

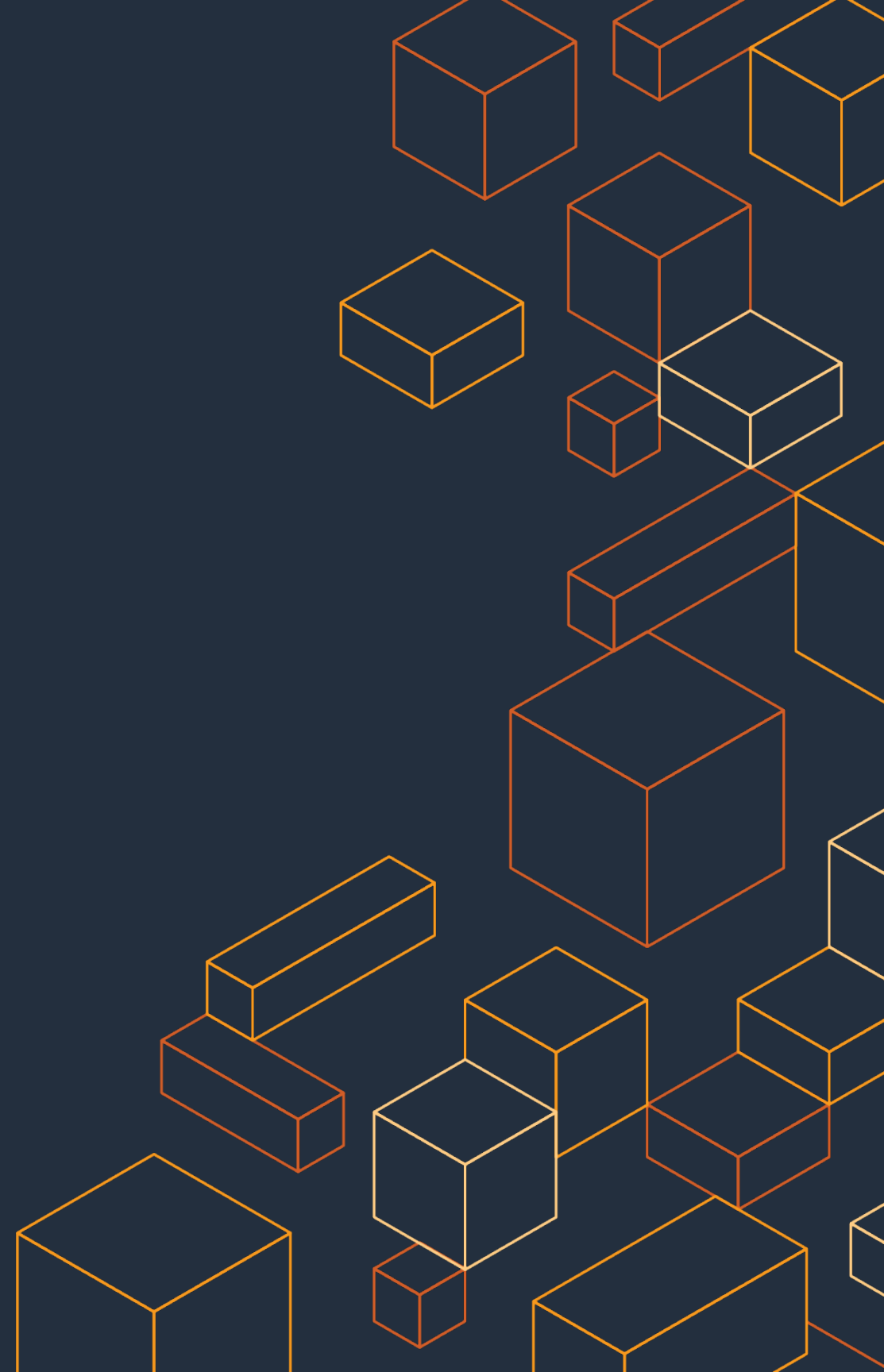


# Introduction to ROSA

Red Hat OpenShift Service on AWS

Ovidiu Valeanu

**Sr. Partner Solutions Architect**



# AWS has the richest container services portfolio

## Application Platform

Accelerate and standardize application Management

### Build your Own Application Platform



AWS Proton



EKS Blueprints



AWS X-Ray



AWS App Runner



Cloud Watch



Amazon Managed Prometheus

## Containers Orchestration

Deployment, scheduling, and scaling, containerized applications



Amazon Elastic Container Service (Amazon ECS)



Amazon Elastic Kubernetes Service (Amazon EKS)



Red Hat OpenShift Service on AWS

## Containers Infrastructure

Registry, Networking, CI/CD



Amazon Elastic Container Registry (Amazon ECR)



AWS App Mesh

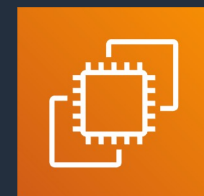


AWS Cloud Map

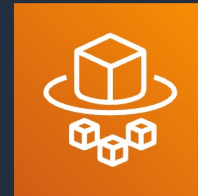


AWS CodePipeline

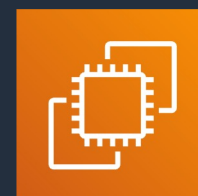
## Compute



Elastic Compute Cloud (Amazon EC2)



Fargate



Elastic Compute Cloud (Amazon EC2)



# Container Orchestration Services: EKS, ECS, and ROSA



## ECS

### Powerful simplicity

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AWS-opinionated way to run containers at scale

Reduce decisions without sacrificing scale or features

Reduce time to build, deploy, and migrate applications



## EKS

### Open flexibility

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AWS-optimized managed upstream Kubernetes with four supported versions

Build your custom platform for compliance and security, with AWS services and community solutions

Accelerate your containerization and modernization with canonical patterns using AWS Blueprints



## ROSA

### Turn-key Platform

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Integrated Kubernetes based application platform with built-in CI/CD, monitoring, and developer tools.

