INNOVATE

MODERN APPLICATIONS EDITION

20 October, 2022

Deploying containerized applications in a hybrid cloud environment

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Agenda

- The hybrid environment
- AWS hybrid deployments landscape
- AWS containers and Amazon ECS Anywhere
- Amazon ECS Anywhere customer examples
- Amazon ECS Anywhere demo

Hybrid cloud environment pain points

AWS modern application services


Docker Compose


AWS App Runner


AWS Copilot


AWS IoT Greengrass


AWS Beanstalk


AWS Amplify


Amazon Lightsail


AWS Batch

Provisioning


Amazon ECS


Amazon EKS


ROSA

Orchestration

Customer managed


Amazon EC2

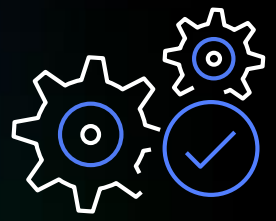

AWS Fargate


Server


Edge

Capacity

Customer needs for hybrid cloud architecture

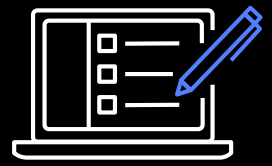


Consistent operations

Customers do not want to have separate operational models for cloud and on premises when they are not yet all-in

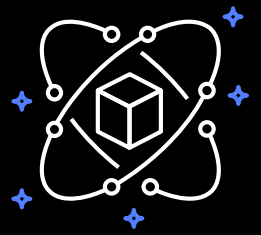
Capex investment protection

Customers may have made capital investments in their data center that they need to amortize before moving to the cloud



Compliance requirements

Customers in specific, regulated markets or industries may be forced to own a larger part of the infrastructure operations and can't yet use managed services



Data gravity and proximity

Customers may need to have applications deployed close to the data for higher bandwidth and lower latency

Why companies adopt containers

VELOCITY

Improve developer velocity with consistent environment

REDUCED RISK

Automation increases ability to test and iterate

QUALITY

Uniform security across environment, updated by default

OPERATIONAL EFFICIENCY

Focus on business logic instead of infrastructure

Why on-premises container management?

- Benefits of containers are universal:
  - Reproducible builds
  - Predictable behavior
  - Faster iteration and deployment cycles
  - Uniform deployment and lifecycle
- Edge computing is growing rapidly
- On-premises computing is not going away

AWS hybrid deployments landscape

ELASTIC CONTAINER SERVICES

Fully-managed container orchestration service to deploy, manage, and scale containerized applications

AWS Outposts family

Amazon ECS Anywhere

ELASTIC KUBERNETES SERVICES

Managed container service to run and scale Kubernetes applications

AWS Outposts family

Amazon EKS Anywhere

INTERNET OF THINGS

Open-source edge runtime and cloud service that helps you build, deploy, and manage device software

AWS IoT Greengrass

RUGGED EDGE

Move petabytes of data to and from AWS, or process data at the edge

AWS Snowball Edge

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AWS container services overview

AWS container services landscape

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)

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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Amazon ECS Anywhere

