
AWS
re:Invent
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CON304-R

Learn to deploy containerized applications in hybrid cloud environments

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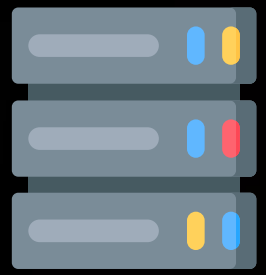
Agenda

Objectives	Agenda
▪ Understand architecting Amazon ECS Anywhere for hybrid container solutions ▪ Deploy an ECS Anywhere hybrid cloud architecture	▪ 15 minutes – Container applications in hybrid cloud and ECS Anywhere overview ▪ 1.5 hours – hands-on workshop

What is hybrid cloud?

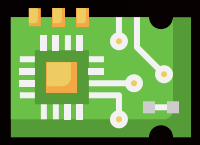
Your application on your hardware



On-premise server

Point of sale device

Vehicle



Internet of Things

+

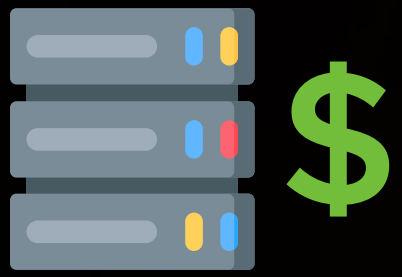
Your application on AWS

Amazon Elastic Compute Cloud (Amazon EC2)

AWS Fargate

AWS Lambda

Why hybrid cloud?



Capital expenditure investment

On-premise datacenter is bought and paid for already. That capital investment needs to be amortized before moving to the cloud.

On-premise datacenter isn't quite large enough. You don't want to make a big upfront expenditure on hardware, so you want to burst to the cloud.

Why hybrid cloud?

Compliance requirements

Some industries have specific compliance requirements about where data is stored or how data is processed.

Examples:

Healthcare data

EU General Data Protection Regulation

Why hybrid cloud?

Data gravity and proximity

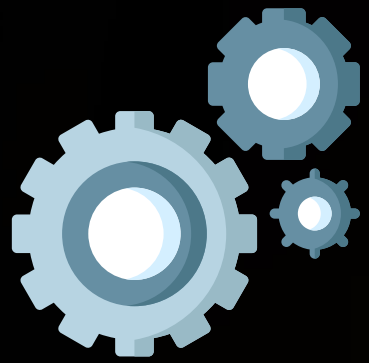
Some industries have large amounts of data and the need to process that data on location.

Examples:

Video rendering studio where artists need to work with large asset files and servers do 3D rendering of scenes from that same data.

Applications that require extremely low latency or to operate in disconnected mode.

Why hybrid cloud?



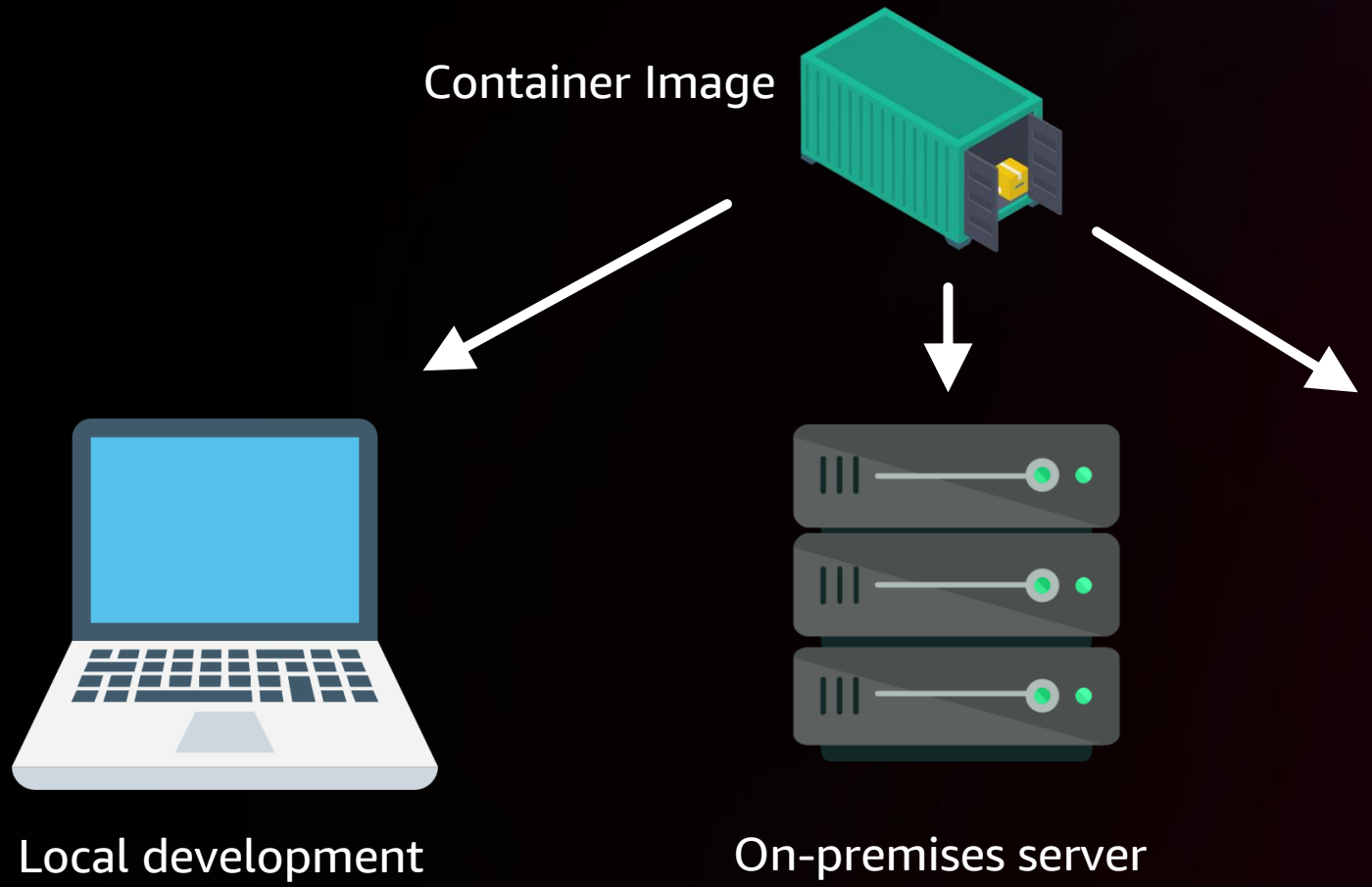
Consistent operations

Rather than treating on-premises and in-cloud workloads as separate silos, a good hybrid cloud strategy lets you use a similar operational model in both cases.

Why do companies adopt containers?