Activate ROSA and continue with existing OpenShift skills and processes from on-prem environments to the cloud

Accelerate application migration and modernization by re-hosting, re-platforming, or re-factoring workloads

# What is Red Hat OpenShift? – Opinionated Kubernetes based Platform

## Manage Workloads

## Build Cloud-native apps

## Developer Productivity

OpenShift  
Container  
Platform

### Platform Services

Service Mesh | Serverless  
Builds | CI/CD Pipelines  
Full Stack logging  
Chargeback

### Application Services

Databases | Languages  
Runtimes | Integration  
Business automation  
100+ ISV services

### Developer Services

Developer CLI | VS Code  
Extensions | IDE Plugins  
CodeReady Workspaces  
CodeReady Containers

OpenShift  
Kubernetes  
engine

### Cluster Services

Automated Ops | Over-the-air updates | Monitoring | Registry | Networking | Router | Virtualization | OLM | Helm

### Kubernetes

Red Hat Enterprise Linux & Red Hat Enterprise Linux CoreOS



Physical



Virtual



Private Cloud






Managed Cloud



Edge

# OpenShift & AWS offer the broadest set of hybrid cloud services

 <b>Red Hat</b> OpenShift		
Self-managed		Managed
	On-premises	
<b>OpenShift Container Platform (OCP)</b> <i>Customer managed</i>	<b>OpenShift Container Platform (OCP)</b> <i>Customer managed</i>	<b>Red Hat OpenShift Service on AWS (ROSA)</b> <i>Jointly managed and supported by Red Hat &amp; AWS</i>

# Benefits of ROSA – Turn-Key Application Platform



## Developers

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*Fully managed clusters in minutes to build, deploy, and run applications using built-in developer UI that abstract the complexity of Kubernetes.*

*Collaborate across teams via shared projects.*



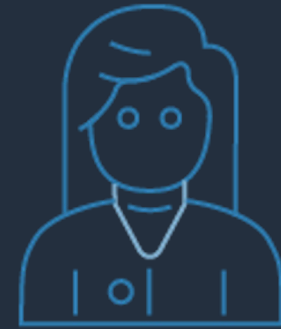
## Administrators

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*Standardized and streamlined operations across on-prem and cloud environments.*

*Built-in monitoring, logging, and networking*

*Choose platform version upgrades\* as required for the business.*



## Business Leaders

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*Consolidated billing and cost management across the business.*

*Consumption based pricing for surge and R&D usage.*

*24x7 full-stack management and support*

*Financially backed 99.95% SLA*

# ROSA – Joint Offering from AWS & Red Hat

Who's responsible for what?

## On-premises

OpenShift Container Platform  
(OCP)