Amazon ECS Anywhere is a market-defining service

Hybrid

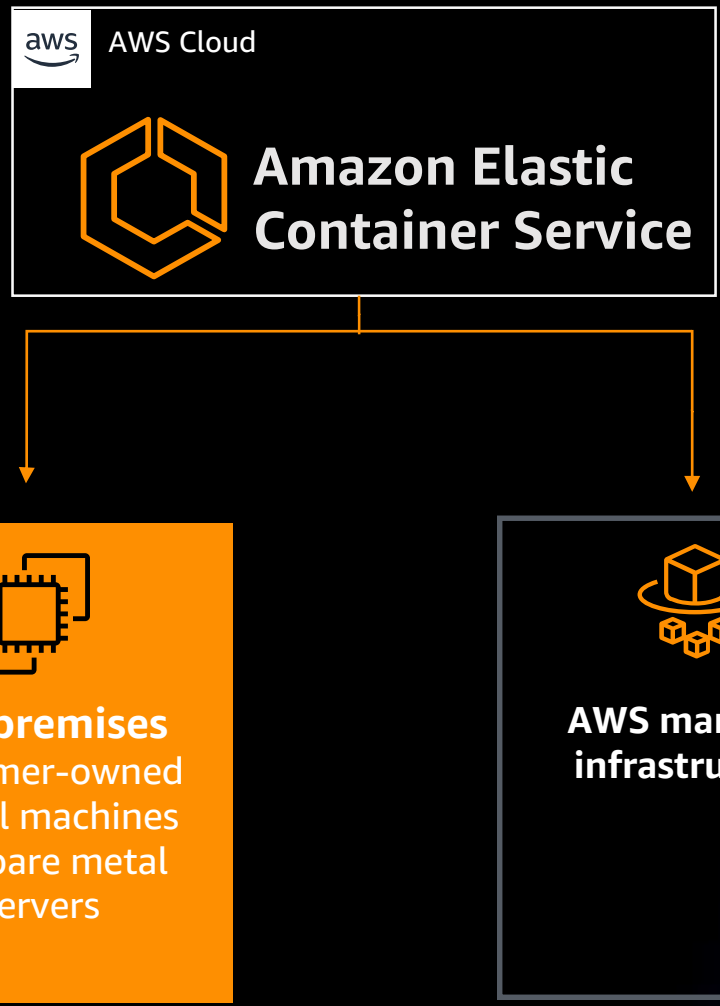
Bare metal, consistent tooling for deployment and troubleshooting as w/ AWS managed regions