 Velocity	Improve developer velocity with consistent environment
 Reduced risk	Automation increases ability to test and iterate
 Quality	Uniform security across environment, easy to update applications with patches
 Operational excellence	Focus on business logic and infrastructure separately

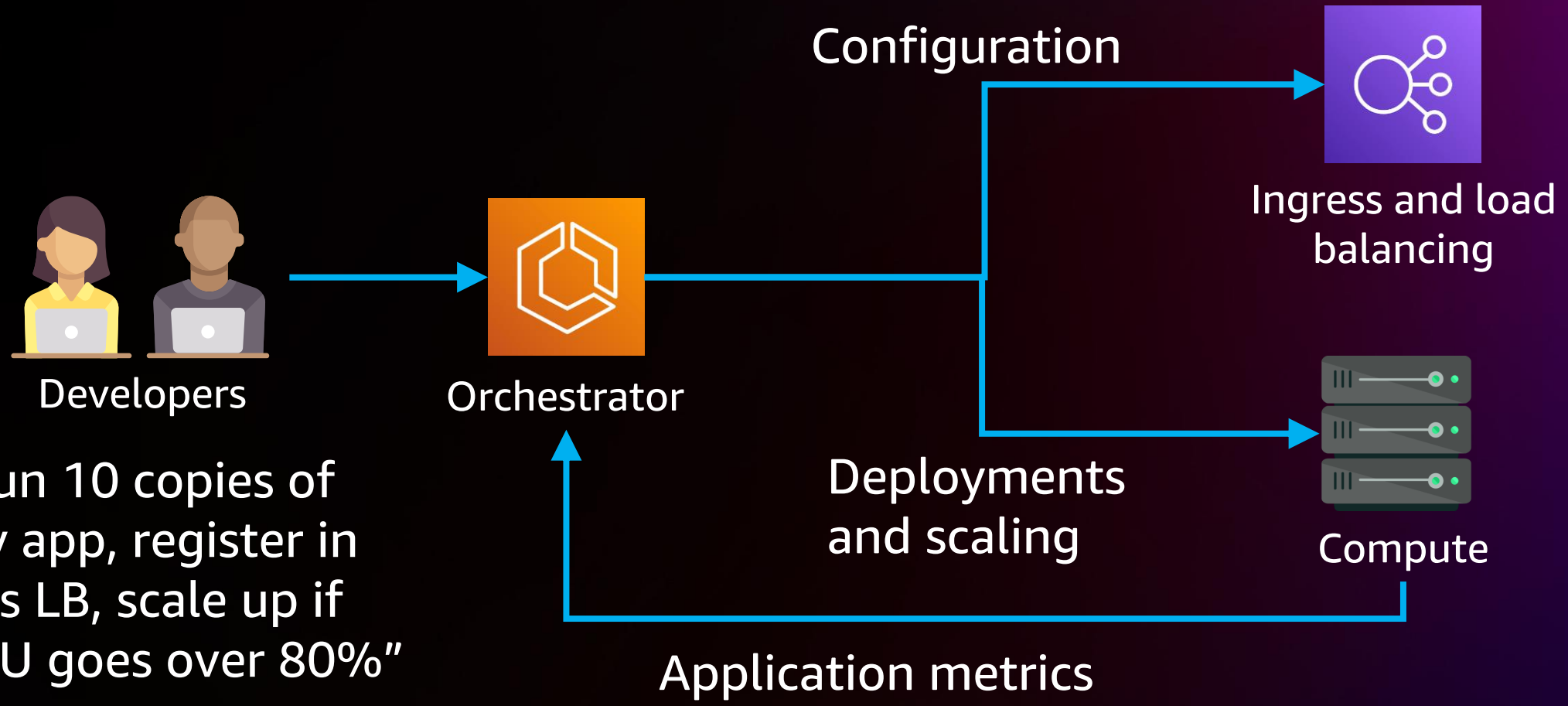
One application artifact for everywhere



AWS Compute

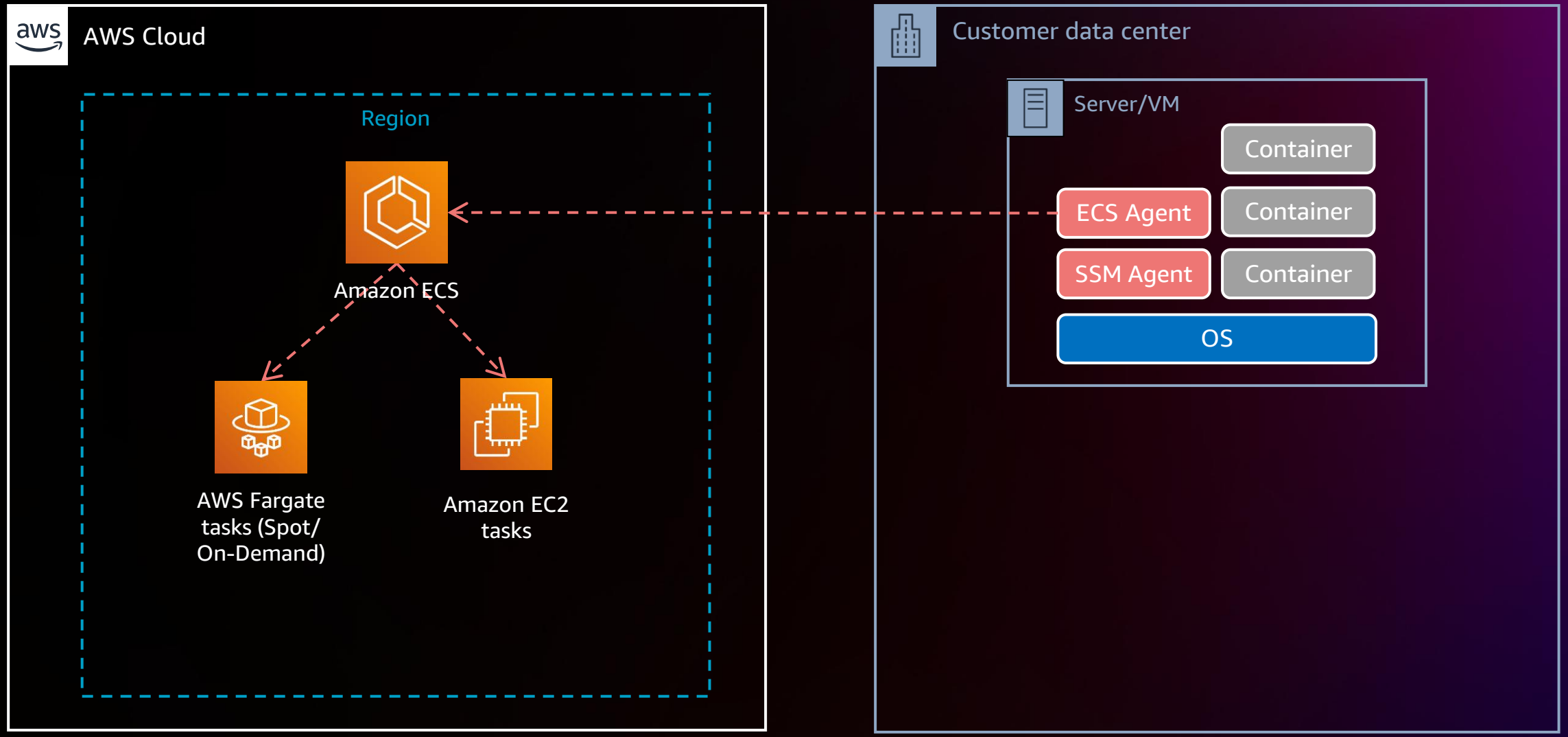
- Amazon Elastic Compute Cloud (Amazon EC2)
- AWS Fargate
- AWS Lambda

