Running OpenShift on AWS using Red Hat OpenShift Service on AWS (ROSA)

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AWS

Agenda

1. General Concerns
2. Containers and their use case
3. How does ROSA help?
4. Running on ROSA

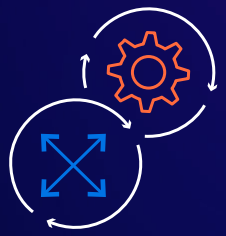
Your task

General Concerns

What customers ask for

Build applications, not infrastructure

Manage infrastructure to their requirements



Scale quickly and seamlessly

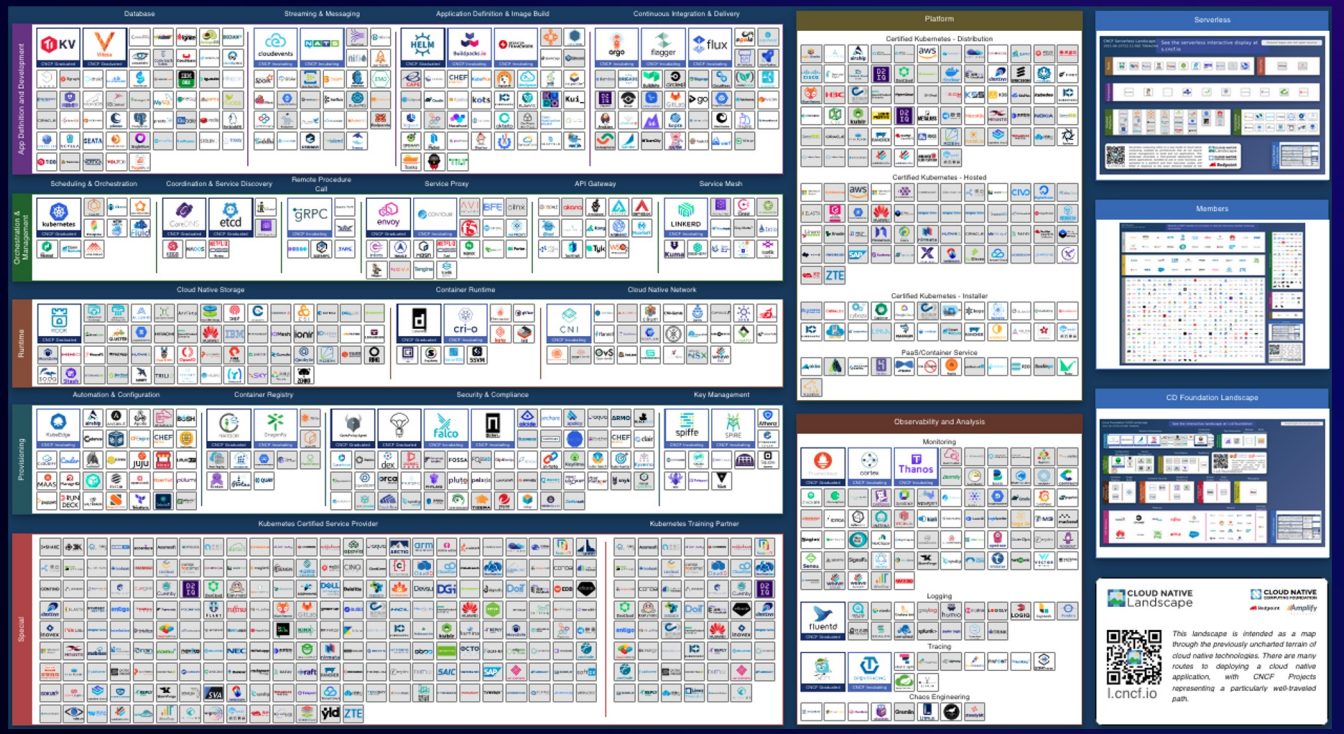
Security and isolation by design

Containers solve challenges and introduce others

Why customers adopt containers

Reduced risk		Uniform security across environment, maintained with automation
Operational efficiency		Reduced operational cost by increasing workload density
Speed		Consistent environment improves developer velocity
Agility		Automation increases speed and ease of testing and iterating

