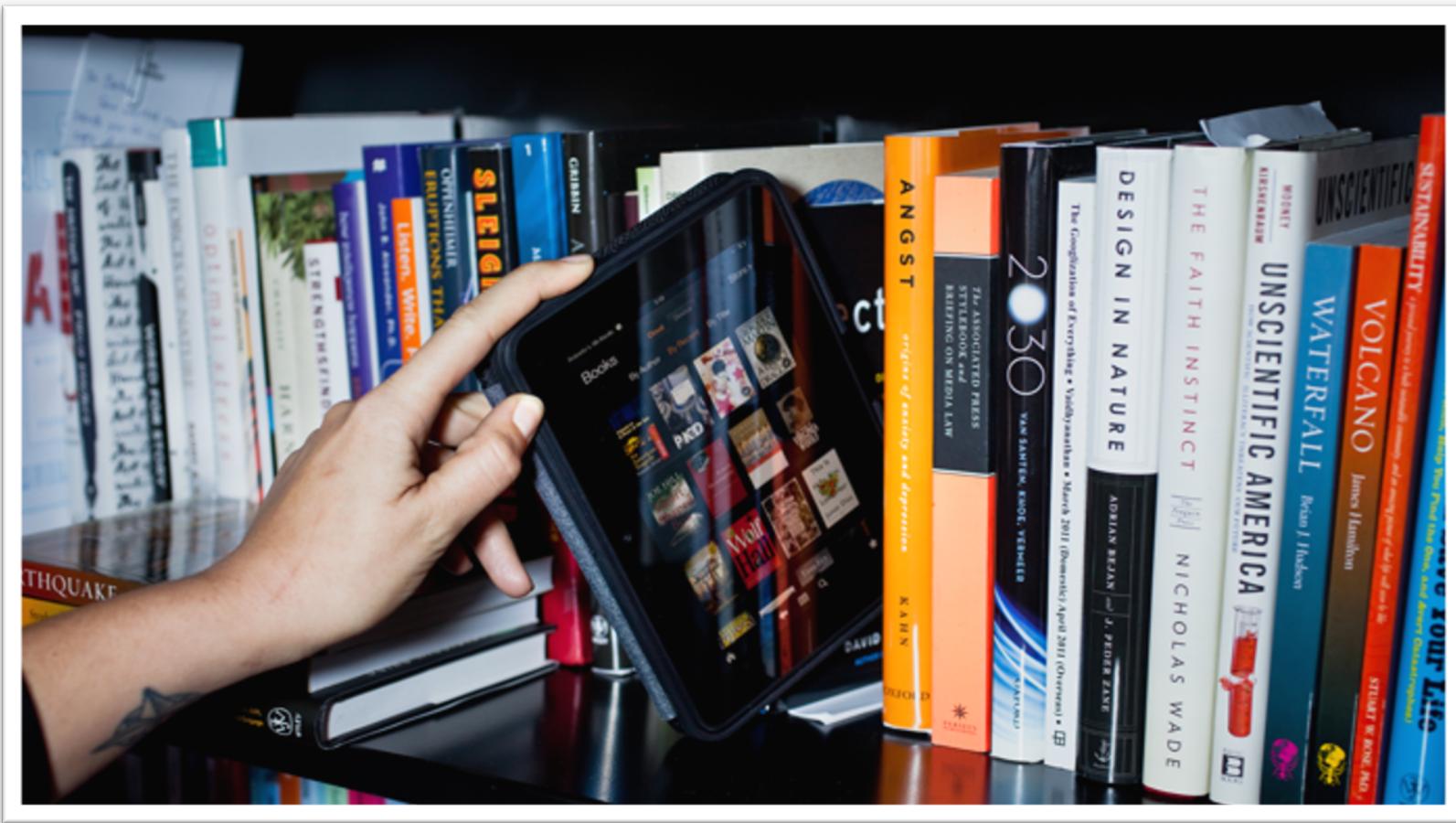
13:10 - 14:10h Hands-On Lab

Pause 14:10 - 14:20h

14:20 - 15:00h Theorie Teil 2

- Automation
- Development Tools

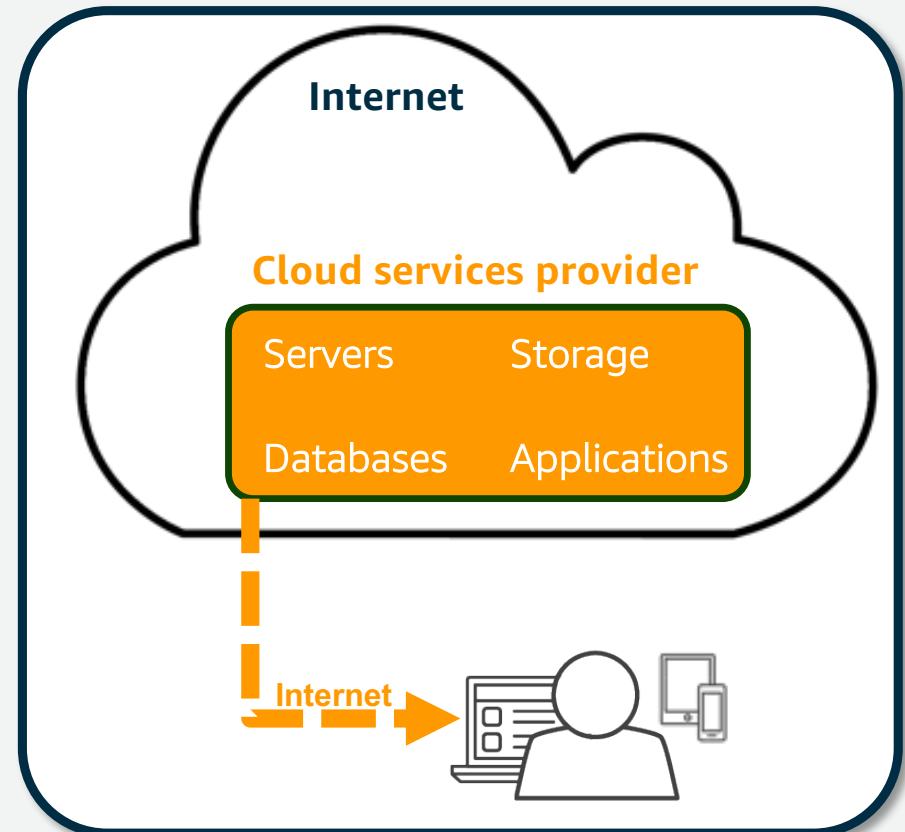
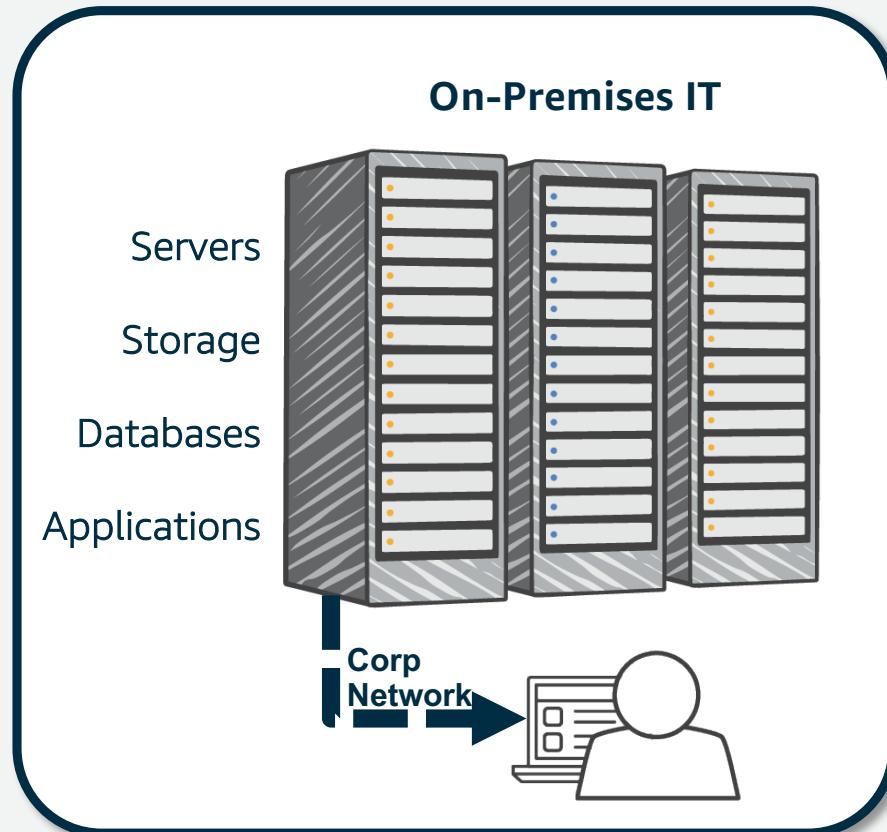
In 1994 Amazon Started with Books...