Customer

Customer

Customer

 **Red Hat**

 **Red Hat**

## Cloud

OpenShift Container Platform  
(OCP) on AWS

Customer

Customer

Customer

 **Red Hat**

 **Red Hat**

Red Hat OpenShift Service on AWS  
(ROSA)\*

 **Red Hat**

 **Red Hat**

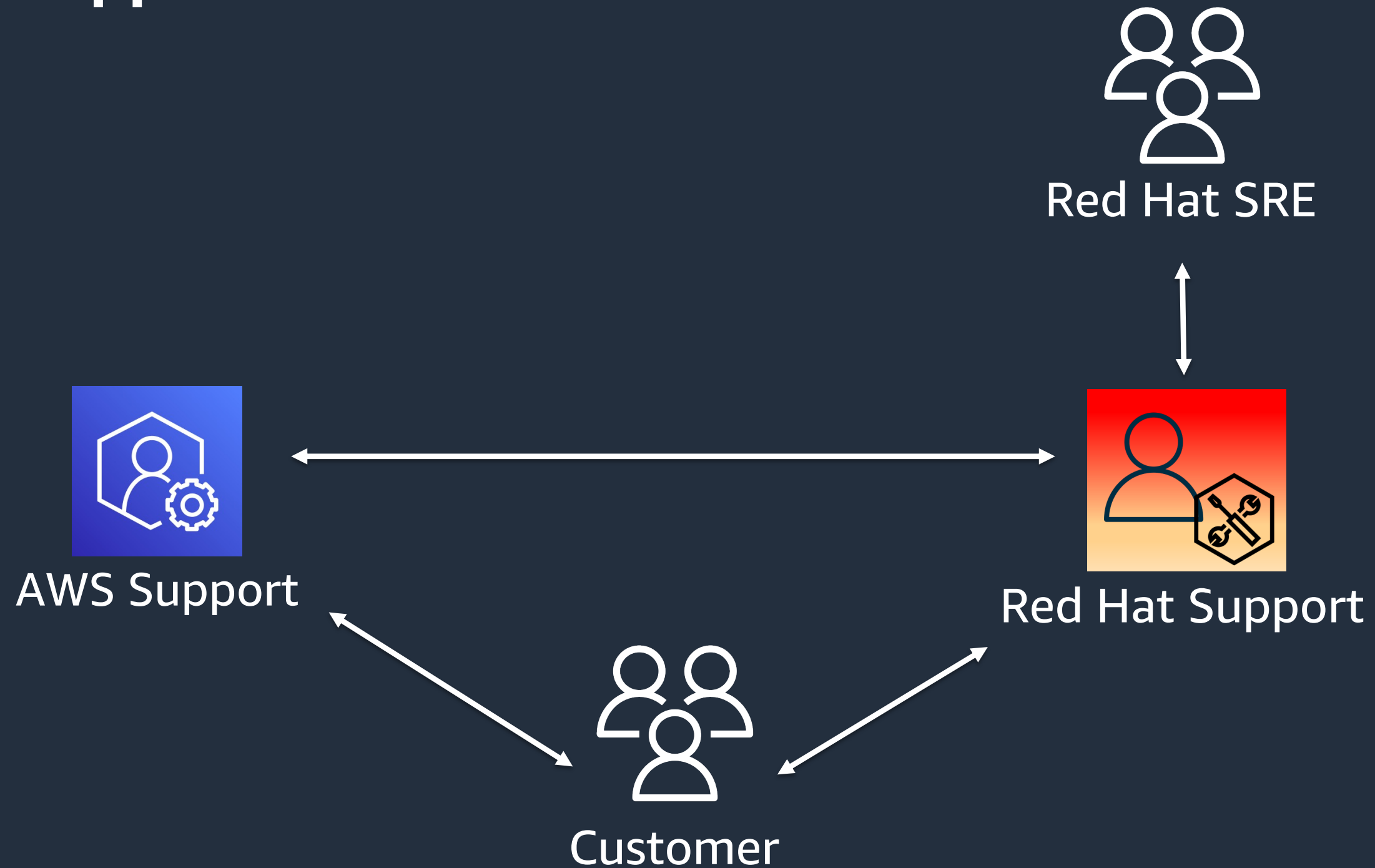
 **Red Hat**

 **Red Hat** 



Fully Managed

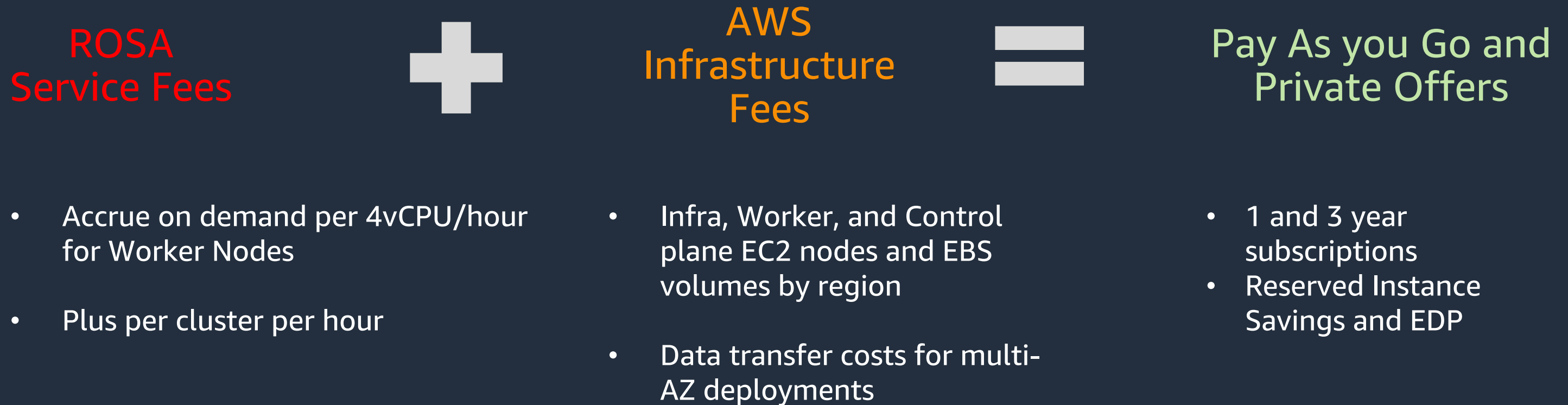
# ROSA Support Flow





# ROSA – Consumption based Pricing

<https://aws.amazon.com/rosa/pricing/>



Pricing for Red Hat OpenShift Service on AWS is the same for all AWS supported regions.

# Console page for ROSA

The screenshot displays the AWS console interface for the Red Hat OpenShift Service on AWS (ROSA). The top navigation bar includes the AWS logo, a search bar, and user account information. The main content area is titled 'Containers' and features the 'Red Hat OpenShift Service on AWS' header. Below the header, a description states that the service allows for the deployment of fully operational and managed Red Hat OpenShift clusters on AWS. A prominent orange button labeled 'Enable OpenShift' is visible. The 'How it works' section illustrates a four-step process: 'Configure permissions', 'Download CLI', 'Provision cluster', and 'Deploy your applications'. The 'Pricing (US)' section provides a table of costs for the control plane and worker nodes, both hourly and annually. A 'Getting started' link is provided at the bottom right of the console page.

Containers

## Red Hat OpenShift Service on AWS

Fully managed Red Hat® OpenShift® service on AWS

Red Hat OpenShift Service on AWS allows you to deploy fully operational and managed Red Hat OpenShift clusters while leveraging the full breadth and depth of AWS.

**Enable Red Hat OpenShift**

Click below to begin by enabling the service.

**Enable OpenShift**

### How it works

- Configure permissions**  
Set permissions to ensure successful cluster creation and support by Red Hat Site Reliability Engineers
- Download CLI**  
Download the command line tool to create and manage your OpenShift clusters
- Provision cluster**  
Specify your cluster requirements in the CLI, and your OpenShift clusters are automatically created in minutes
- Deploy your applications**  
Deploy your OpenShift applications to your Amazon Red Hat OpenShift clusters

### Benefits

### Pricing (US)

Control plane	\$0.03/hour*
Worker nodes (hourly)	\$0.171/4 vcpu*
Worker nodes (annually)	\$1000/4 vcpu*

\*EC2 Pricing is additional

### Getting started

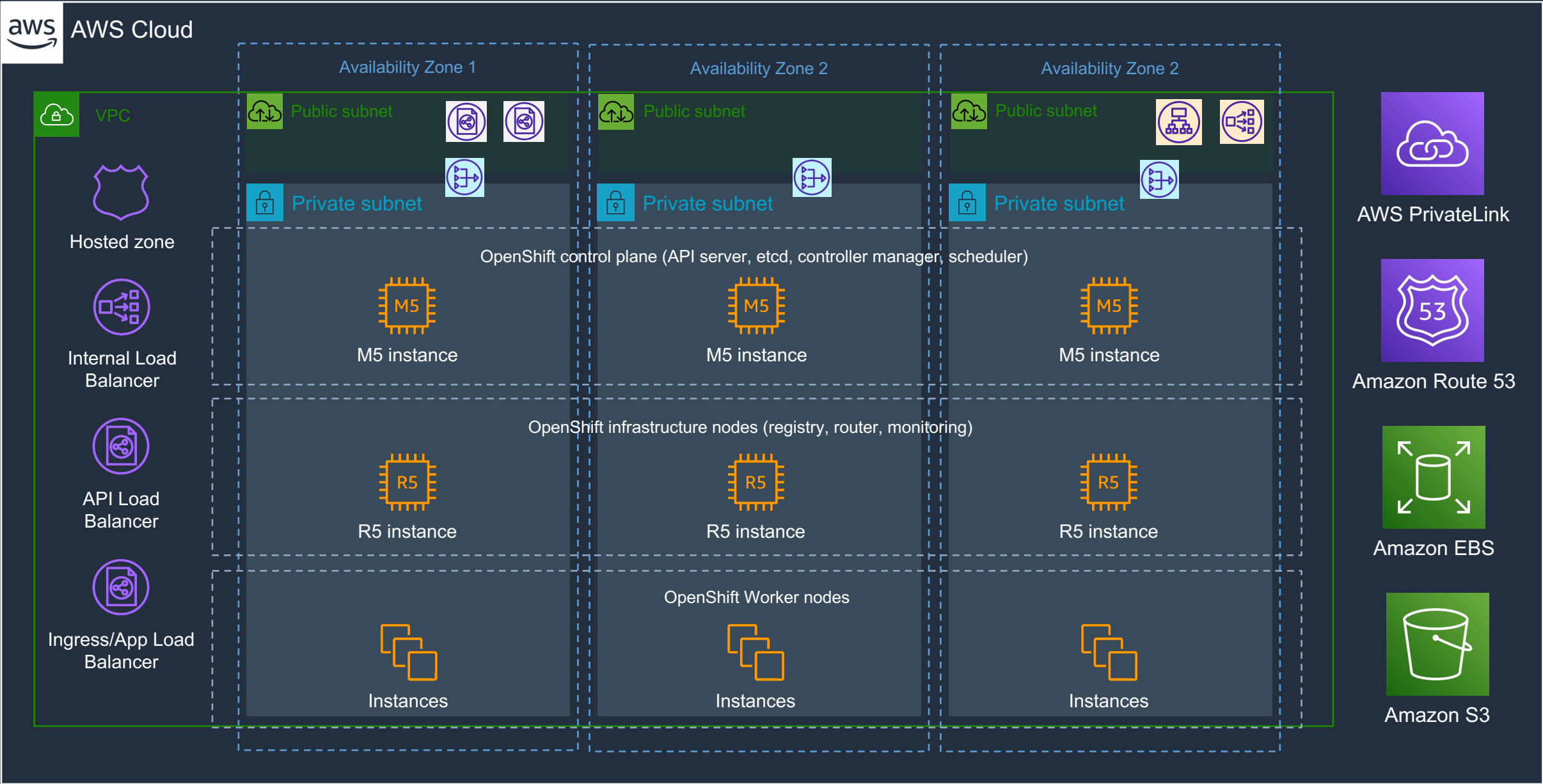
For more details, see the [Red Hat OpenShift Service on AWS Product Page](#)