The containers landscape is vast & complicated



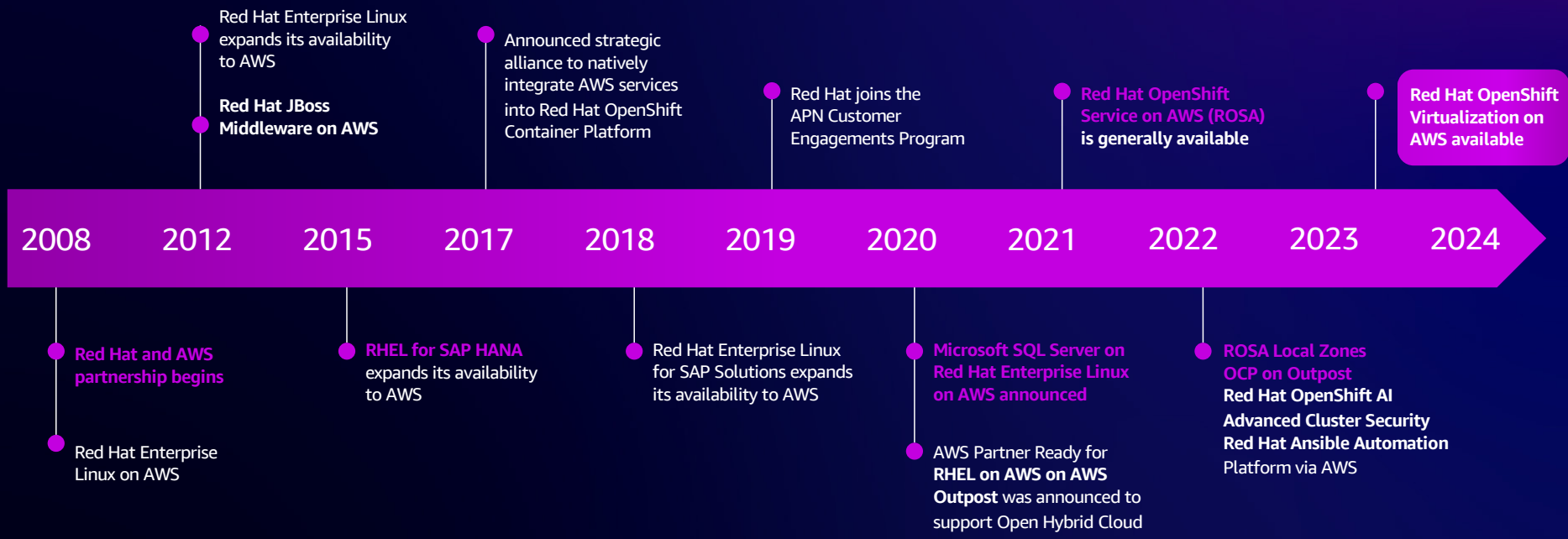
The containers landscape is vast & complicated

There is no shortage of amazing tooling in the K8s ecosystem, but there is no guide for how to put all the tools together

ROSA: The turnkey app platform

AWS and Red Hat - A Unique Partnership

WORLD'S LARGEST OPEN SOURCE SOFTWARE COMPANY + WORLD'S MOST COMPREHENSIVE AND BROADLY ADOPTED CLOUD PLATFORM

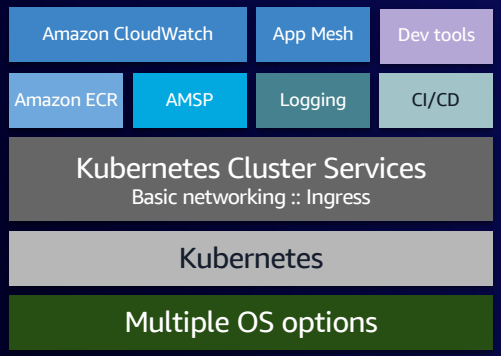


DIY K8s

- Full assembly required
- Unmanaged
- No defaults
- No integrations

Amazon EKS

- Some assembly required
- Managed cluster
- Some defaults
- Some integrations



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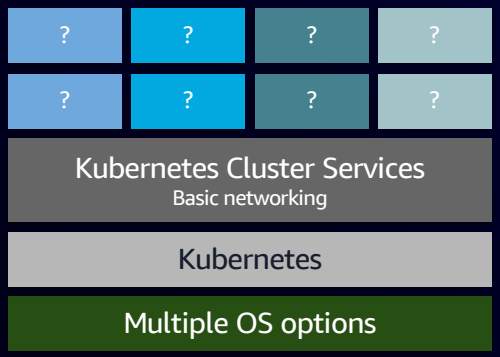

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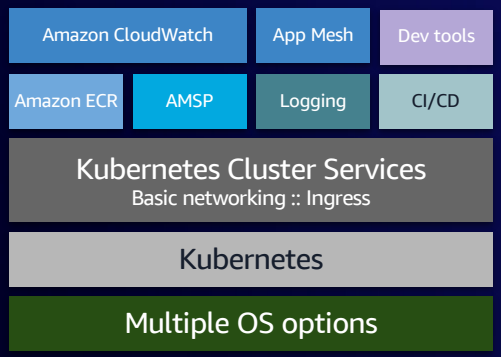
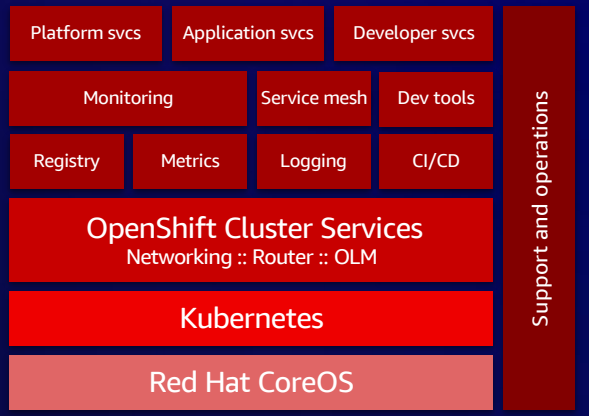