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What is Cloud Computing?



AWS Global Infrastructure

24 regions, 76 availability zones, 1 Local Zone, 210 points of presence



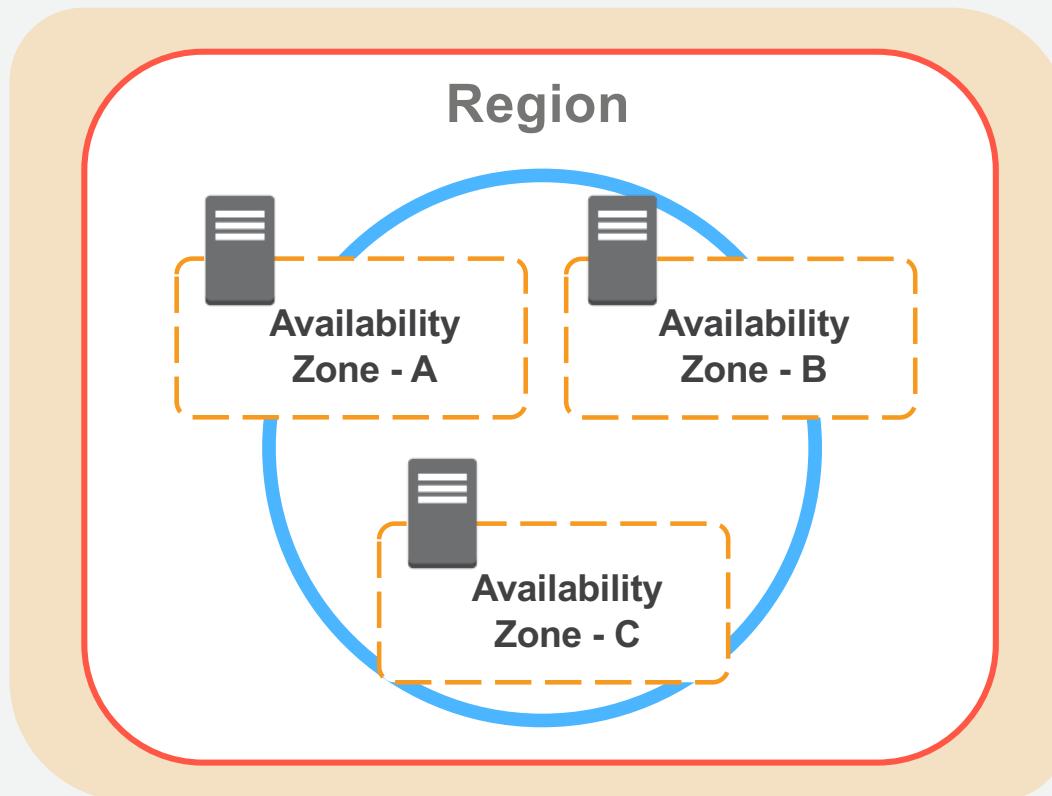
Announced: Indonesia, Italy, South Africa, Spain

<https://aws.amazon.com/about-aws/global-infrastructure/>

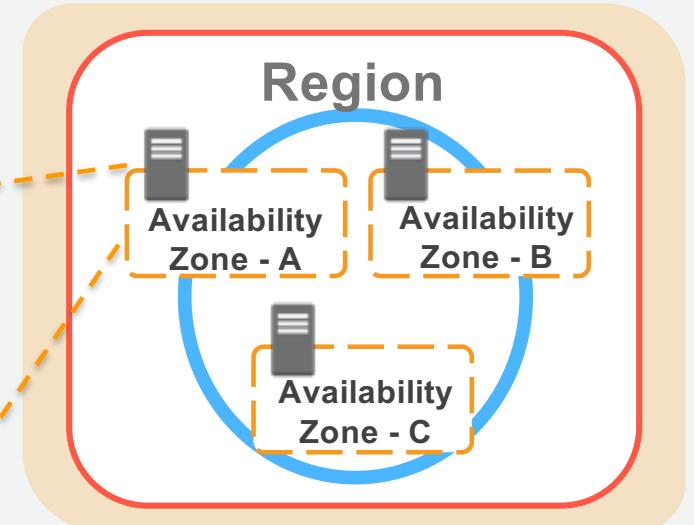
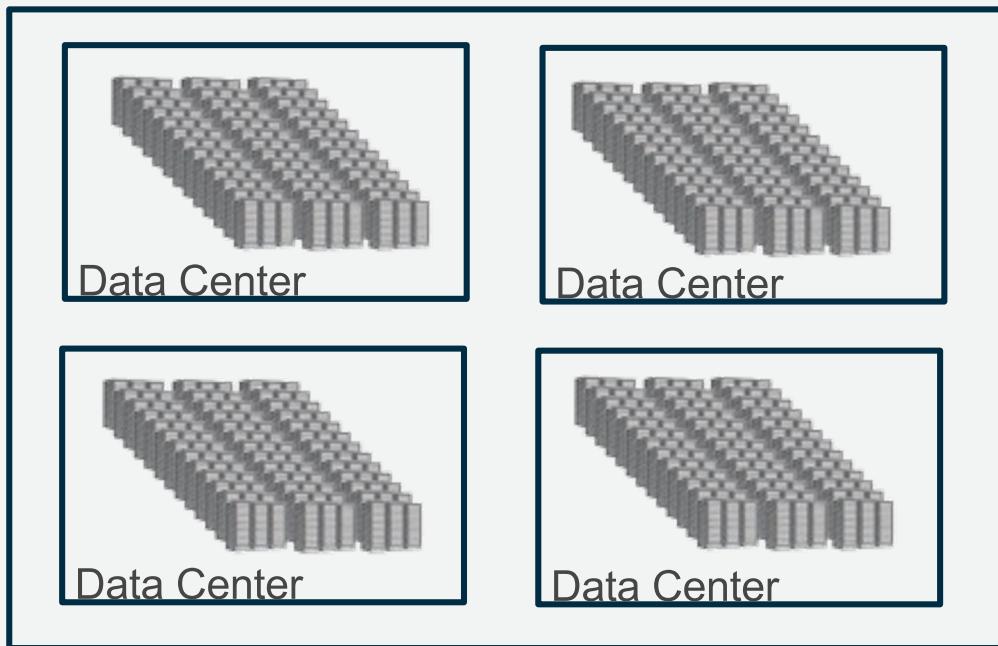
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Ensuring High Availability