Container deployments need an orchestrator

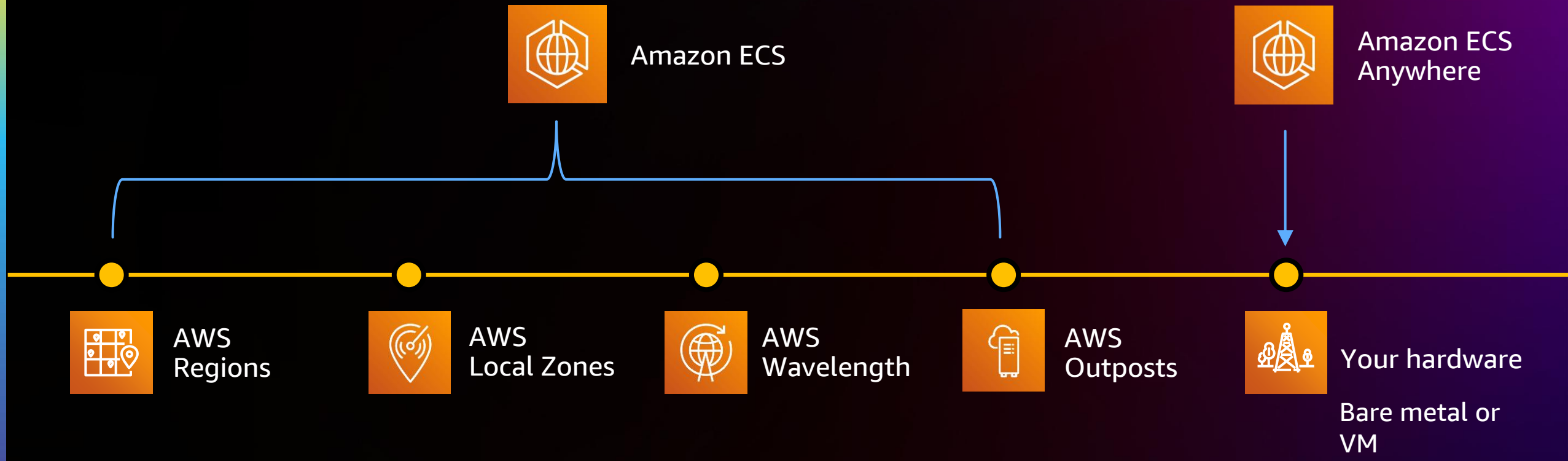


Amazon ECS Anywhere
How does it work?

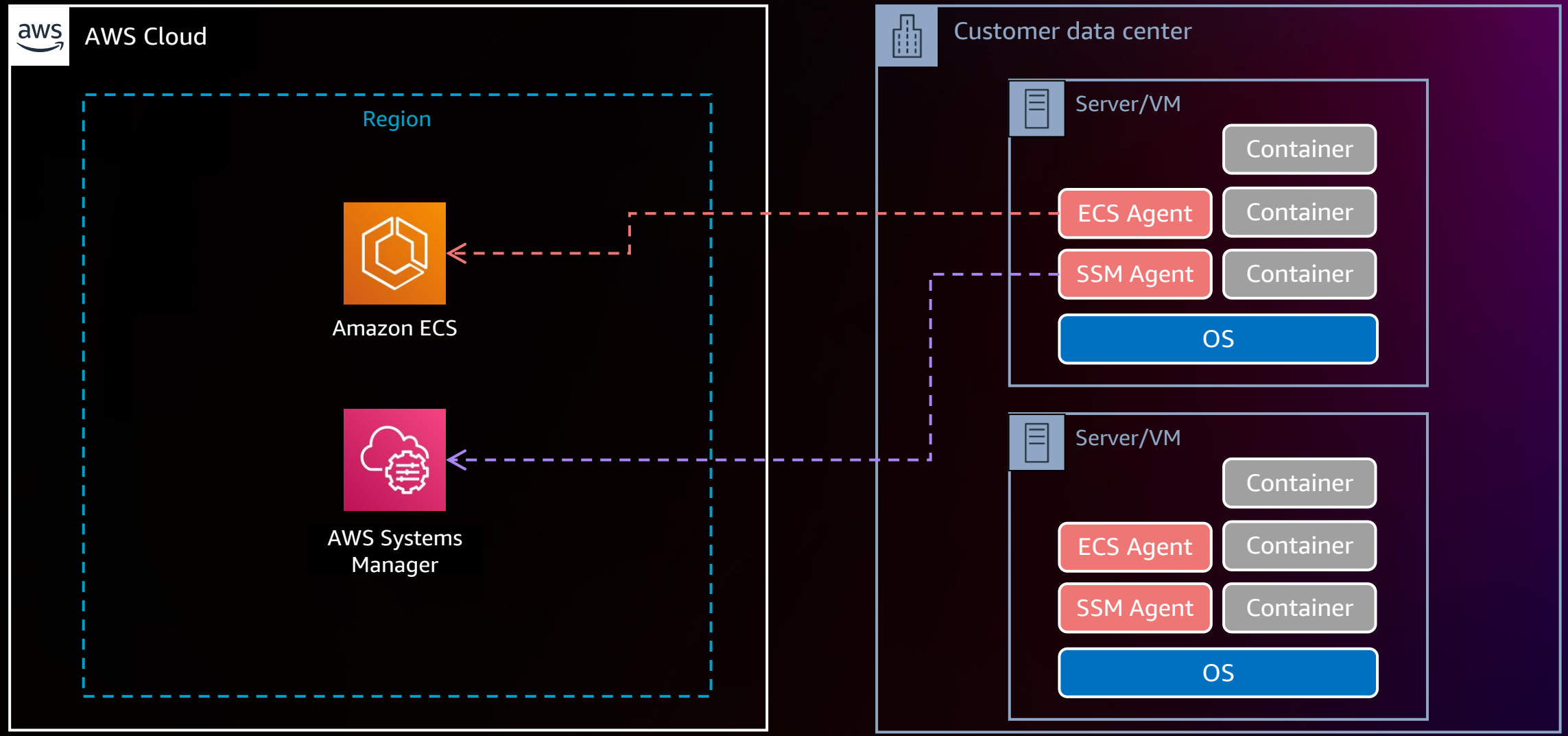
The same orchestrator, different compute