# Architecture and Network Overview

# ROSA Public Cluster Architecture



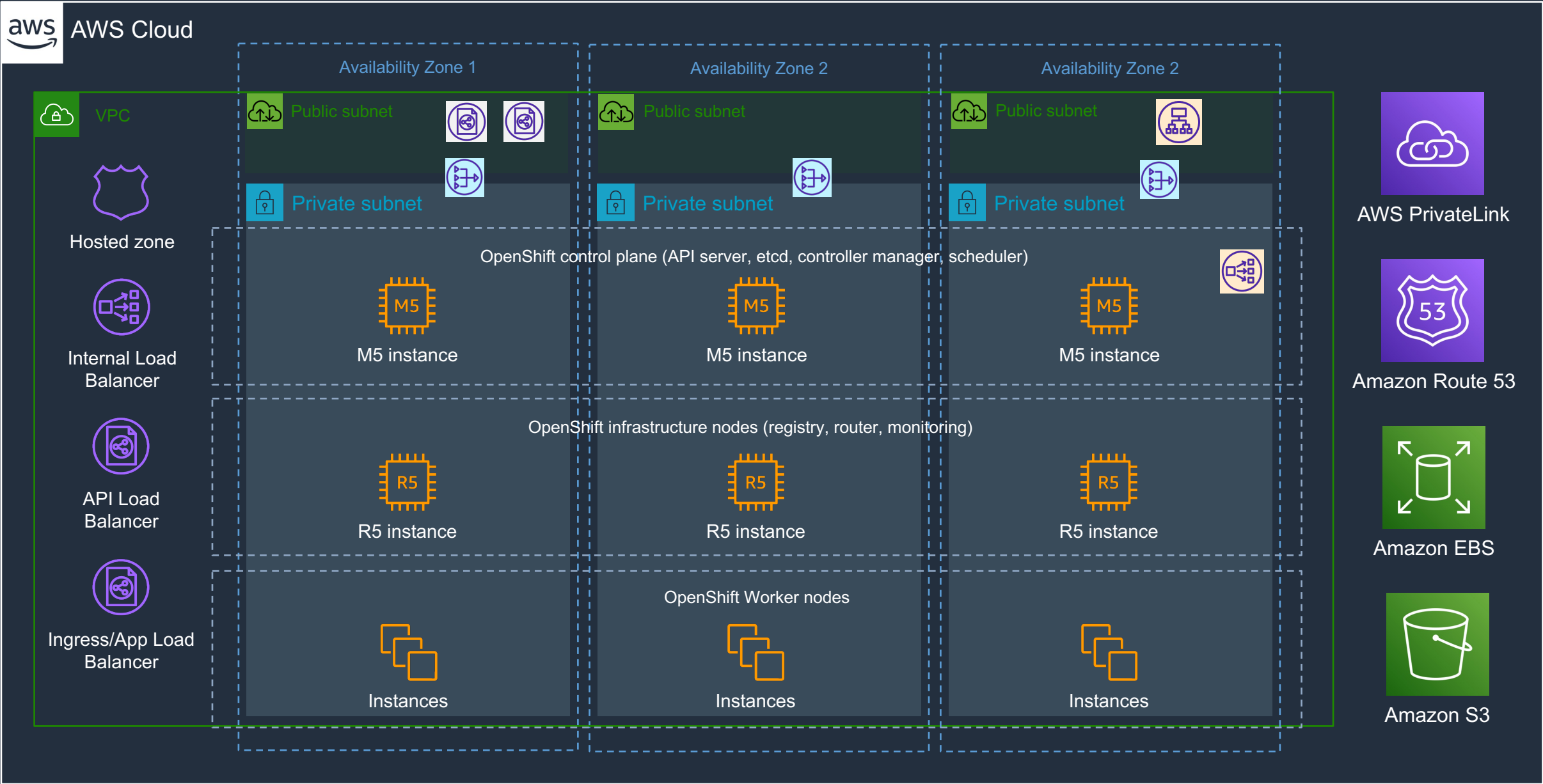
ROSA Cluster



# ROSA Private Cluster Architecture



ROSA Cluster



# ROSA PrivateLink Cluster



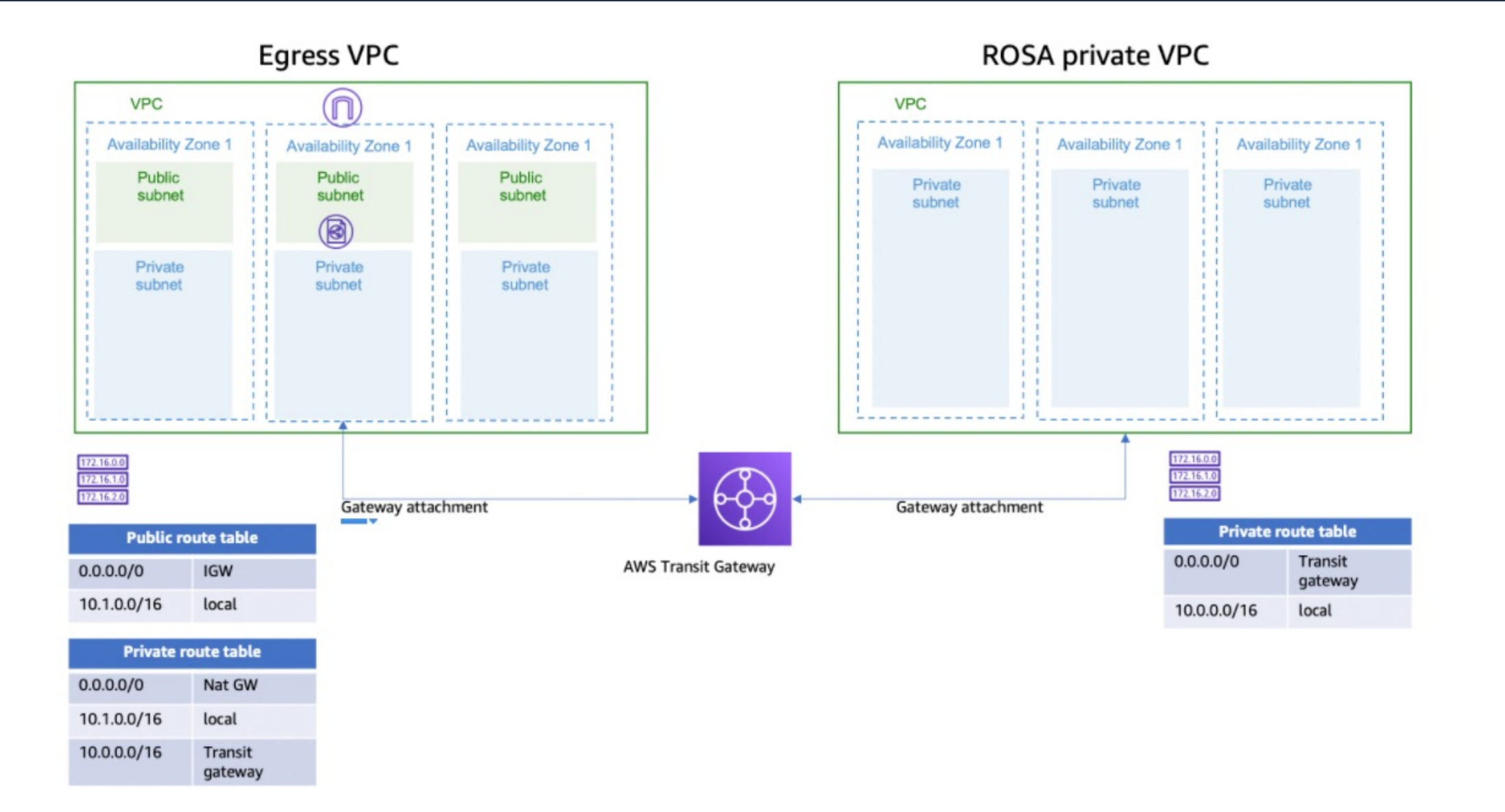
ROSA Cluster



# Most Common Network Arch Pattern



Rosa Cluster

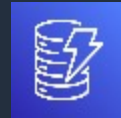


# Accelerate Migration to Cloud with Integrated AWS Services



ROSA

## Application Development and Monitoring



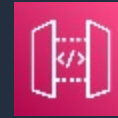
AWS  
DynamoDB



AWS  
RDS



Amazon  
Aurora



Amazon  
API Gateway



AWS  
CodeCommit



AWS  
EventBridge



Cloud Watch

Ongoing updates to integrations available via AWS Controllers for Kubernetes on [Operator Hub](#)