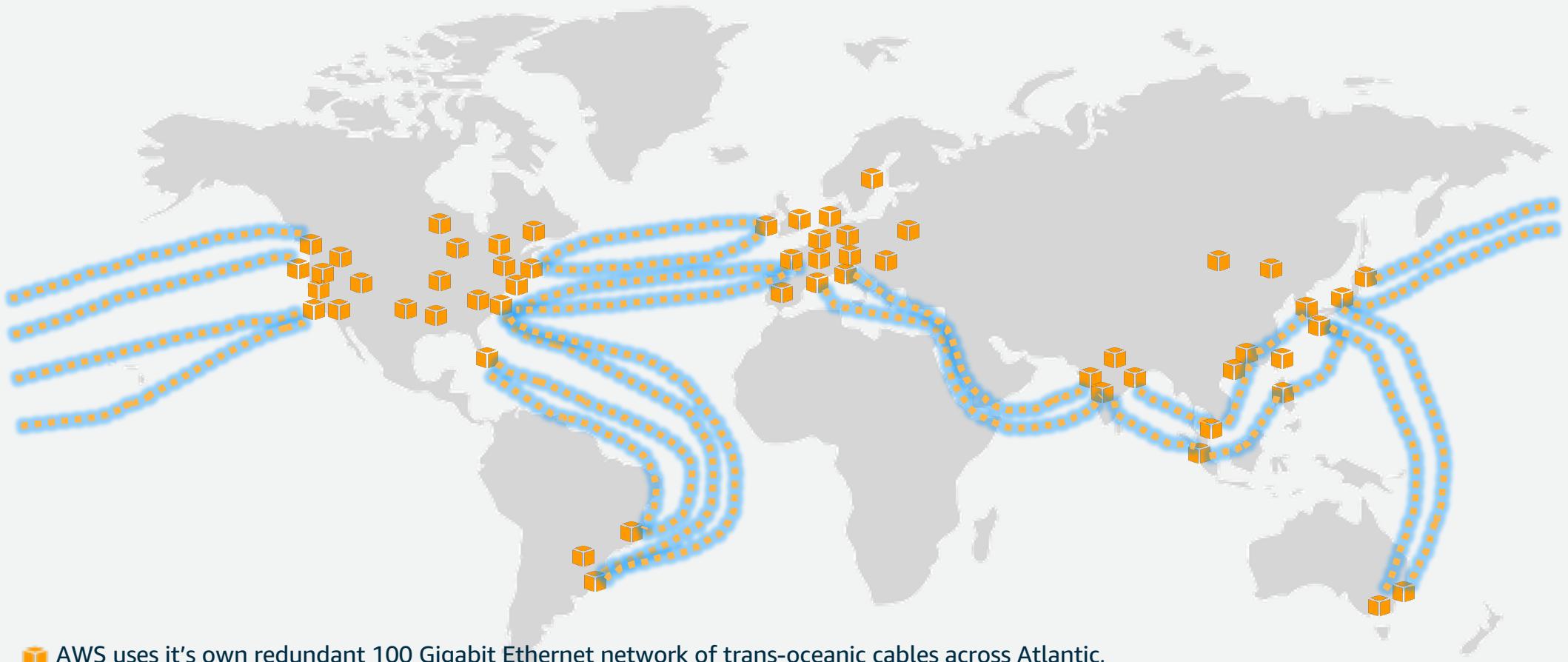
Example AWS Availability Zone



- All regions have 2 or more AZs
- Each AZ is 1 or more DC
 - No data center is in two AZs
 - Some AZs have as many as 6 DCs
- DCs in AZ less than 0.25 ms apart

<https://www.youtube.com/watch?v=uj7Ting6Ckk&t=6s>

The AWS Network

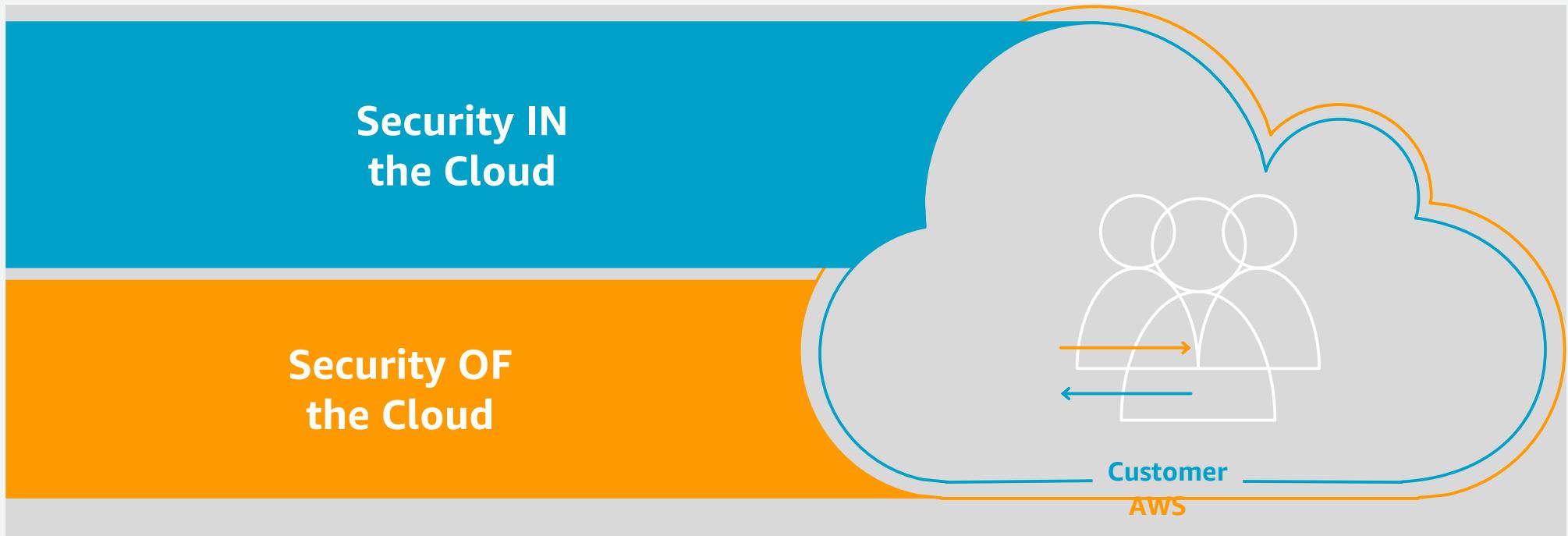


- AWS uses its own redundant 100 Gigabit Ethernet network of trans-oceanic cables across Atlantic, Pacific and Indian Oceans and the Mediterranean, Red and South China Seas.

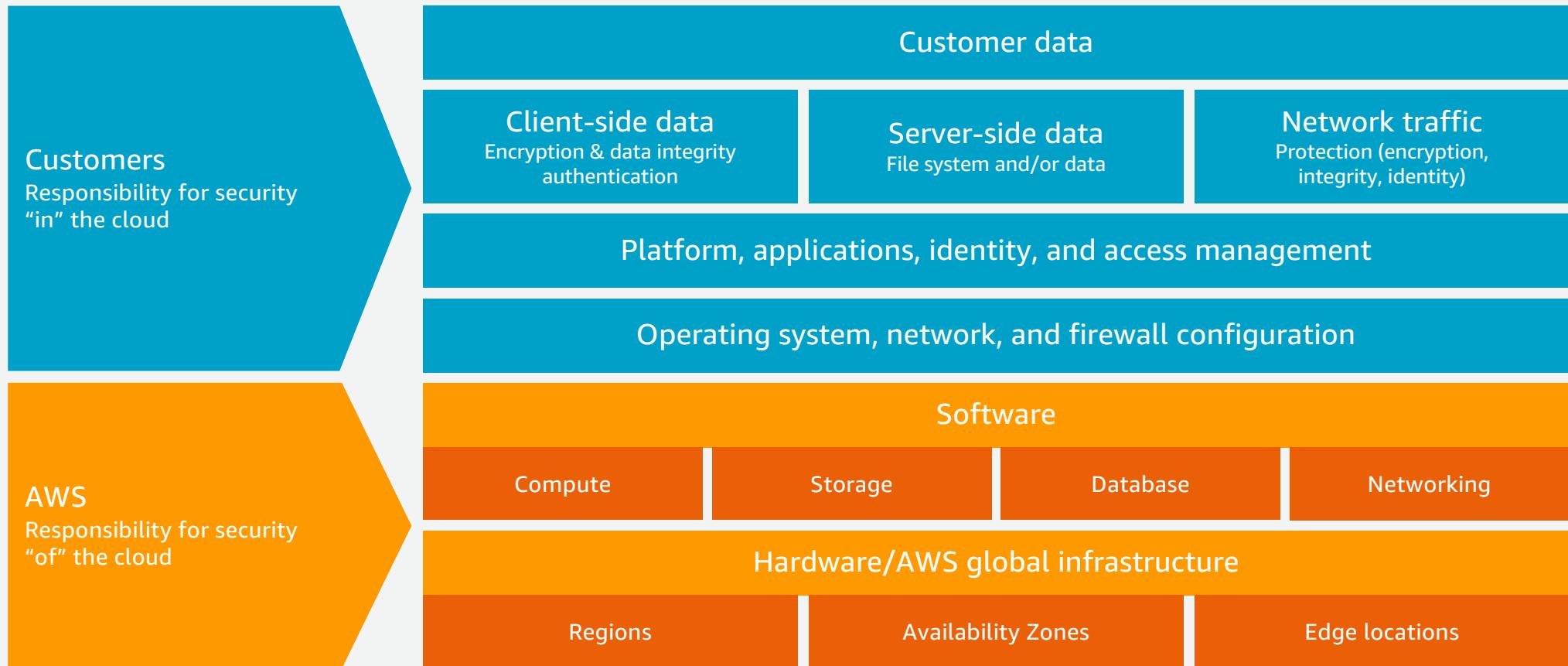
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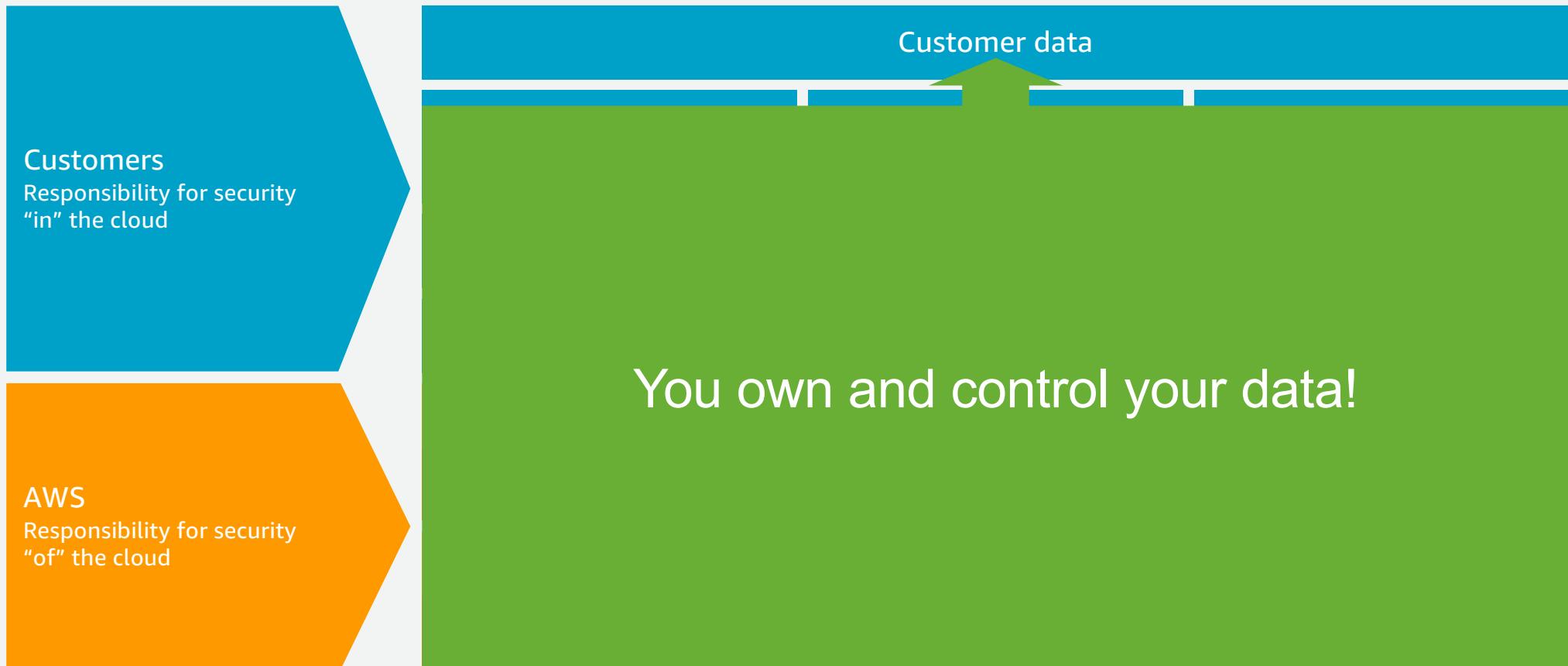
Shared responsibility model