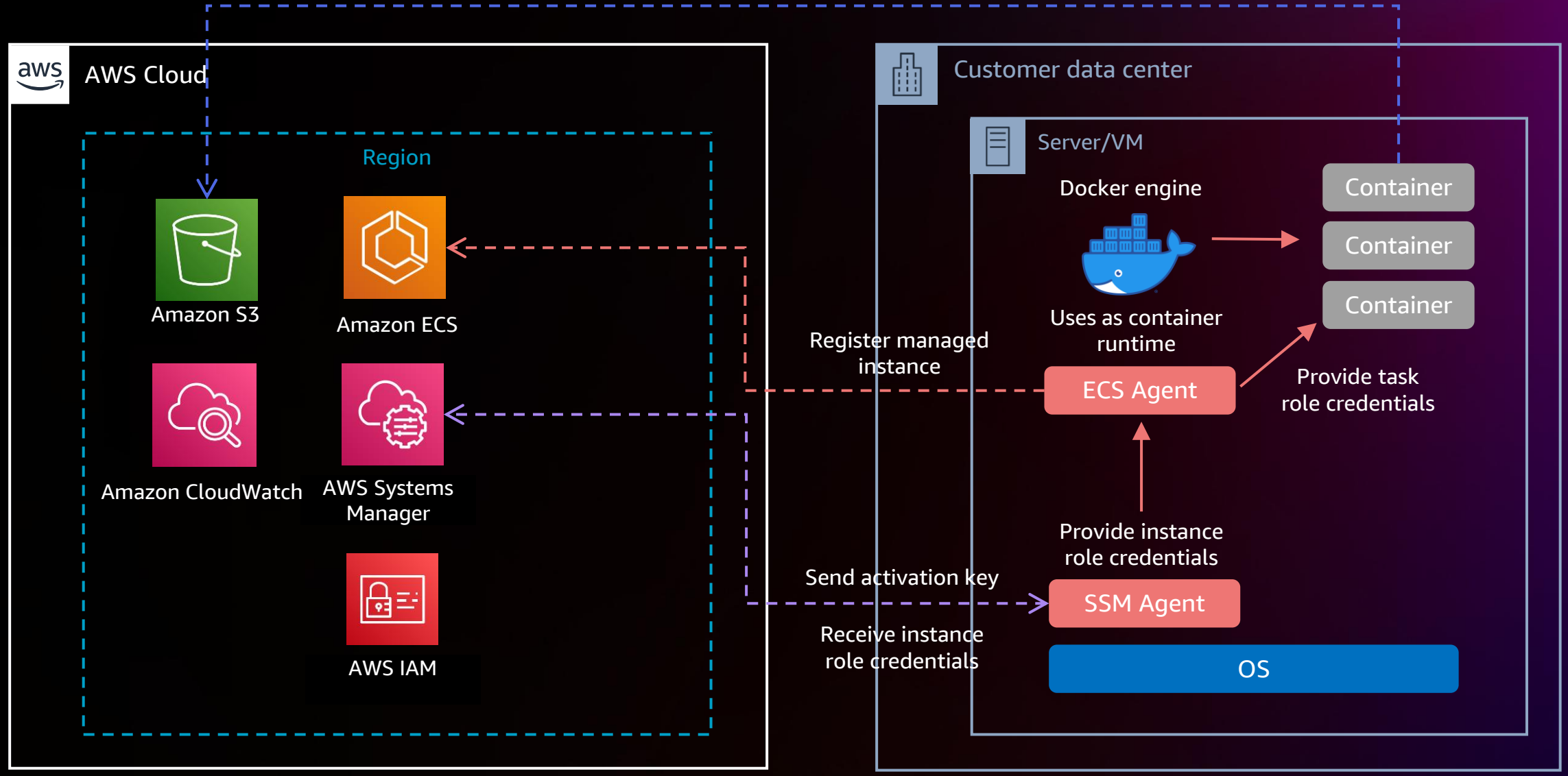
A spectrum of compute options for your code



How does it work?



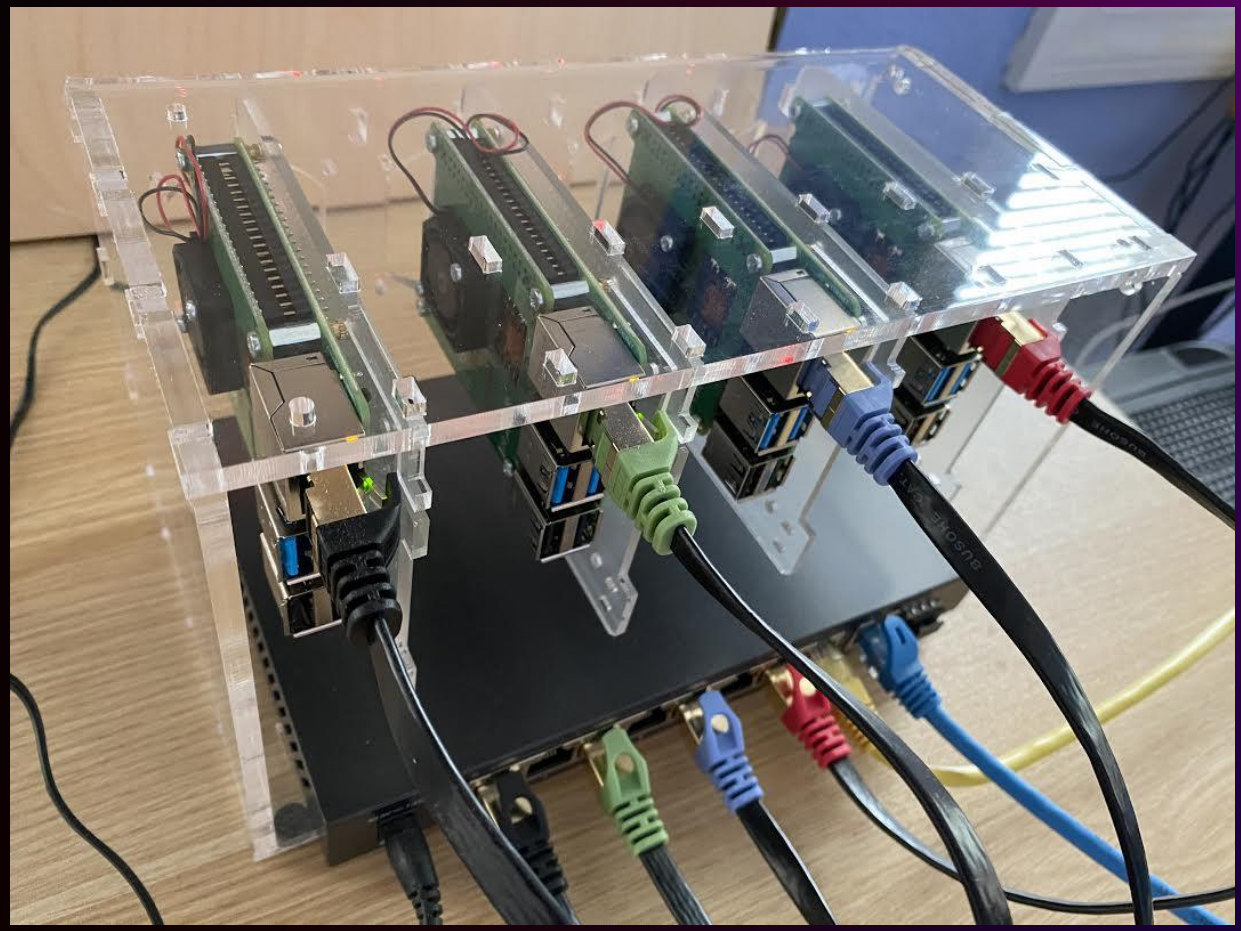
A closer look



ECS Anywhere agents are lightweight

ECS Anywhere is ideal for edge devices that are low power or running older hardware.