GPU at edge

Launched in Oct 2021

Verticals

Works even on Raspberry Pi



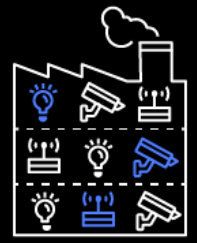
Key use cases of Amazon ECS Anywhere

Hybrid

Consistently run workloads on cloud and on premises

Modernization

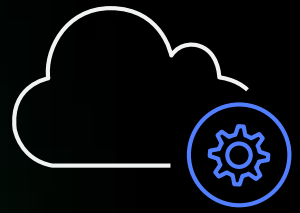
Containerize existing on-premises apps



IoT

Data processing on edge locations

Key benefits of Amazon ECS Anywhere

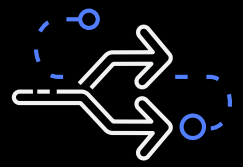


Fully-managed cloud control plane

No need to run, update, or maintain container orchestrators on-premises

Consistent tooling and governance

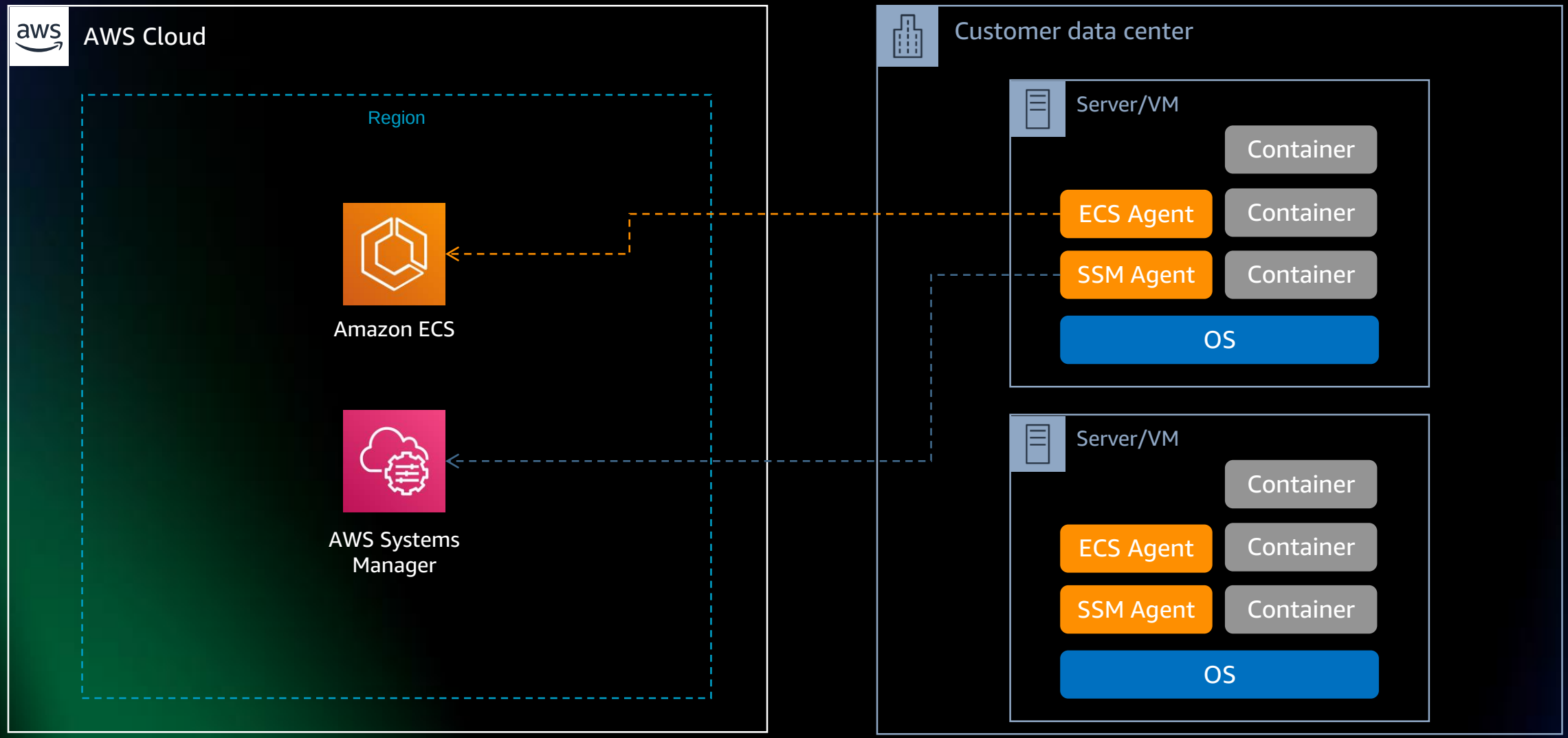
Use the same tools and APIs for all container-based applications regardless of operating environment