Understanding the AWS Shared Responsibility Model



Understanding the AWS Shared Responsibility Model

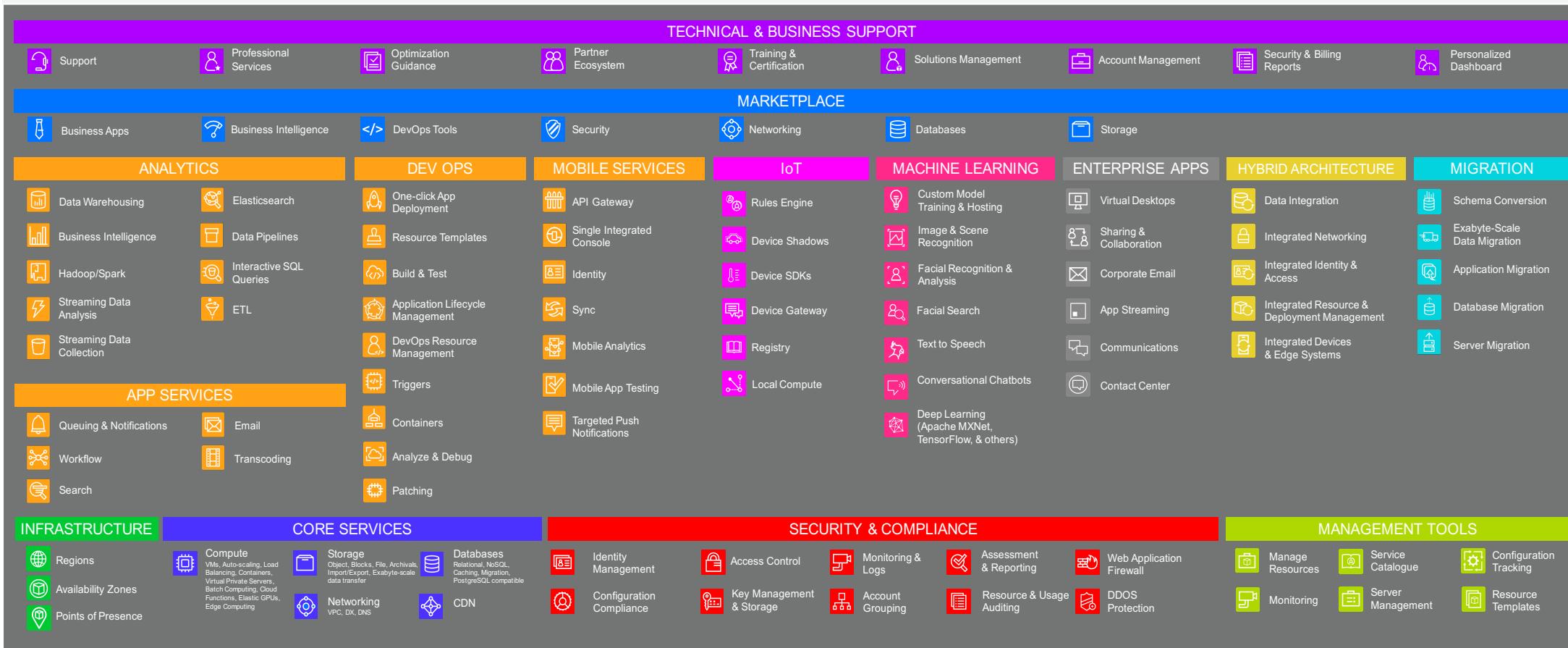


AWS Pace of Innovation

AWS has been continually expanding its services to support virtually any cloud workload, and it now has more than 90 services that range from compute, storage, networking, database, analytics, application services, deployment, management, developer, mobile, Internet of Things (IoT), Artificial Intelligence (AI), security, hybrid and enterprise applications.