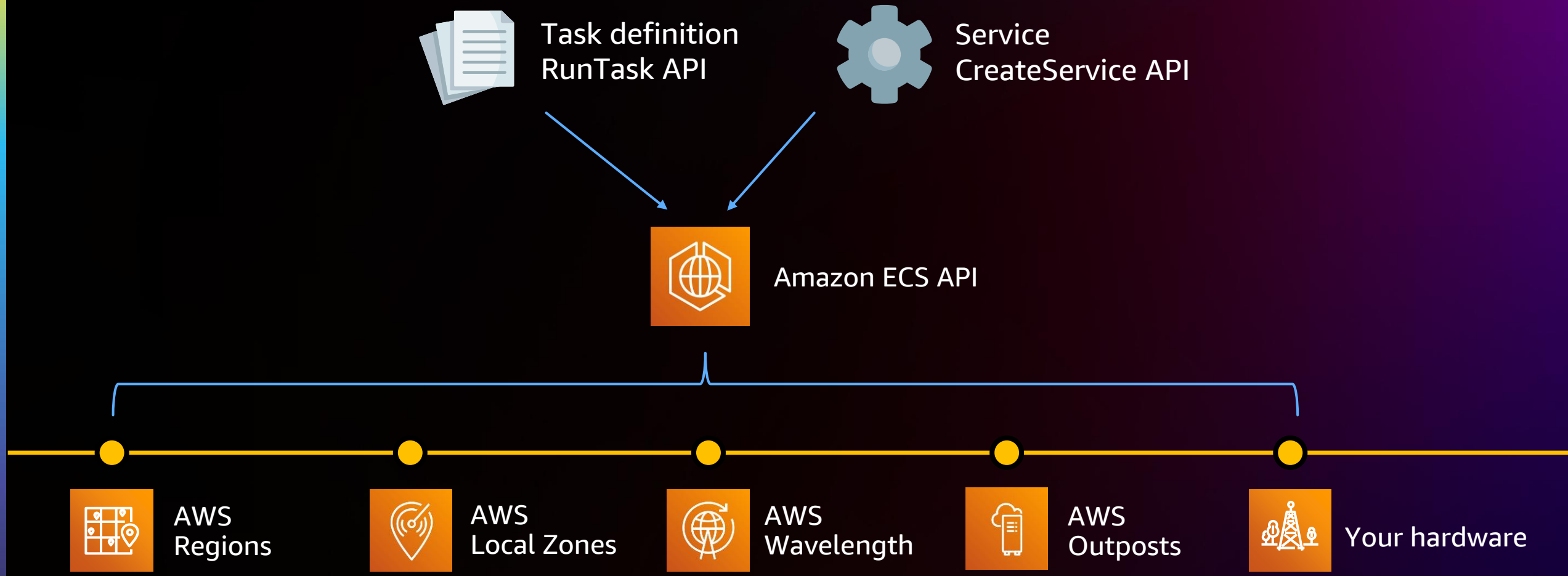
The ECS agent and SSM agent do not require much system resources. More of the underlying resources are available to your application code.



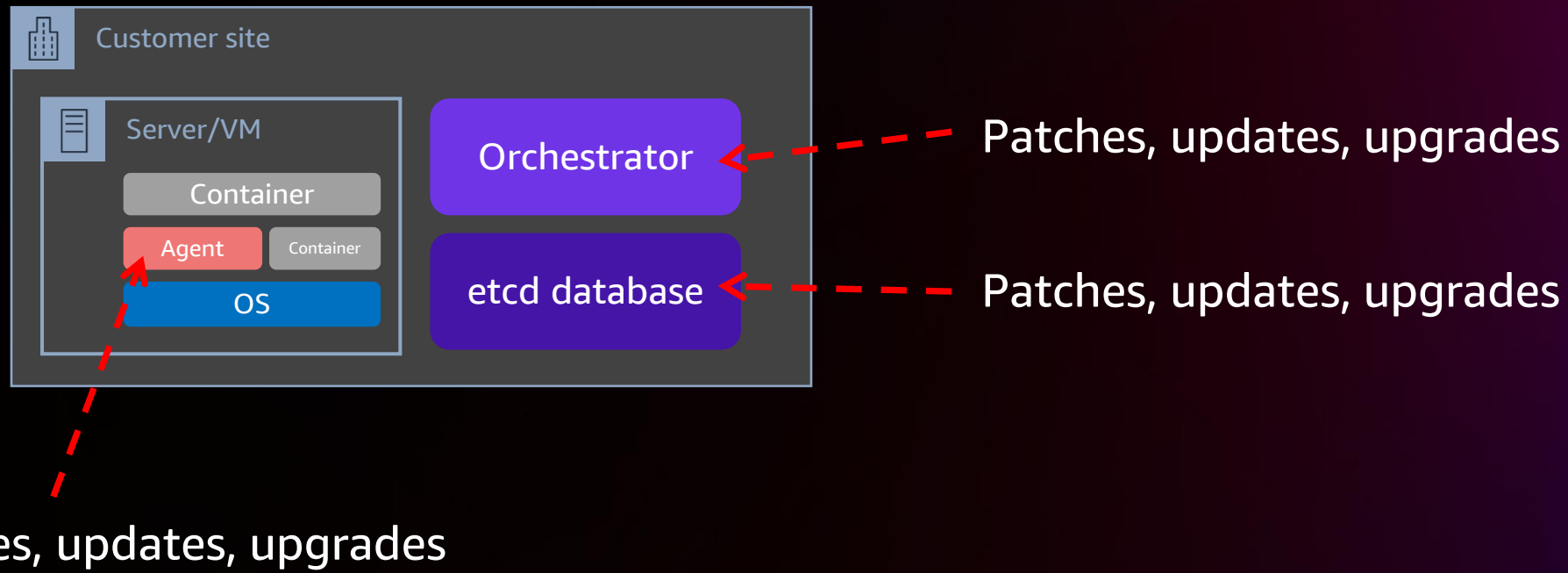
ARM architecture Raspberry PI devices as ECS capacity

Amazon ECS Anywhere
What are the key use cases?