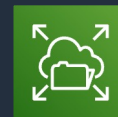
## Infrastructure and Operations



Amazon EC2



Amazon EBS



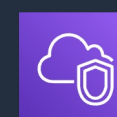
Amazon EFS



Amazon FSx



Amazon ELB



Amazon VPC



Route 53



AWS  
Private Link



Amazon Elastic Container Registry (ECR)

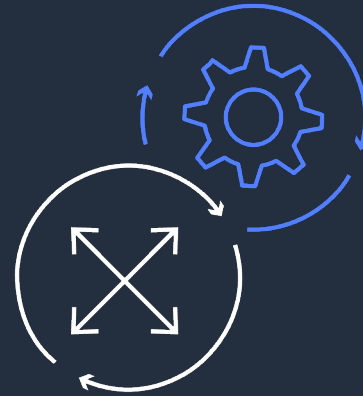


# AWS Controllers for Kubernetes (ACK)



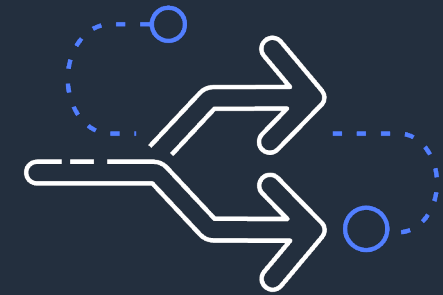
## Harness AWS

Create and use AWS resources directly within your cluster; improve reliability and uptime at any scale



## Cloud-native control

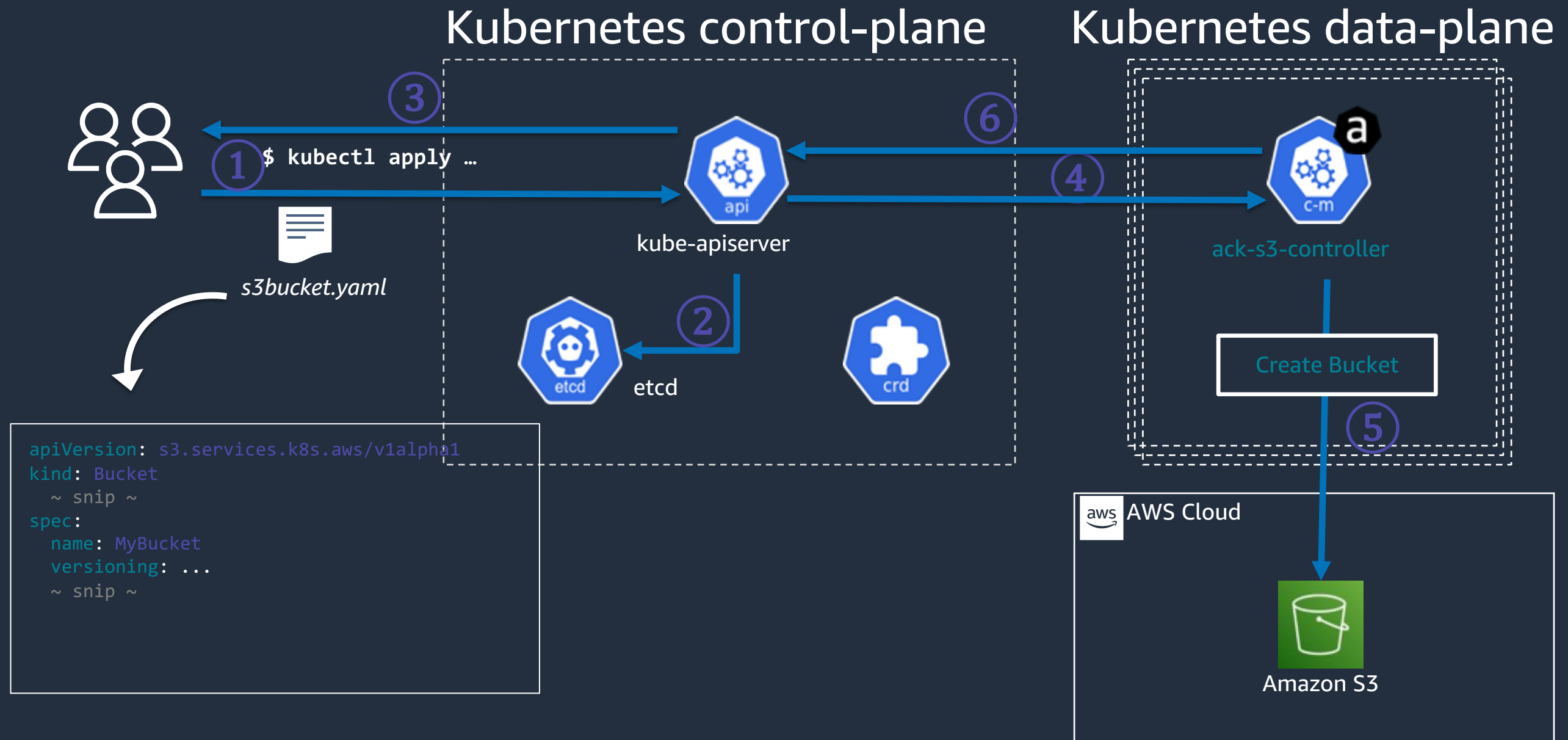
With Kubernetes custom resources and controllers, you can define the AWS resources your applications need directly within the cluster