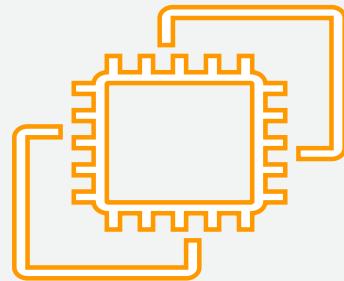


The AWS Platform





Amazon Compute Options



Amazon EC2

Virtual server
instances
in the cloud



Amazon ECS, EKS, and Fargate

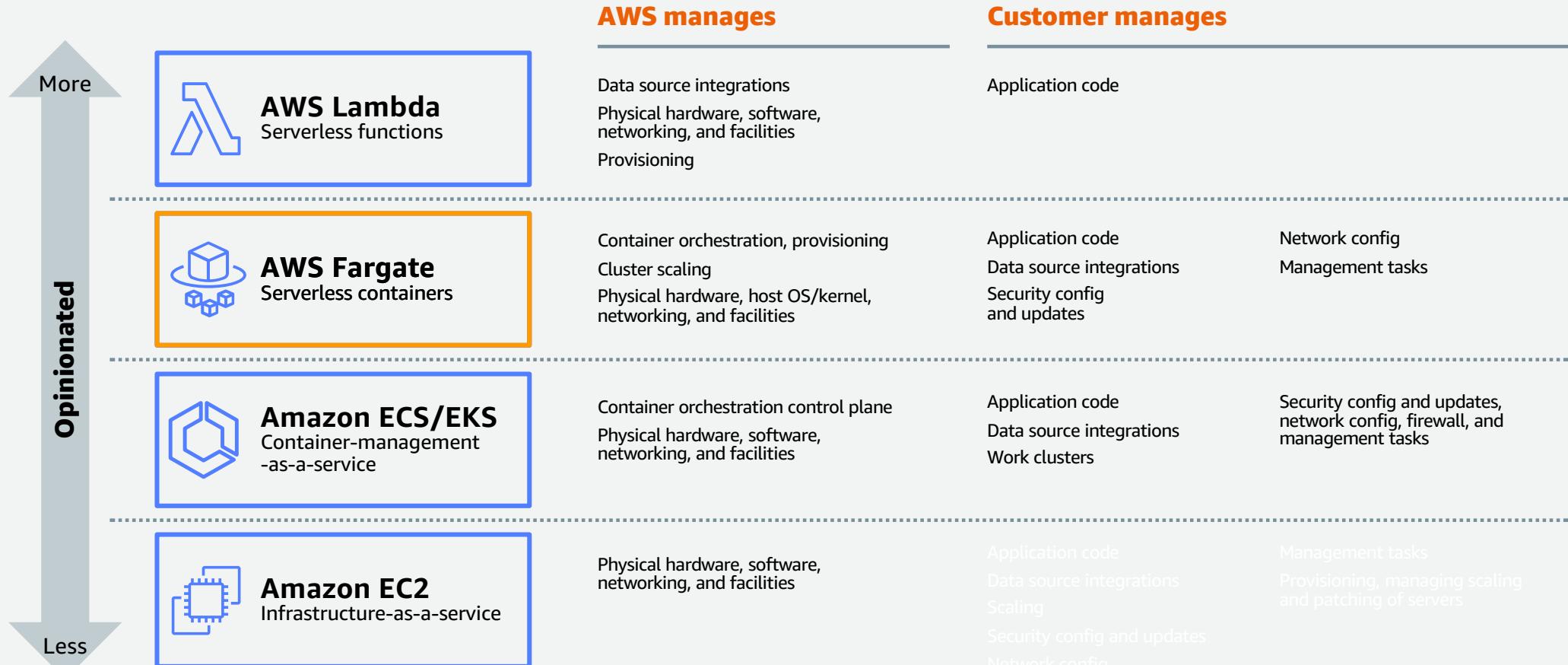
Managed Container
Services



AWS Lambda

Serverless compute
for stateless code
execution in response
to triggers (events)

AWS Compute Options



Managed containers on AWS



Amazon ECS



Amazon EKS



AWS Fargate for ECS



AWS Fargate for EKS

Deploying to AWS managed container services

Managed container services

1

Choose your orchestration tool

ECS

EKS

2

Choose your launch type



EC2



ECS



EC2

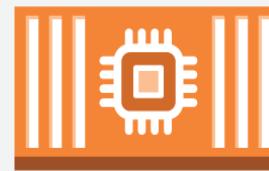
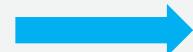


EKS

Fargate launch type: You're responsible for ...



**Container
instances**



Services



Tasks

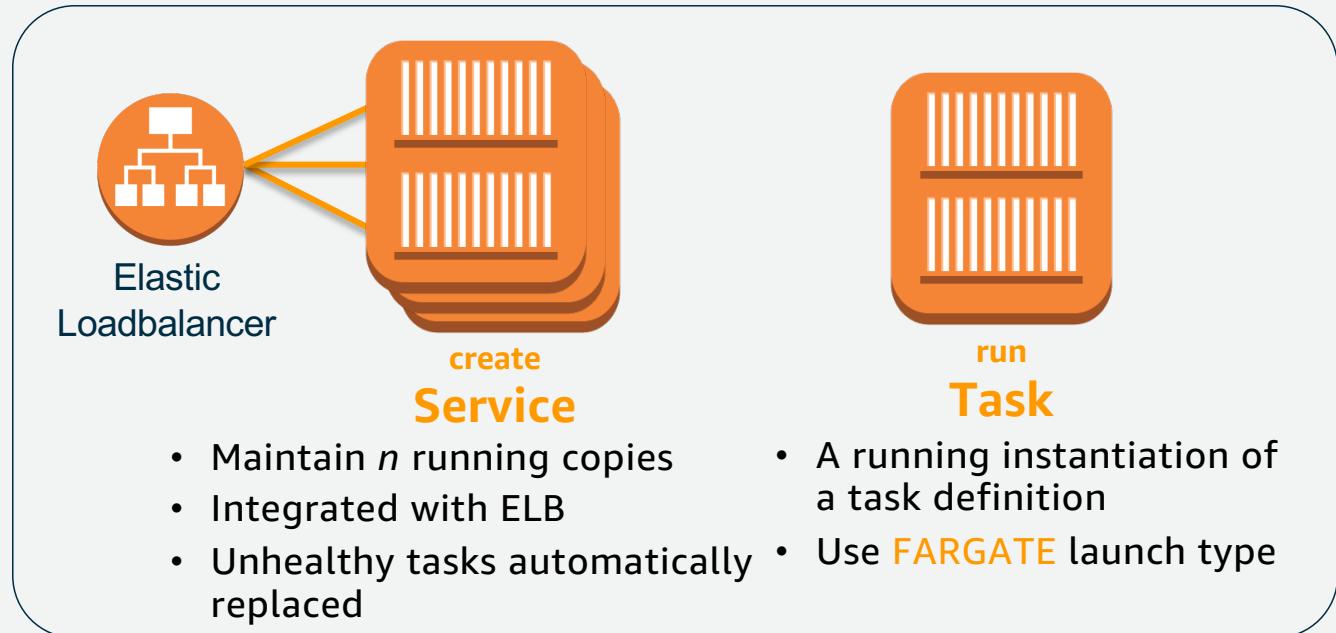


Fargate compute constructs



register
Task definition

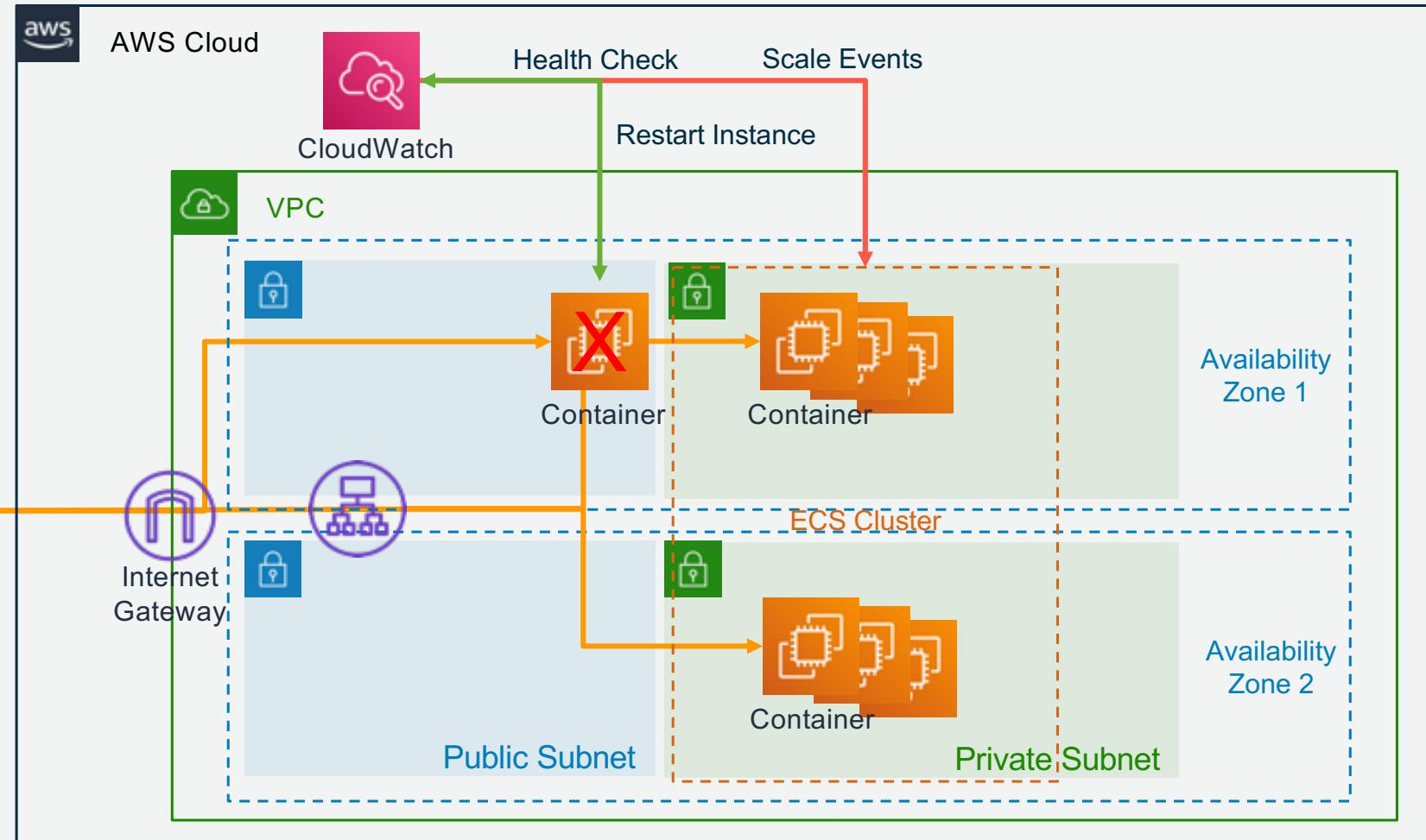
Define application containers:
Image, CPU, and memory
requirements, etc.