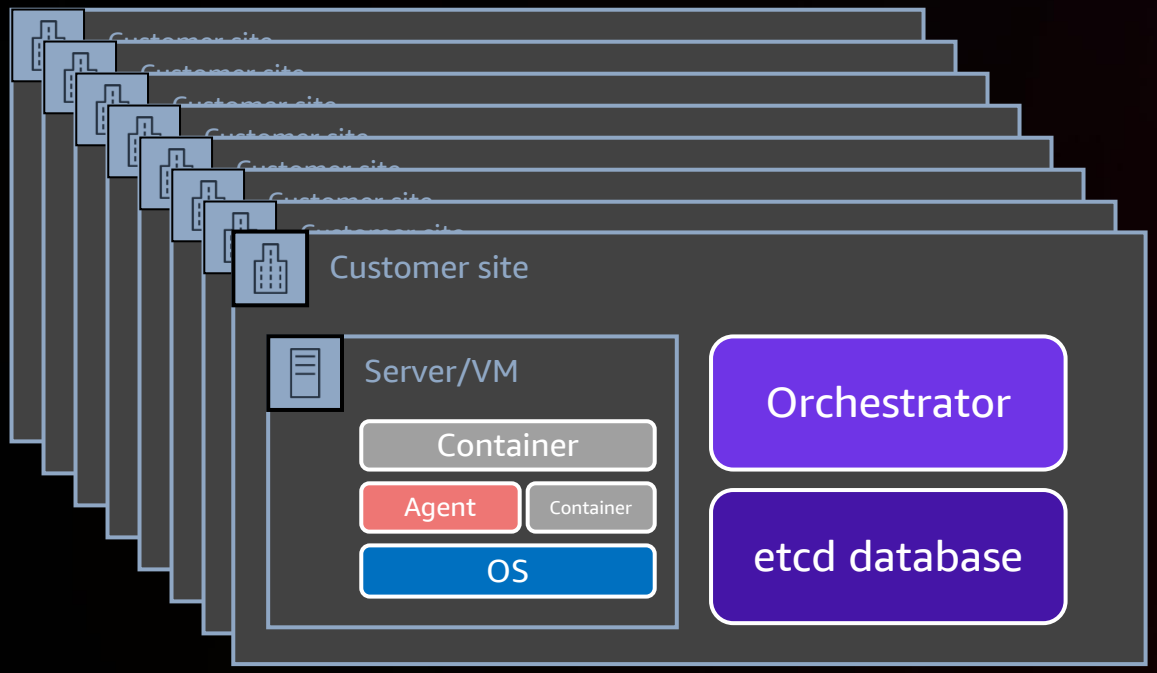
Consistent hybrid workloads



Edge orchestration challenges

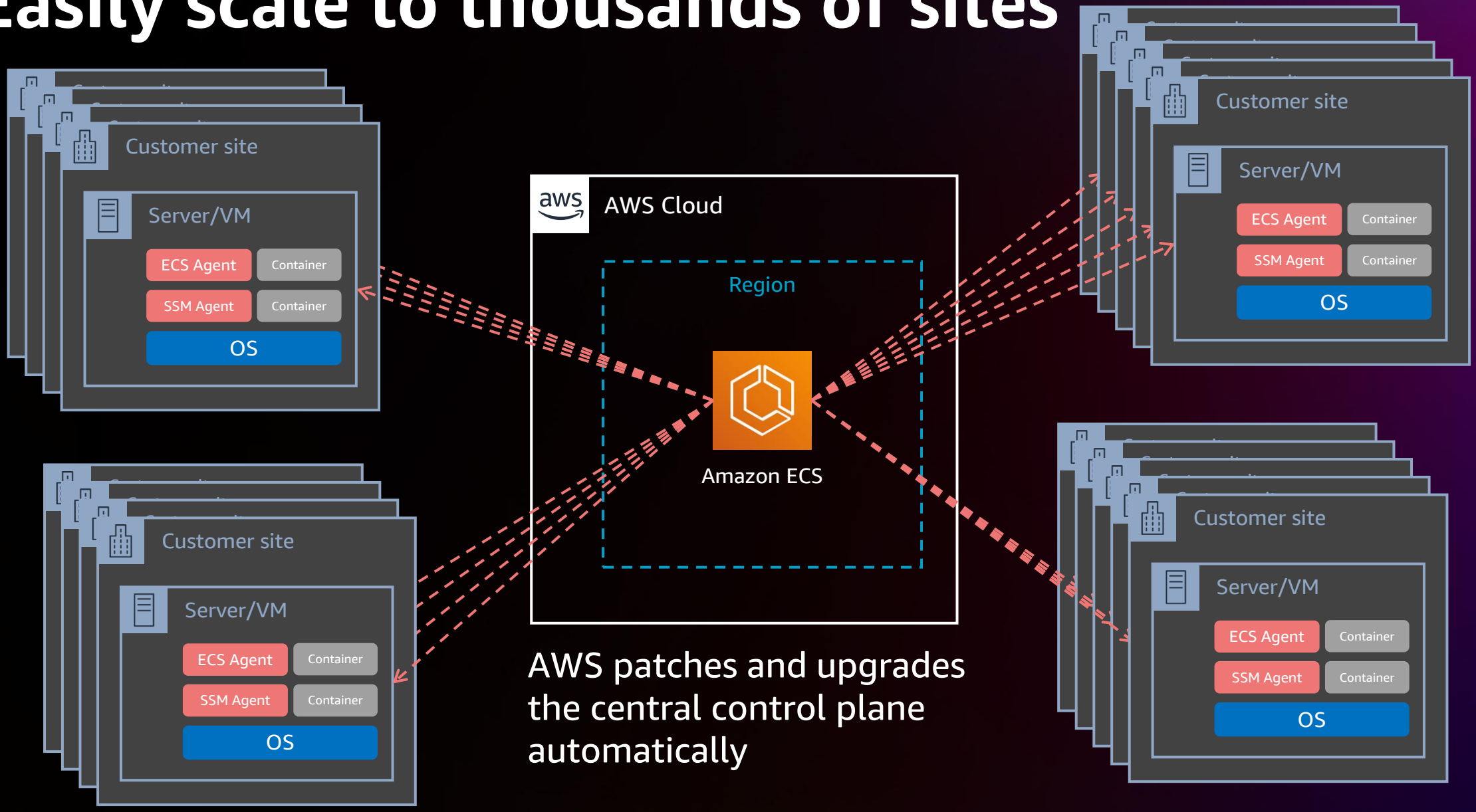


What about when you have a lot of locations?