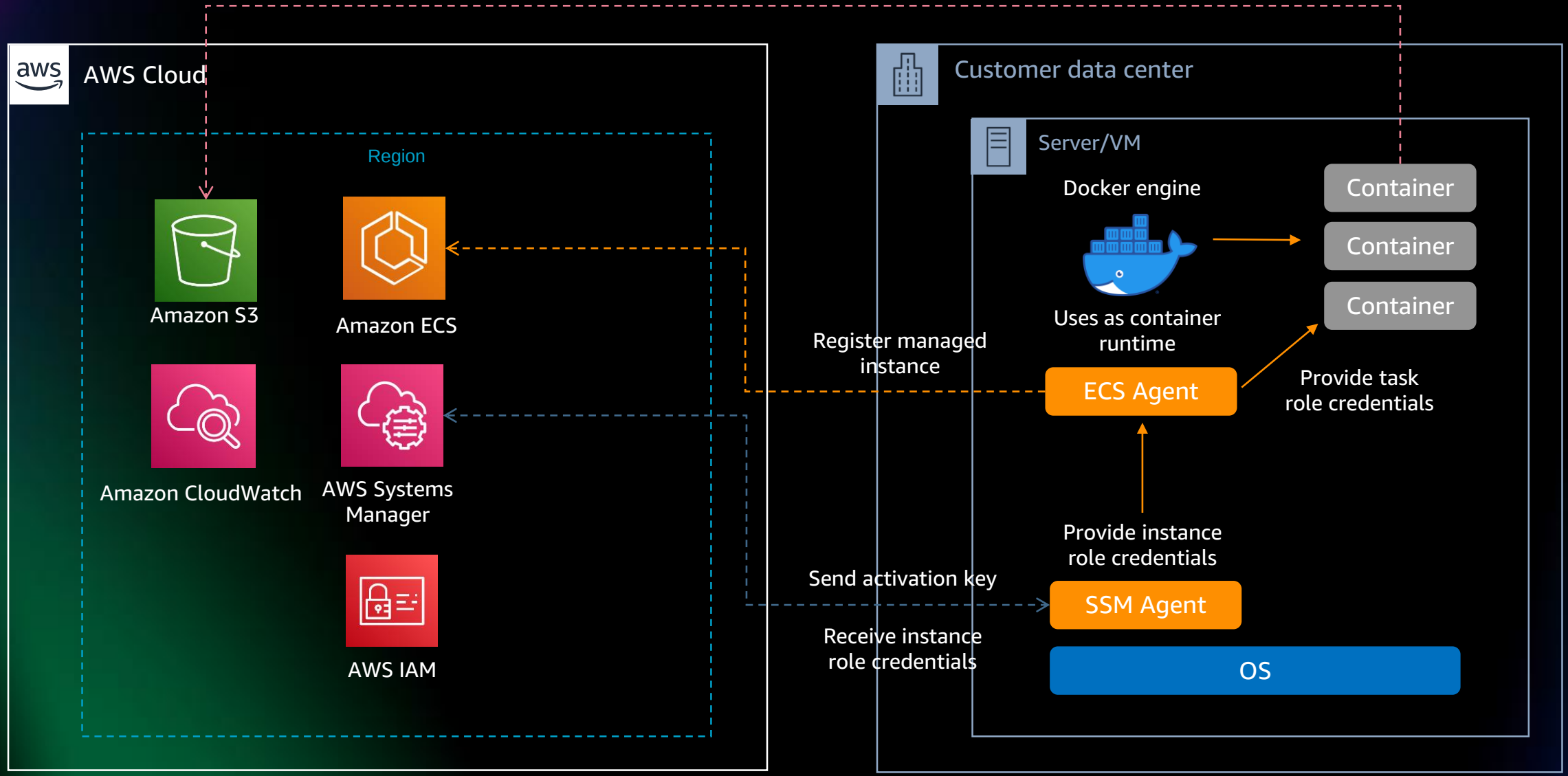
Manage your hybrid footprint

Run applications in on-premises environments and easily expand to cloud when you're ready