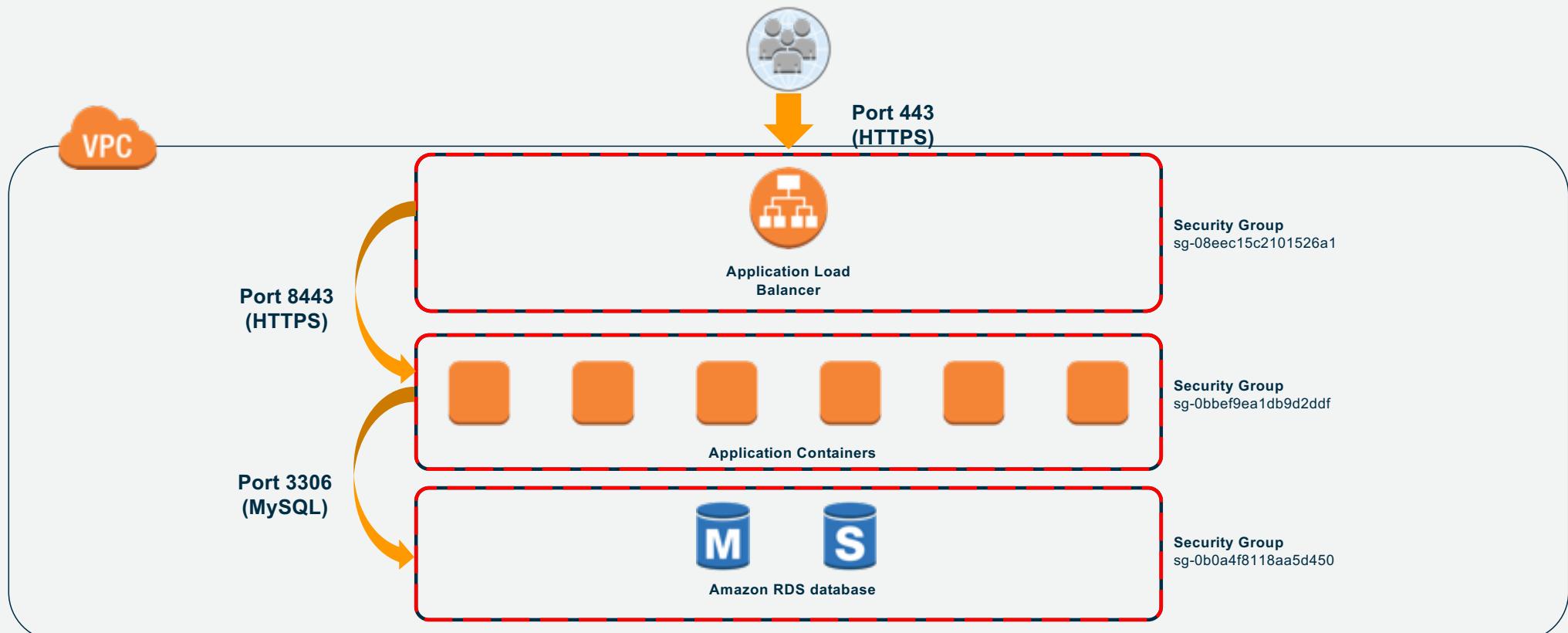
Cluster

- Infrastructure isolation boundary
- IAM permissions boundary

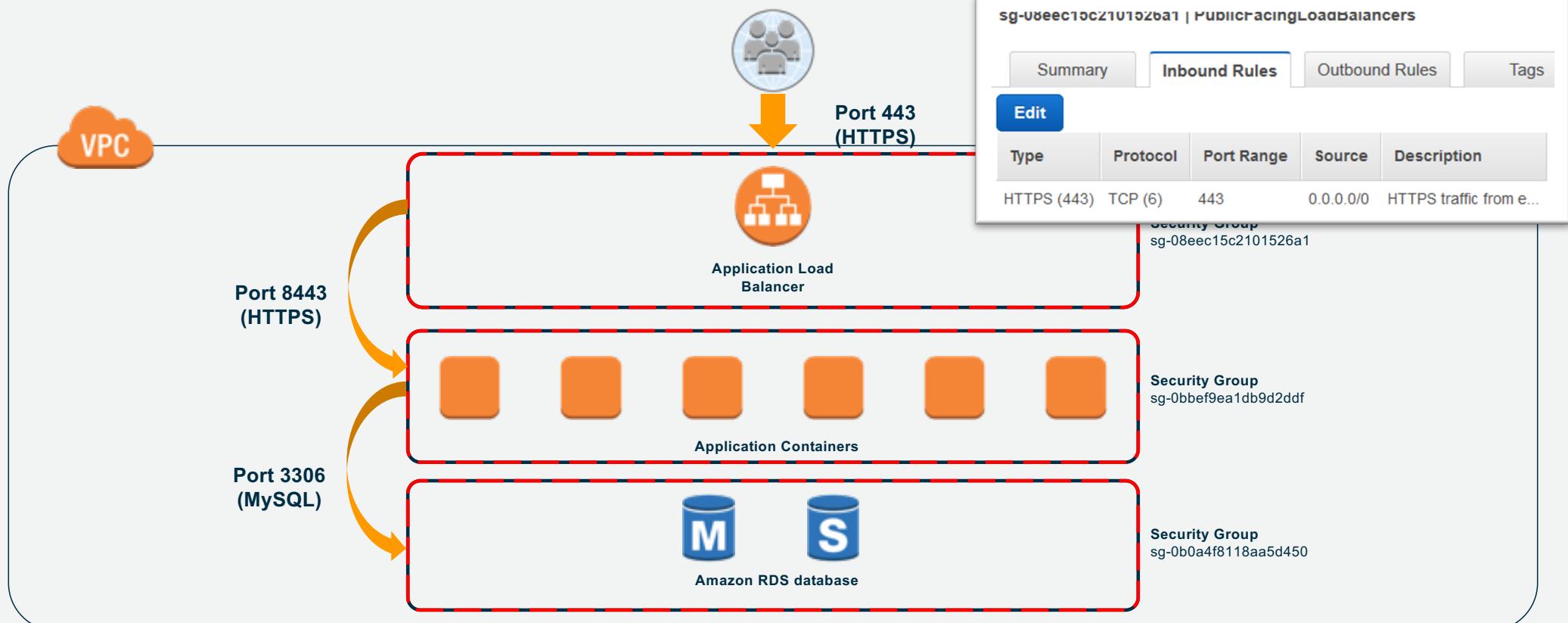
Grails App on AWS



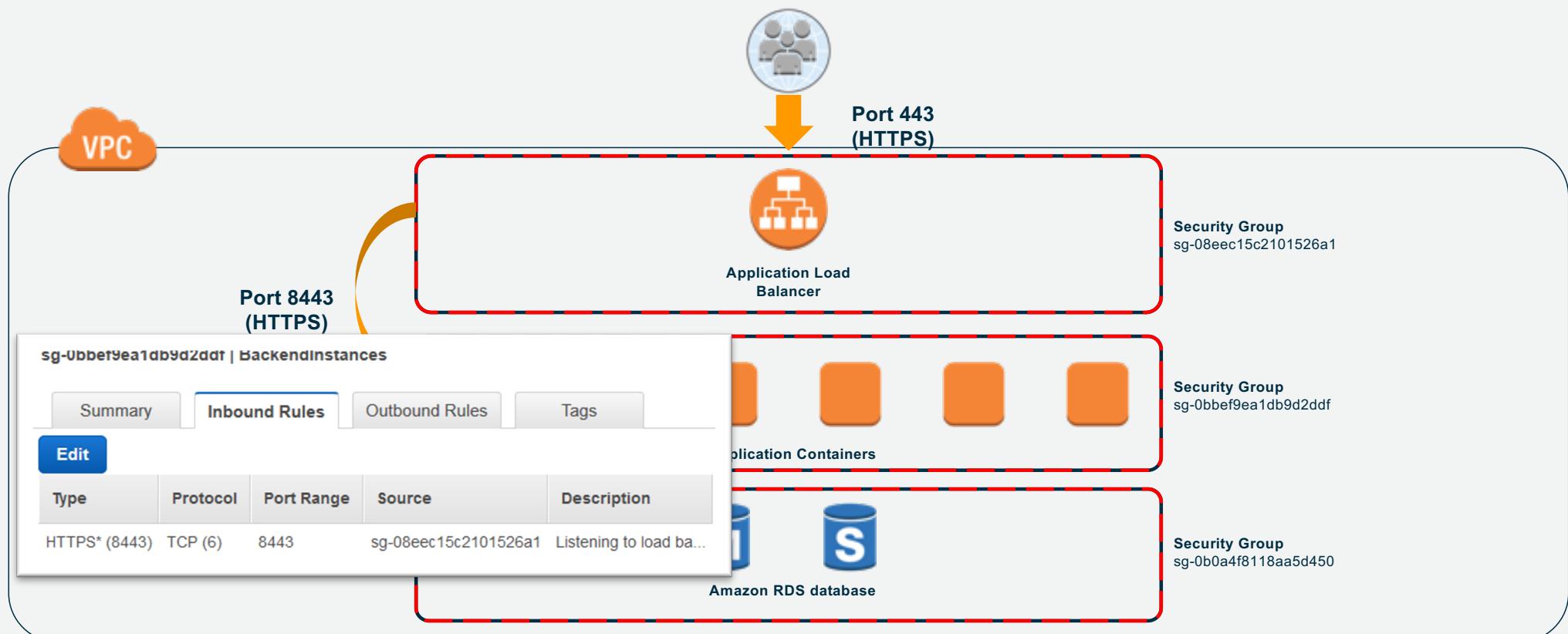
Security Groups: Stateful network firewalls