As you add more locations, operational overhead and potential failure points multiply

Easily scale to thousands of sites



AWS patches and upgrades the central control plane automatically

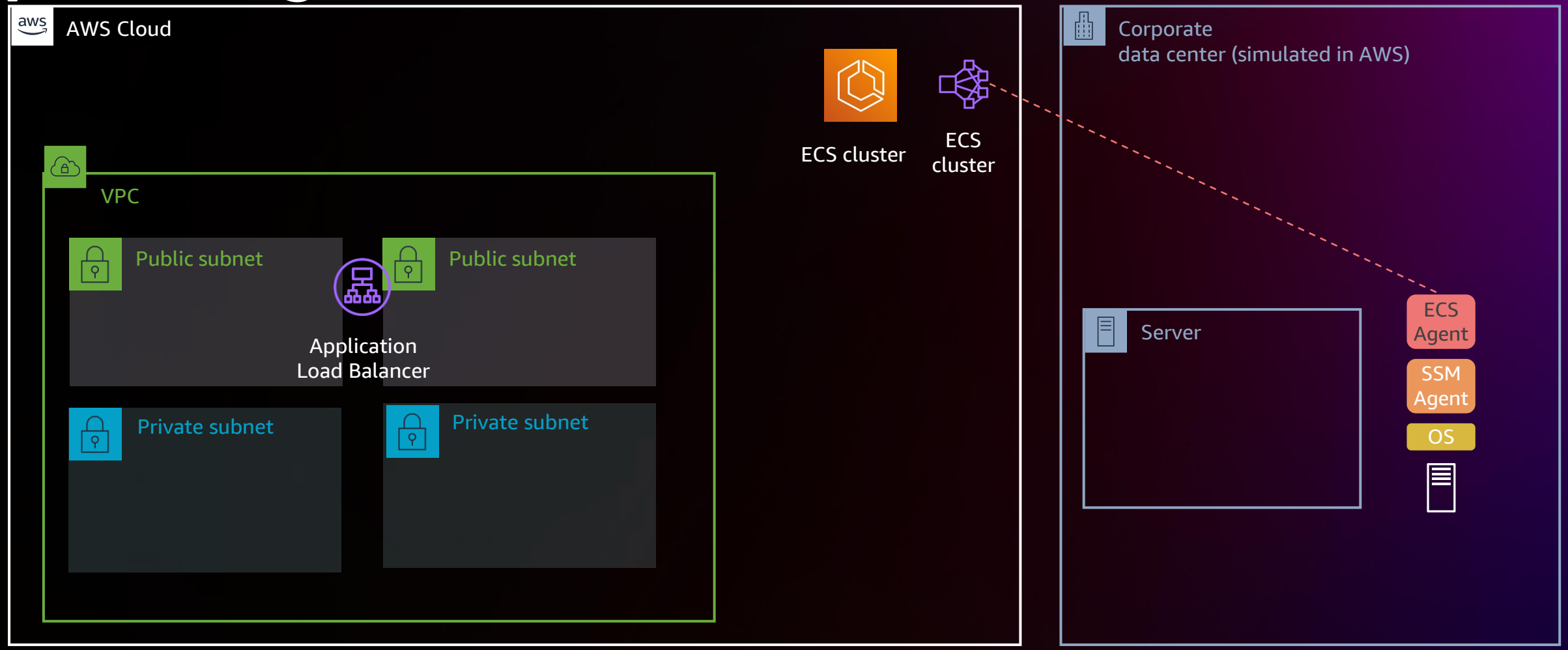
aws

Let’s build!

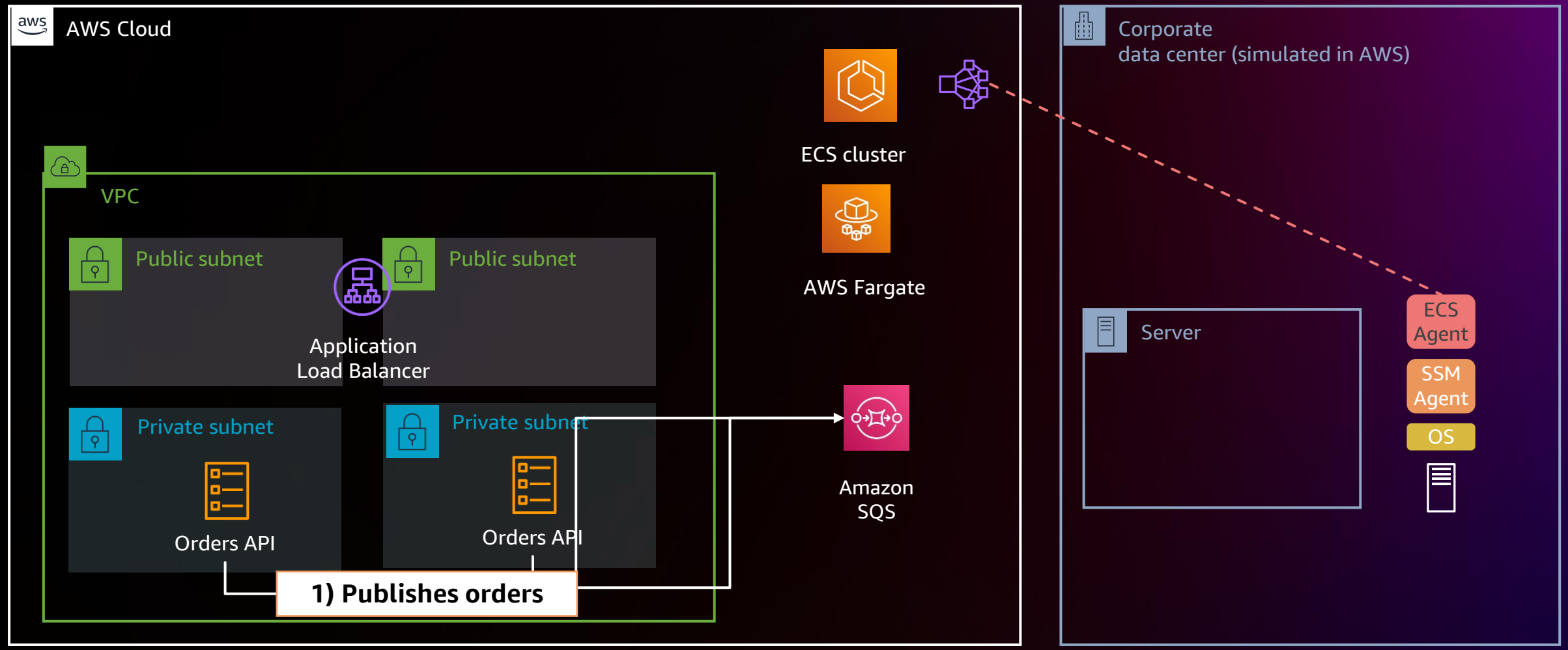
We’ll be using the AWS Copilot CLI tool for most of the workshop. Copilot can accelerate Amazon ECS application development by creating services from a set of core patterns.

```
Which workload type best represents your architecture?  [Use arrows to move, type
> Request-Driven Web Service  (App Runner)
  Load Balanced Web Service   (Internet to ECS on Fargate)
  Backend Service             (ECS on Fargate)
  Worker Service              (Events to SQS to ECS on Fargate)
  Scheduled Job               (Scheduled event to State Machine to Fargate)
```