## Always up to date

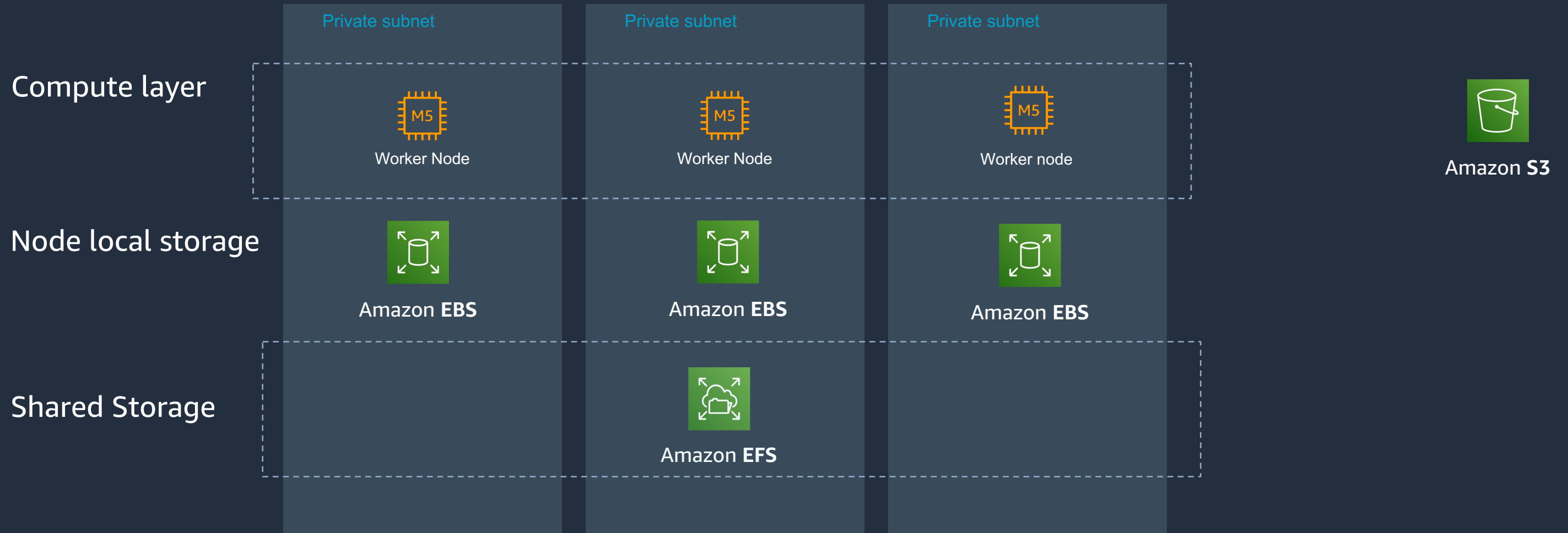
ACK generates automatically using the AWS SDKs; this ensures controllers are up to date with the latest features and functionality