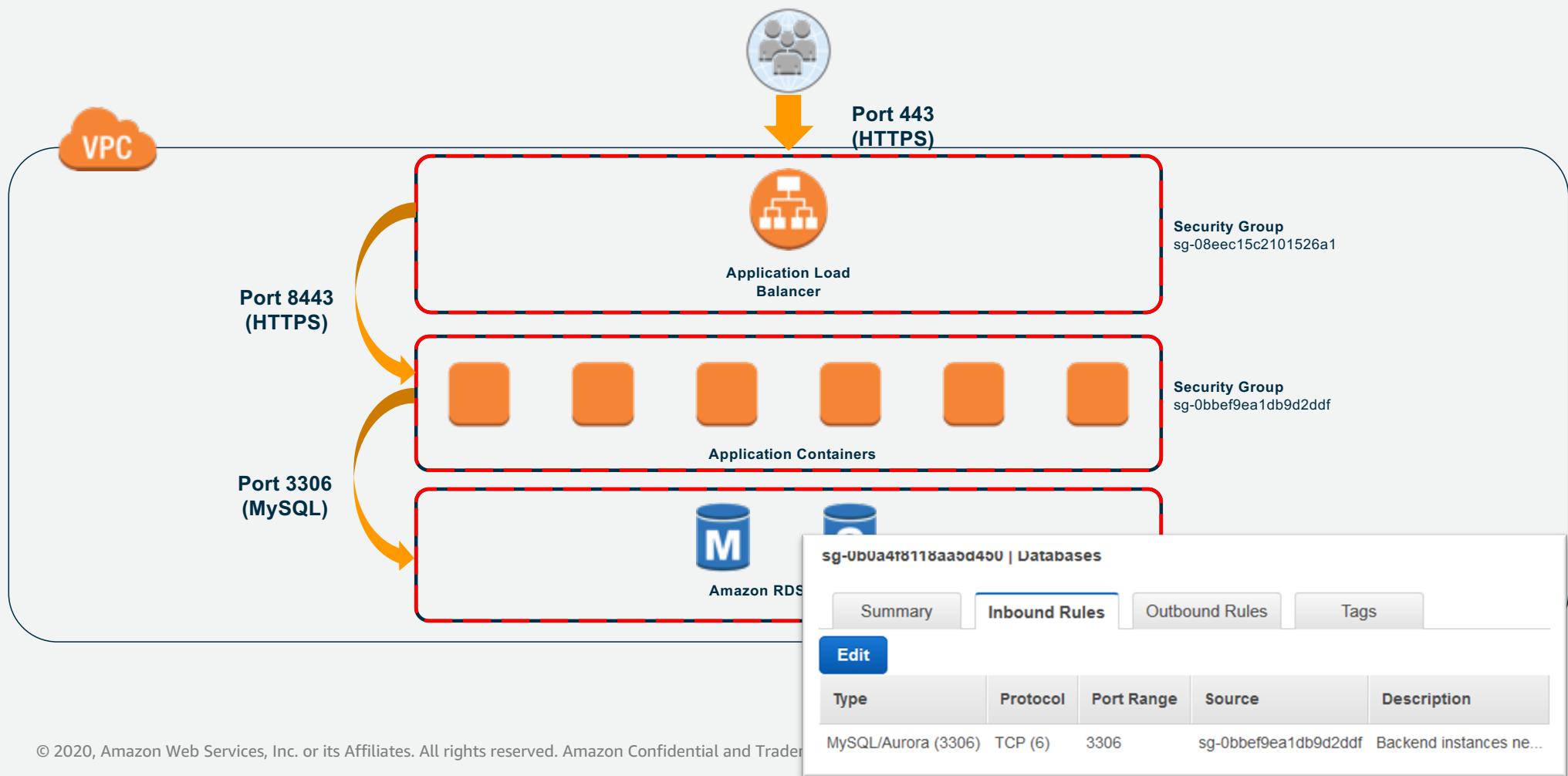
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Pause 14:30 - 14:40h

14:40 - 15:00h Theorie Teil 2

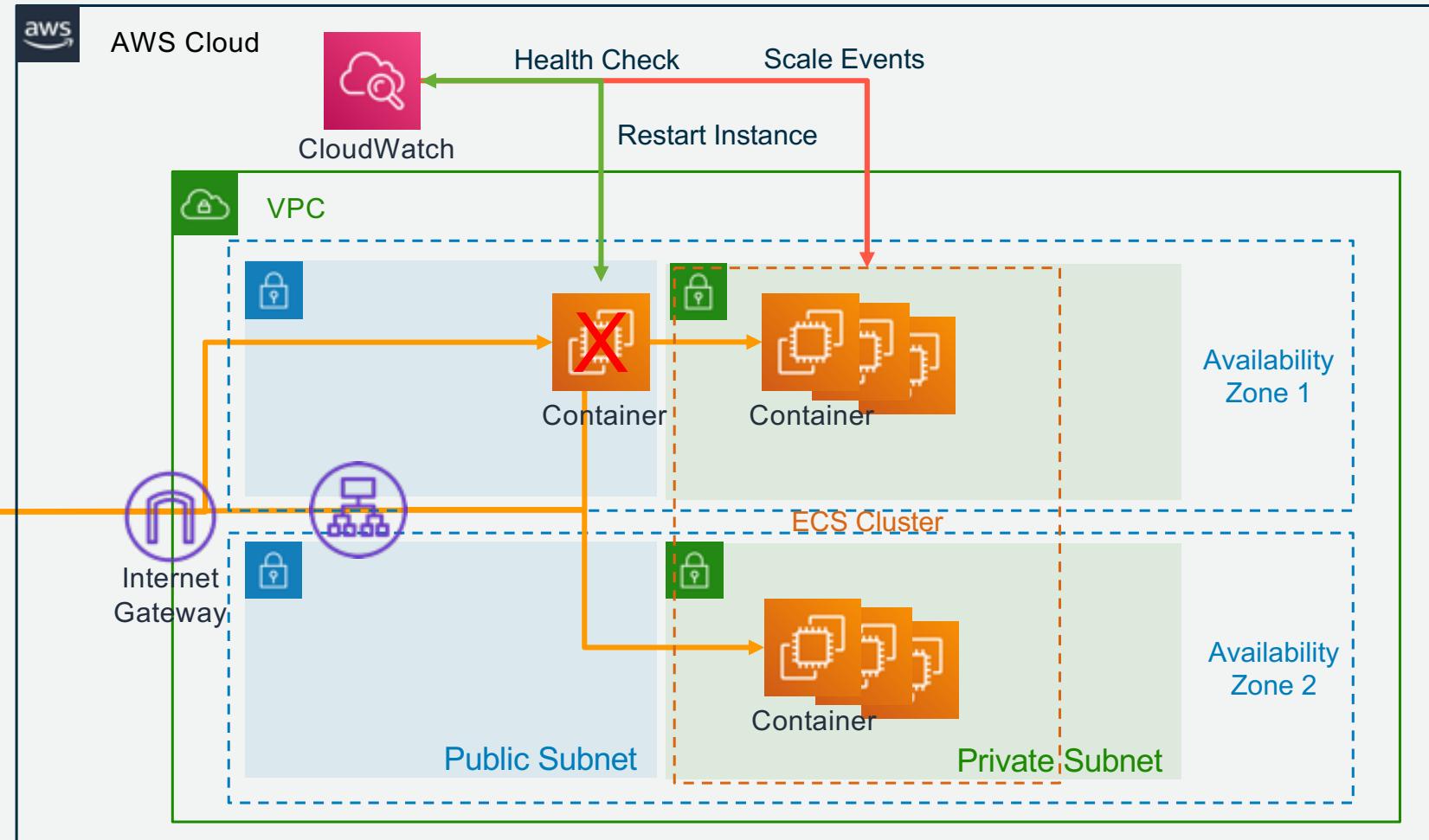
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Hands-On Session