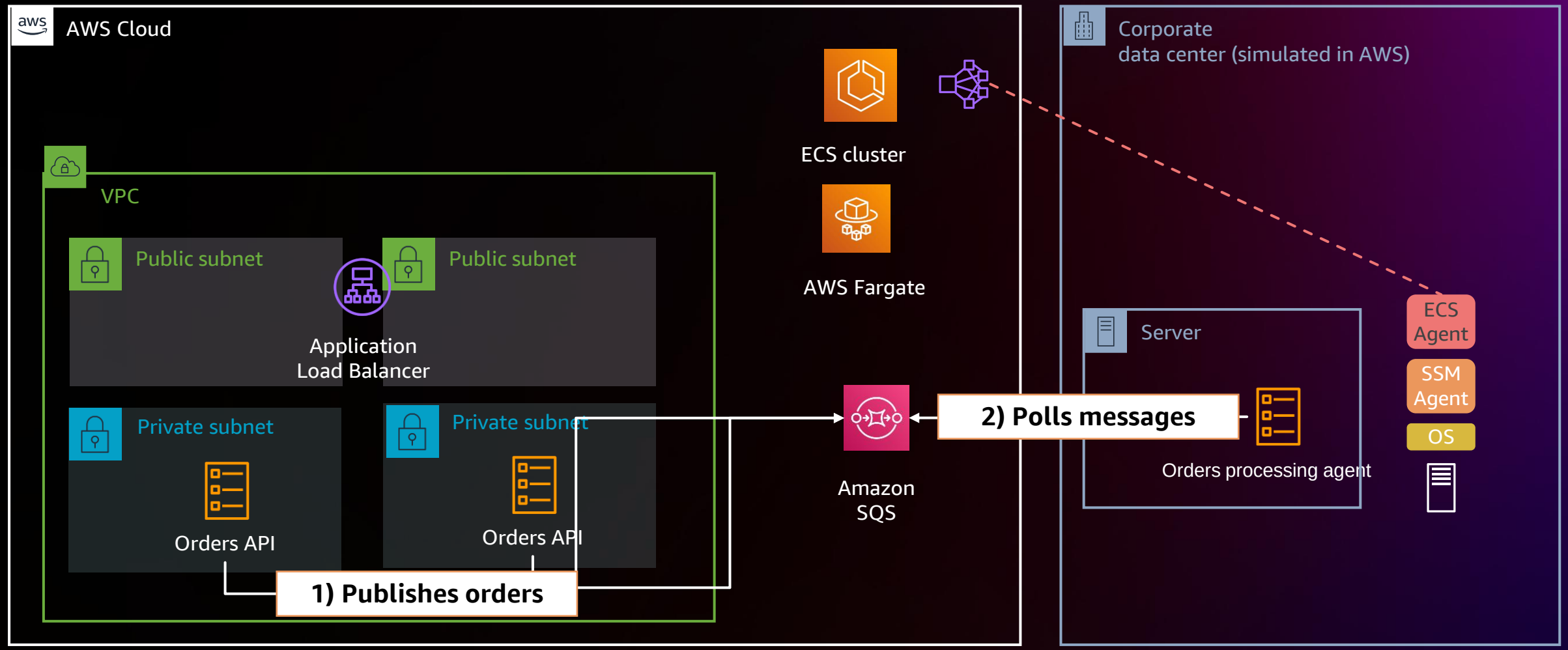
1. Base networking/services setup – The plumbing



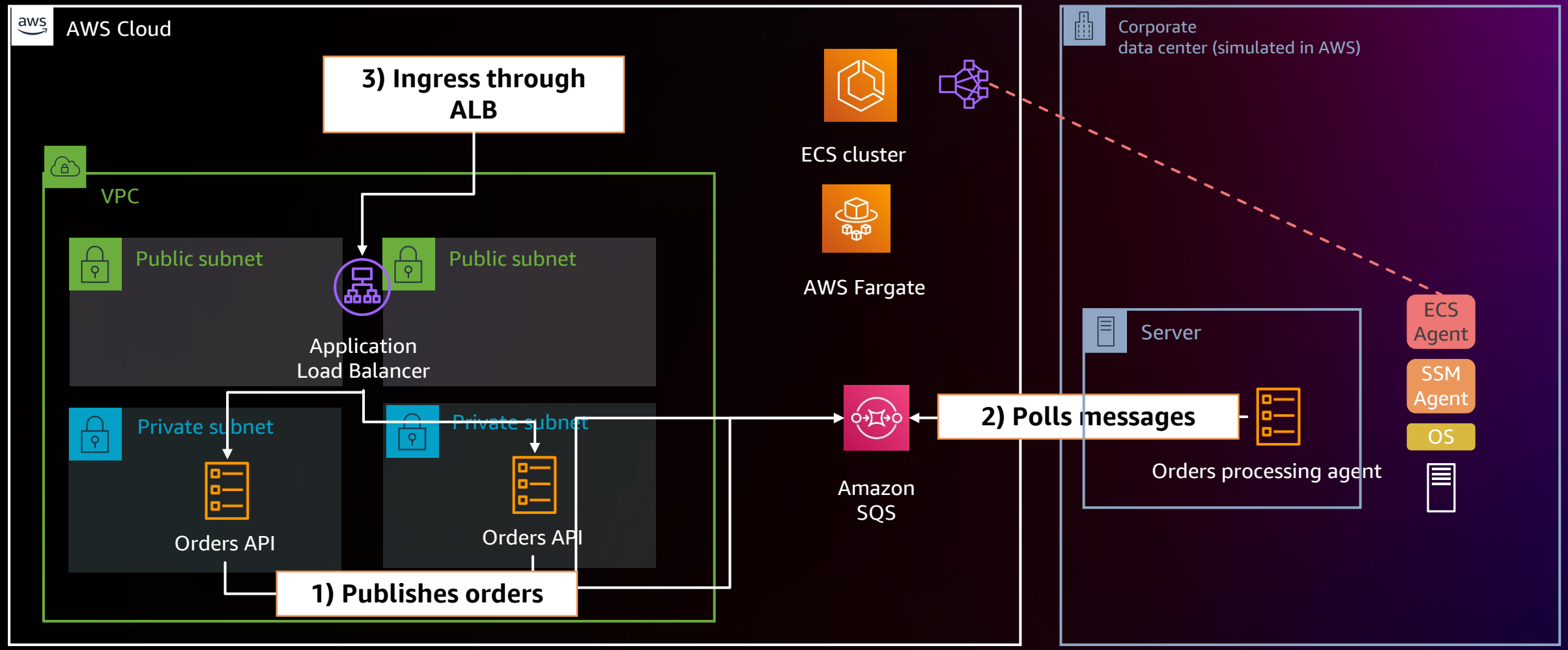
2. Deploy cloud components



3. Deploy on-premises components



3. Deploy on-premises components



Workshop Details

Event link: https://catalog.us-east-1.prod.workshops.aws/join

Access Code: ad8b-0f08e0-5c

Thank you!

Please complete the session survey in the **mobile app**