# ACK Deployment Workflow

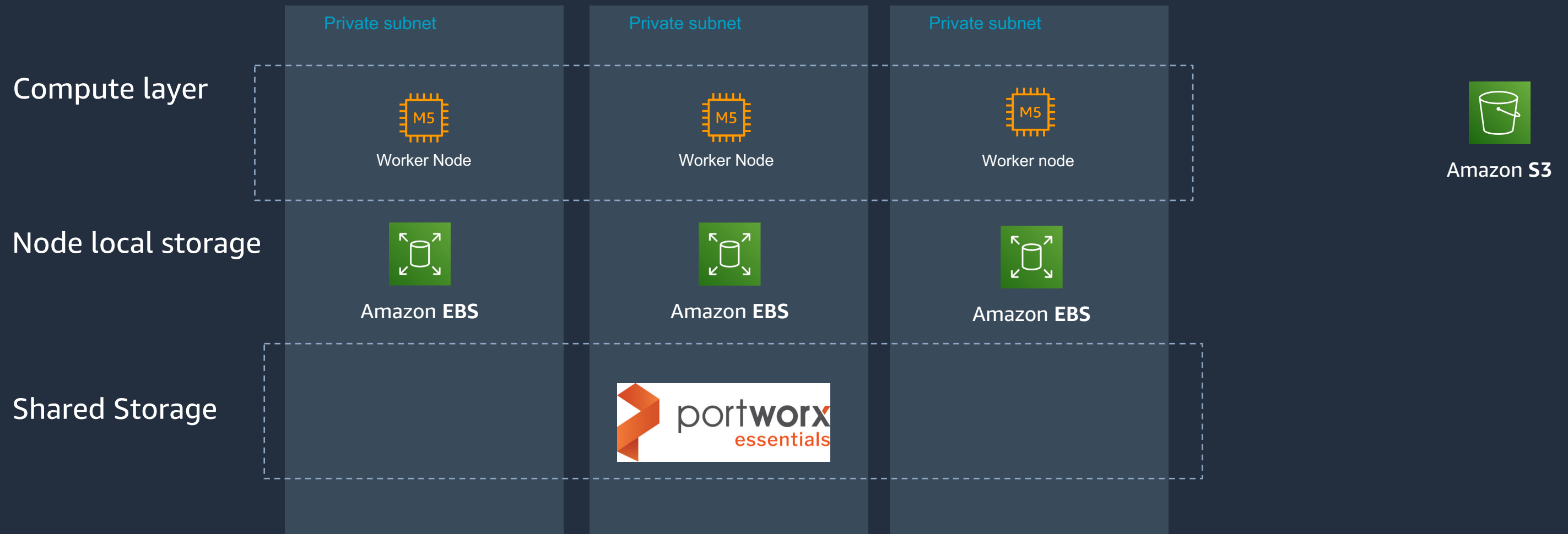


# AWS Storage Options

# AWS Native Storage Options



# 3<sup>rd</sup> Party Storage Options



**Note:** Red Hat OCS / ODF is not supported on ROSA

# Persistent Storage for Workloads



Amazon EBS



Amazon EFS

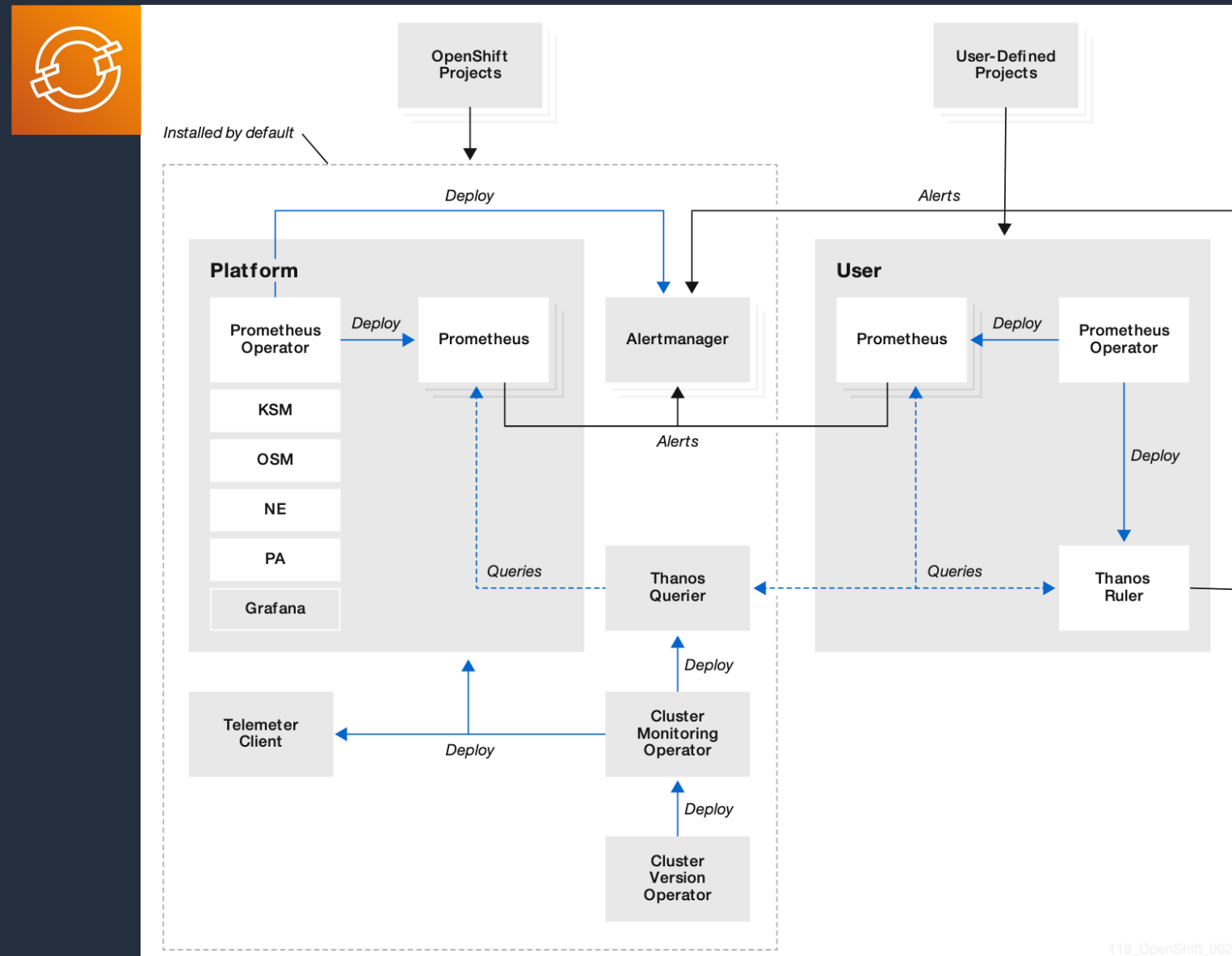


Amazon S3

Provision option:	Workload binding
OpenShift Tree EBS CSI	PV
EFS CSI*	PV
AWS Controllers for Kubernetes	Direct connection Secrets, services, config mappings