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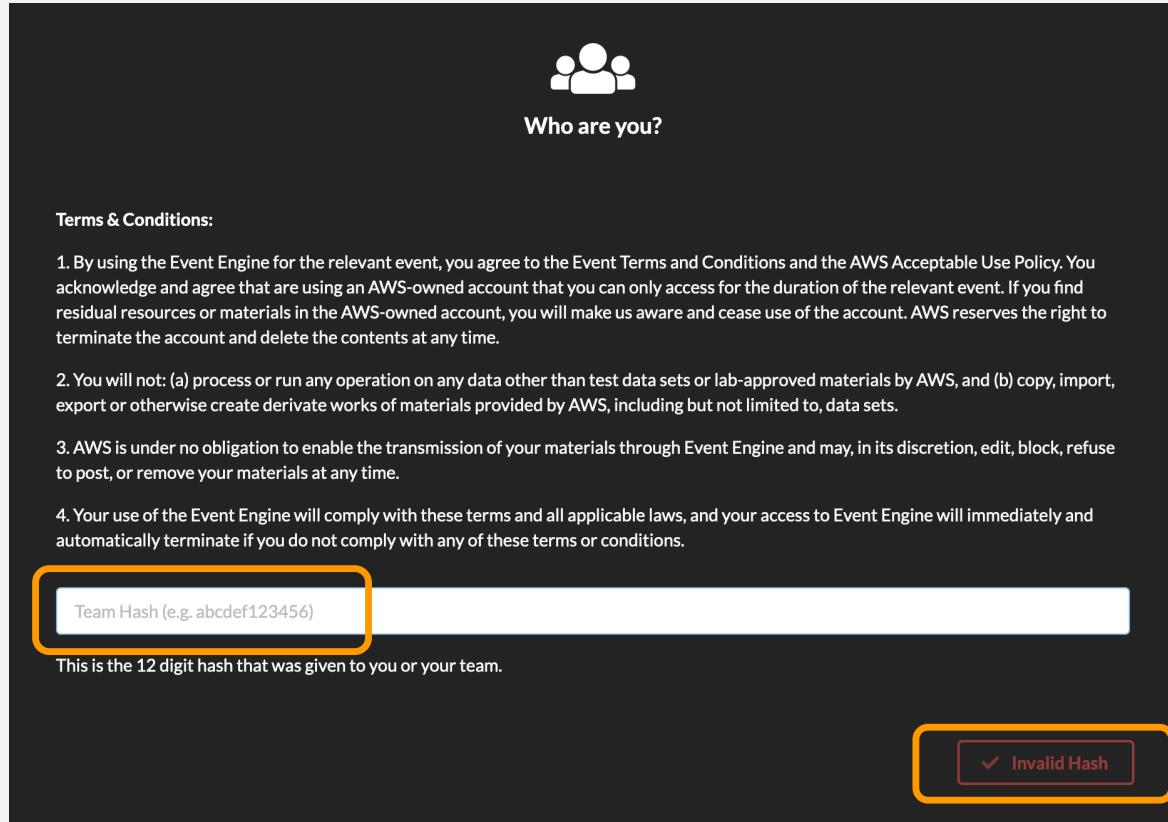
Grails App on AWS



Hands-On Session / Tasks

1. Login to Event Engine
2. Open AWS Console
3. Configure AWS Systems Manager / Quick Setup
4. Deploy EC2 Instance
5. Check EC2 Instance and test Grails App

Login to AWS Event Engine – <https://dashboard.eventengine.run>



Review Team Dashboard

Team Dashboard

 Event

 AWS Console  SSH Key

Event: FHNW Deployment workshop
Team Name: (Team Name Not Set Yet)

Event ID: 145230f44ba94cb2acf5ad3467a44634
Team ID: ccc3d1e57a084238af13d374887a55d5

Open AWS Console

AWS Console Login

Remember to only use "eu-central-1" as your region, unless otherwise directed by the event operator.

Login Link

 Open AWS Console  Copy Login Link

Credentials / CLI Snippets

Mac / Linux Windows

Mac or Linux 

```
export AWS_DEFAULT_REGION=eu-central-1
export AWS_ACCESS_KEY_ID=ASIA353V04HIWLEDLH3E
export AWS_SECRET_ACCESS_KEY=tmn84qqDRkGl1h0ElC3Rt+Y24WsSuEDvAeWeItXN
export AWS_SESSION_TOKEN=FwoGZXIvYXdzEOn//////////wEaDKYa1EvLlCOIVa0/ySKuAb3R+jSeR9P63M2TmqITHJDXo
```

How do I use the AWS CLI?

Checkout the AWS CLI documentation here: <https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-welcome.html>

OK

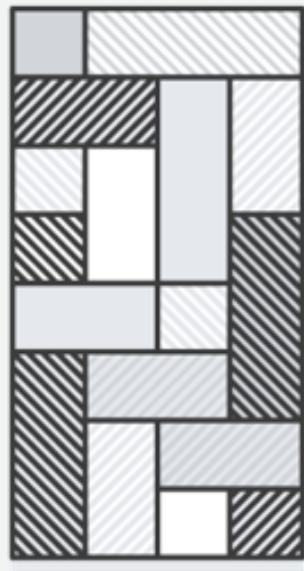
CloudFormation Demo

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Development transformation at Amazon: 2001-2009

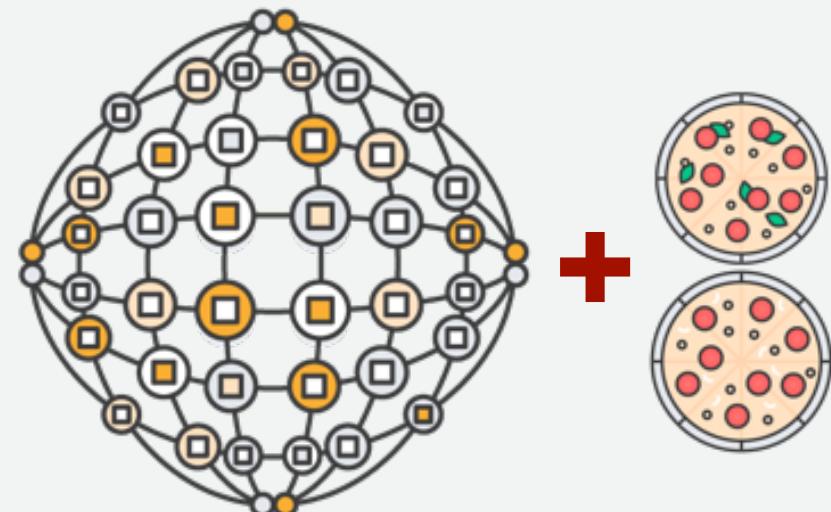
2001



monolithic
application + teams



2009



microservices + 2 pizza teams

Code* Demo

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Helpful Resources

Getting started:

https://aws.amazon.com/getting-started/?nc1=h_ls

AWS Free Tier:

<https://aws.amazon.com/free/>

Online Training (partially free):

<https://www.aws.training/LearningLibrary>