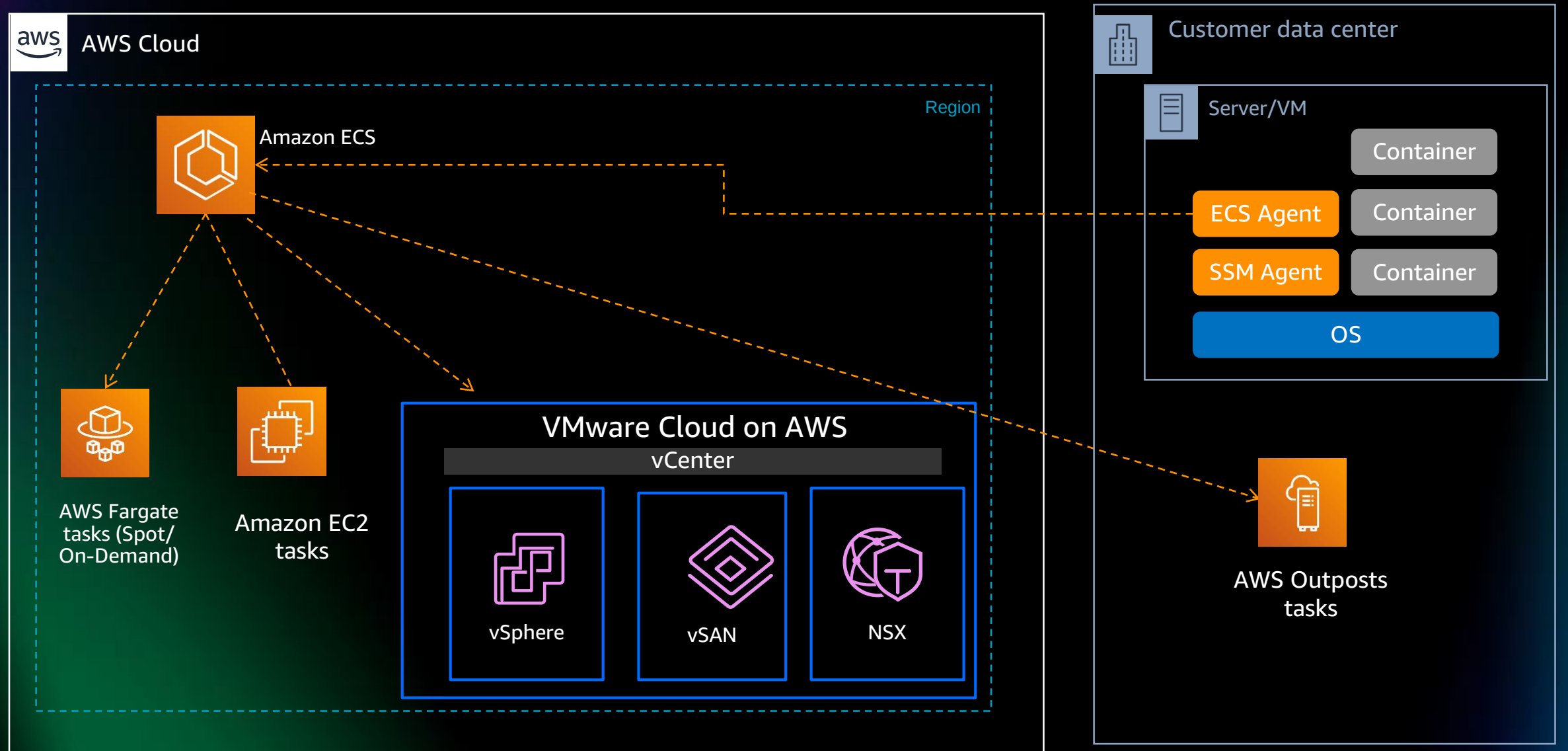
How does it work?