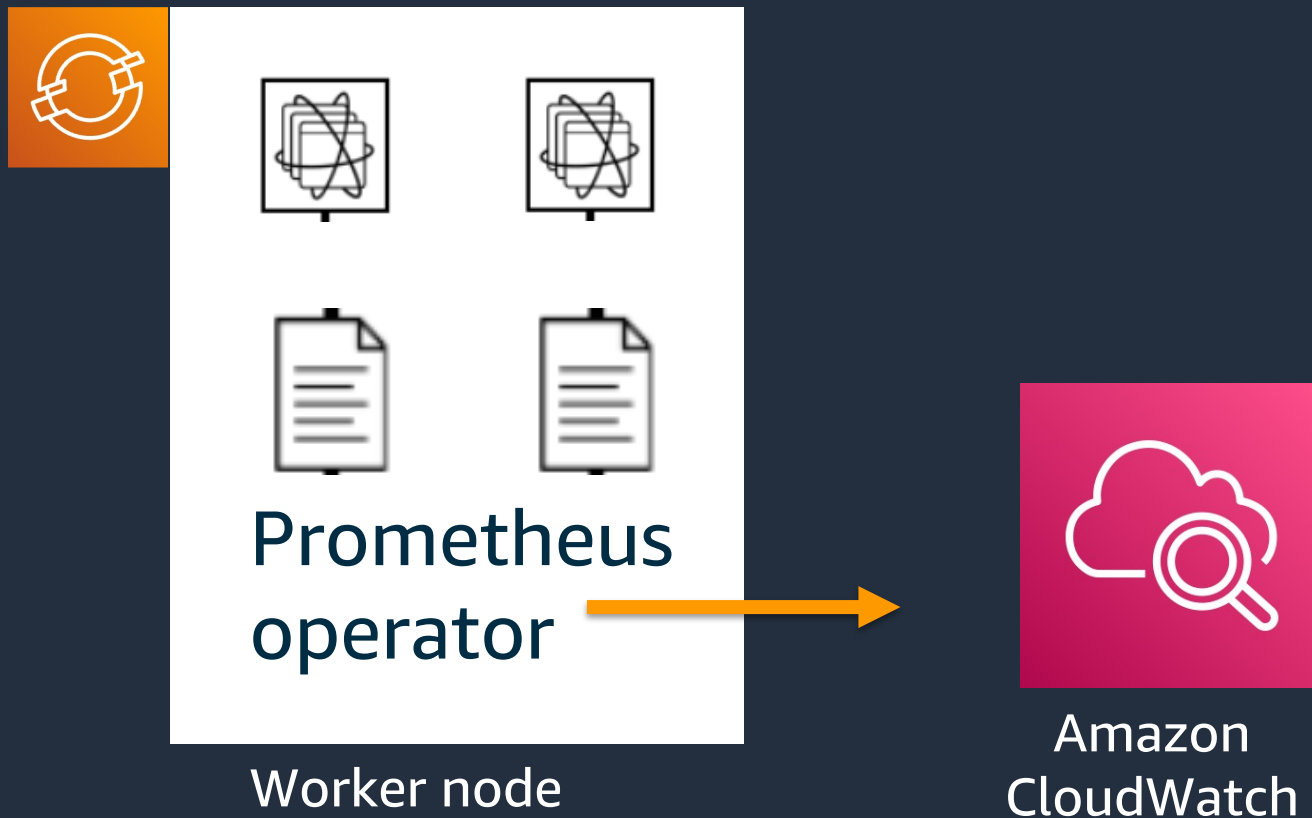
# Monitoring and Logging

# Built in Prometheus and Grafana (Default in ROSA, OCP 4.x)



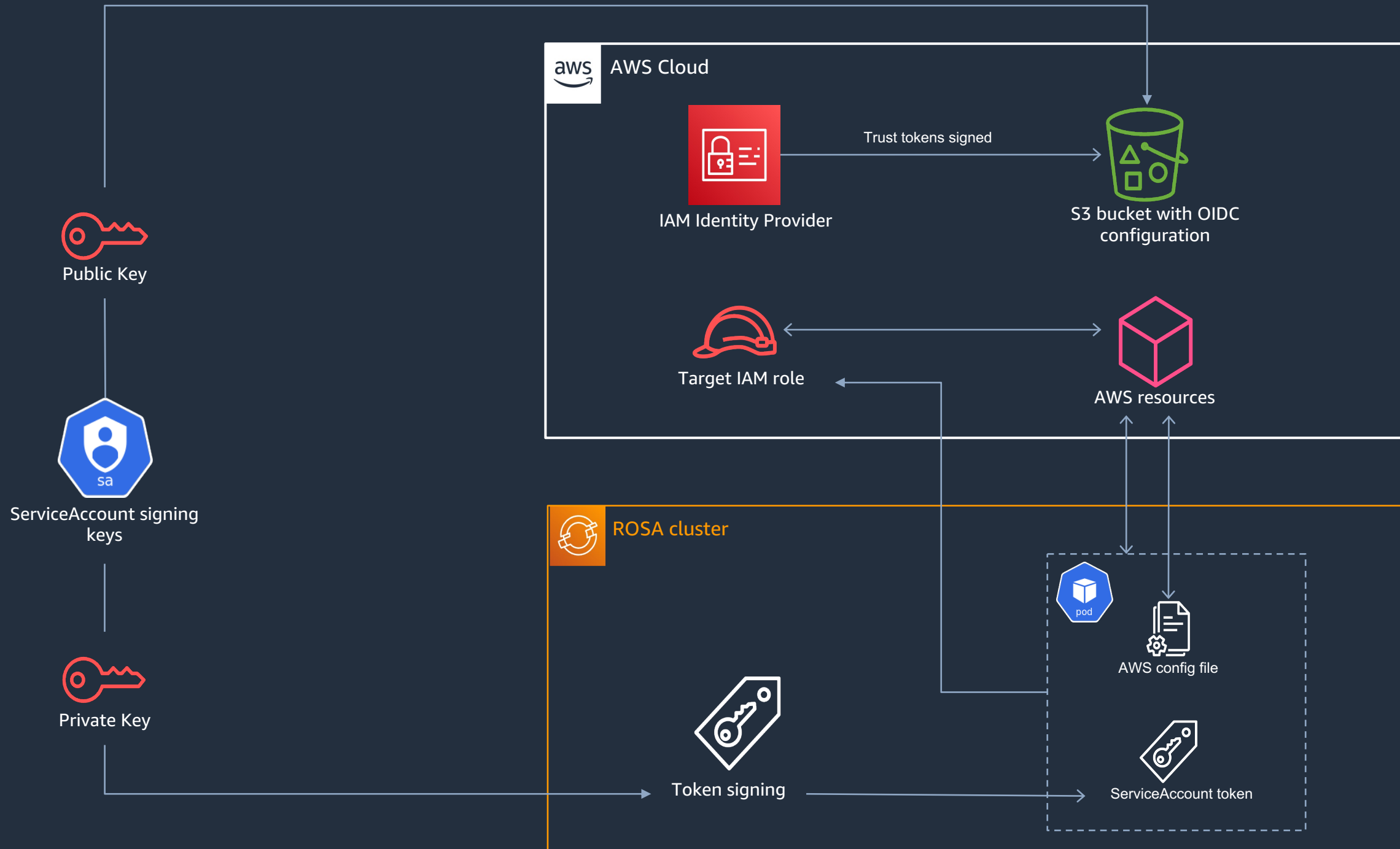


# Log Forwarding to AWS Cloudwatch Logs (ROSA)



# Security Considerations

# Security Token Service (STS) with OpenShift



# Policy-Based Governance and Risk Assessment with RHACM

**Governance** Refresh every 10s Last update: 1:59:36 PM [Create policy](#)

**NIST SP 800-53**  

1 / 1  
Cluster violations

1 / 2  
Policy violations

**NIST-CSF**  

1 / 6  
Cluster violations

1 / 2  
Policy violations

**HIPAA**  

No violations found  
Based on the industry standards, there are no cluster or policy violations.

**NIST 800-53**  

No violations found  
Based on the industry standards, there are no cluster or policy violations.

**PCI**  

No violations found  
Based on the industry standards, there are no cluster or policy violations.

[Policies](#) [Cluster violations](#)

Find policies 1 - 10 of 19

Policy name	Namespace	Remediation	Cluster violations	Controls	Automation	Created
> <a href="#">policy-grc-tower</a>	policies	inform	0/1	PR.IP-1 Baseline Configuration	<a href="#">policy-gr_tomation</a>	a day ago
> <a href="#">policy-gatekeeper-operator</a>	policies	enforce	0/1	CM-2 Baseline Configuration	<a href="#">Configure</a>	a day ago
> <a href="#">policy-comp-operator</a>	policies	inform	1/1	CA-2 Security Assessments, CA-7 Continuous Monitoring	<a href="#">Configure</a>	a day ago
> <a href="#">policy-certificatpolicy</a>	policies	inform	0/6	PR.DS-2 Data-in-transit	<a href="#">Configure</a>	a day ago
> <a href="#">policy-managed-argocd</a>	managed-argocd	enforce	-	CM-2 Baseline Configuration	<a href="#">Configure</a>	4 days ago

- Centrally set & enforce policies for security, applications, & infrastructure
- Quickly **visualize** detailed **auditing** on configuration of apps and clusters
- Perform remediation actions by leveraging **Ansible Automation Platform** integration.
- Built-in **compliance policies** and audit checks, including **GitOps** Integration.
- Immediate** visibility into your compliance posture based on **your** defined standards

# AWS Consulting Partners for ROSA



# Conclusion



Most customers choose to run OpenShift on AWS because they want to keep existing tools and practices while leveraging investments in the vast AWS services portfolio

ROSA is the easiest and most convenient way to pay for and deploy fully supported and managed OpenShift clusters on AWS

# Find out more!

- **AWS ROSA product page:**  
[aws.amazon.com/rosa/](https://aws.amazon.com/rosa/)
- **Launch blog:**  
[aws.amazon.com/blogs/containers/whats-new-red-hat-openshift-service-on-aws/](https://aws.amazon.com/blogs/containers/whats-new-red-hat-openshift-service-on-aws/)
- **Workshop:**  
<https://openshift4-on-aws.awsworkshop.io/>
- **ROSA Docs:**  
<https://docs.openshift.com/rosa/welcome/index.html>
- **Pricing:**  
[aws.amazon.com/rosa/pricing/](https://aws.amazon.com/rosa/pricing/)



# Thank you!