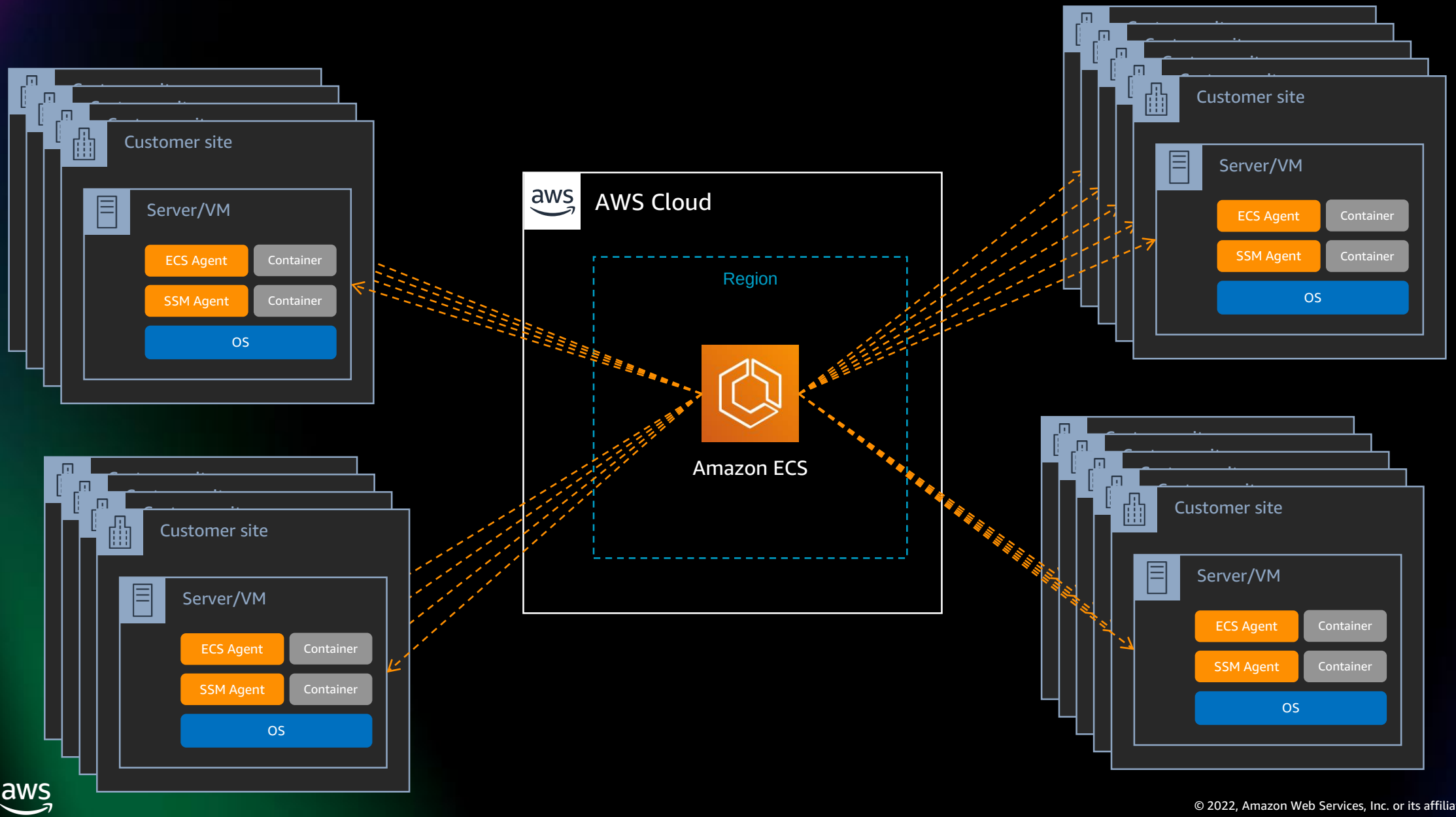
A closer look



Use any combination of compute you need



Scale to thousands of sites



Amazon ECS Anywhere customers

Simplifying on-premises deployment for video streaming applications

Challenge

3dEYE, a Toronto-based high-tech company, had manual and hard-to-scale deployment, maintenance and monitoring of their 3dEYE Pure Cloud Video Surveillance Platform. That platform allowed any camera to be connected without additional hardware/software. Their desire was to automate and streamline those tasks, while managing their customers' private cloud on-premises data centers.

Solution and results

With cloud native integration to ECS and a centralized cloud control plane, 3dEYE can fully manage their video streaming application on third-party data centers 10 times more efficiently.

"Using Amazon ECS Anywhere solves all these issues by seamlessly integrating on-premises servers into existing AWS infrastructure."

—Slava Hrytsevich, CEO, 3dEYE Inc.

https://aws.amazon.com/solutions/case-studies/3deye-case-study/

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Tempus Ex processes live video for NFL at 40x speed in hybrid solution

Challenge

To handle high-resolution video transcoding, Tempus Ex purchased specialized hardware, but needed a simple way to redeploy its solution on premises while keeping most of its infrastructure on AWS.

Solution and results

Using Amazon ECS Anywhere, Tempus Ex uses the same processes to deploy on premises as it did in the cloud, facilitating processing speeds that are 40 times faster while keeping the workflow simple.

“Using Amazon ECS Anywhere saves us time and improves our workflow because we can use the same hardware in the cloud or on our local machines”

—Chris Brown, staff software engineer and information security officer

https://aws.amazon.com/solutions/case-studies/tempus-ex-case-study/

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Siemens: Amazon ECS Anywhere for edge data processing

"At its heart, Siemens is a manufacturing technology company. We run analytics on machine data from hundreds of our factory floors to provide insights to our customers. With Amazon ECS Anywhere, we found a powerfully simple service with a single management plane to consistently manage container applications running at edge locations across multiple factory floors. Our team expects to use Amazon ECS Anywhere by our customers to manage the factory floors in the next **1-2 years**, which will allow our end customer to get real-time insights into their factory floors."

Shaul Samara,
Director of R&D, Valor Division at Siemens

https://press.aboutamazon.com/news-releases/news-release-details/aws-announces-general-availability-amazon-ecs-anywhere

CyberAgent: ECS Anywhere to manage hybrid footprint

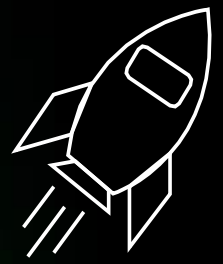
"We are excited about Amazon ECS Anywhere because it has the ability to bring the powerful simplicity of Amazon ECS to our on-premises applications. Amazon ECS Anywhere enables us to use a fully-managed control plane in the cloud that will orchestrate our containers and help us run tasks on our own infrastructure. By using the same control plane for both on-premises and cloud-native applications, we can better manage our hybrid footprint."

Makoto Hasegawa,
Technical Lead Engineer of CIU at CyberAgent

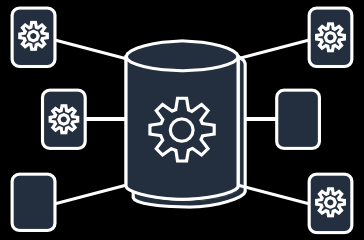
https://press.aboutamazon.com/news-releases/news-release-details/aws-announces-general-availability-amazon-ecs-anywhere

Demo: Amazon ECS Anywhere

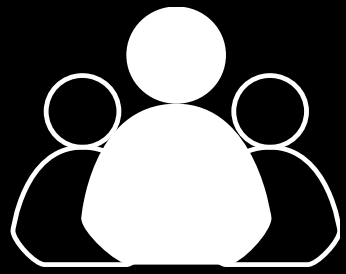
Recap



Accelerate migration



Leverage hybrid architecture



Modernize applications and deliver business innovations

Resources

- AWS Architecture Blog - Augmenting VMware Cloud on AWS Workloads with Native AWS services
  https://aws.amazon.com/blogs/architecture/augmenting-vmware-cloud-on-aws-workloads-with-native-aws-services/

- Amazon ECS Blog featuring extended ECS Anywhere demo
  https://aws.amazon.com/blogs/containers/introducing-amazon-ecs-anywhere/

- Amazon ECS Anwhere tutorial and workshop
  https://github.com/aws-containers/ecs-anywhere-tutorial
  https://github.com/aws-samples/aws-ecs-anywhere-workshop-samples

- VMware Cloud on AWS | Resources
  https://aws.amazon.com/vmware/resources/

Visit the Modern Applications resource hub

Dive deeper with these resources to help you develop an effective plan for your modernization journey.

- Build modern applications on AWS
- Business value of cloud modernization
- An introduction to event-driven architectures
- Accelerate full-stack web and mobile app development
- Determining the total cost of ownership: Comparing serverless and server-based technologies
- Building event-driven architectures with AWS
- Continuous learning, continuous modernization

https://tinyurl.com/modern-apps-aws

Visit resource hub

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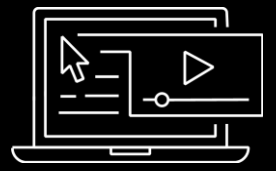
Achieve key milestones and plan your next steps with the AWS Modern Application skills training



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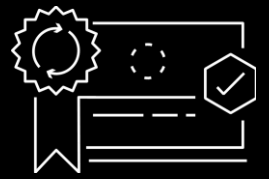
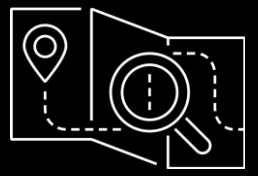


Earn an industry-recognized credential:
AWS Certified Developer – Associate
AWS Certified DevOps – Professional



Create a self-paced learning roadmap
AWS ramp-up guide - Developer
AWS ramp-up guide - DevOps

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Thank you!