ROSA

- No assembly required
- Managed platform stack
- Opinionated defaults
- Supported set of integrations



ROSA: Batteries included but swappable

OpenShift Service Mesh with Istio to connect, secure, and observe services

OpenShift Serverless with Knative to enable hybrid serverless, FaaS, and event-driven architectures

OpenShift builds with Shipwright to build images from code using S2I + others and integrate with GitHub Actions

OpenShift Pipelines with Tekton to provide Kubernetes-native CI/CD pipelines

OpenShift GitOps with ArgoCD to enable declarative GitOps-based continuous delivery

Application-level observability for developers to build and manage their apps

Log management of infrastructure, application, and audit logs + forwarding capabilities

Cost management visibility, mapping, and modeling across hybrid infrastructure in order to stay on budget

Kubernetes Cluster Services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | Operators | Helm

Kubernetes

Linux

Red Hat Enterprise Linux CoreOS

aws

ROSA – Joint offering from AWS & Red Hat

Who's responsible for what?

	On premises	Cloud	
	OpenShift Container Platform (OCP)	OpenShift Container Platform (OCP) on AWS	Red Hat OpenShift Service on AWS (ROSA)
Control Plane	Customer	Customer	Red Hat
Worker Nodes	Customer	Customer	Red Hat
Support	Red Hat	Red Hat	Red Hat aws
Billing	Red Hat	Red Hat aws	aws

Fully Managed

Running on ROSA

ROSA architecture choices

Internet exposure

Public cluster,
Private cluster

Availability needs

Single Availability Zone,
Multi-Availability Zone

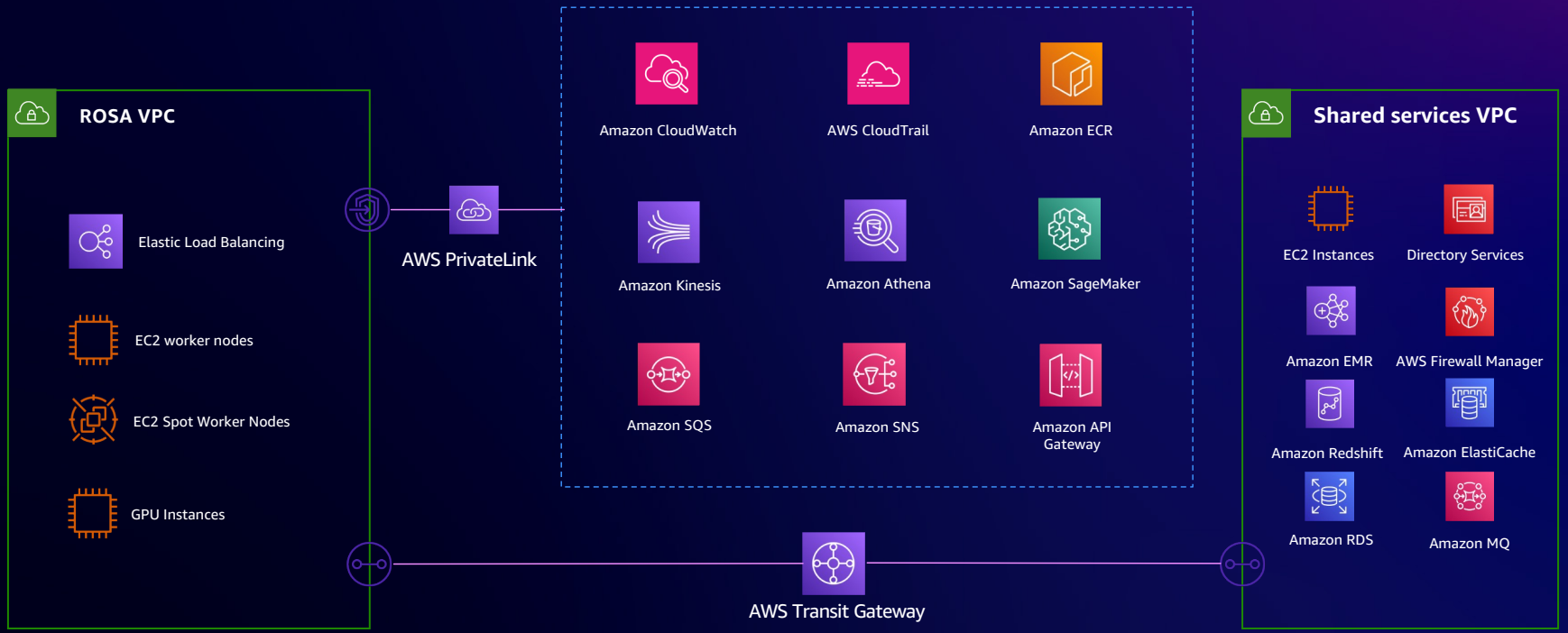
Deployment model

ROSA classic,
ROSA with hosted
control planes (HCP)

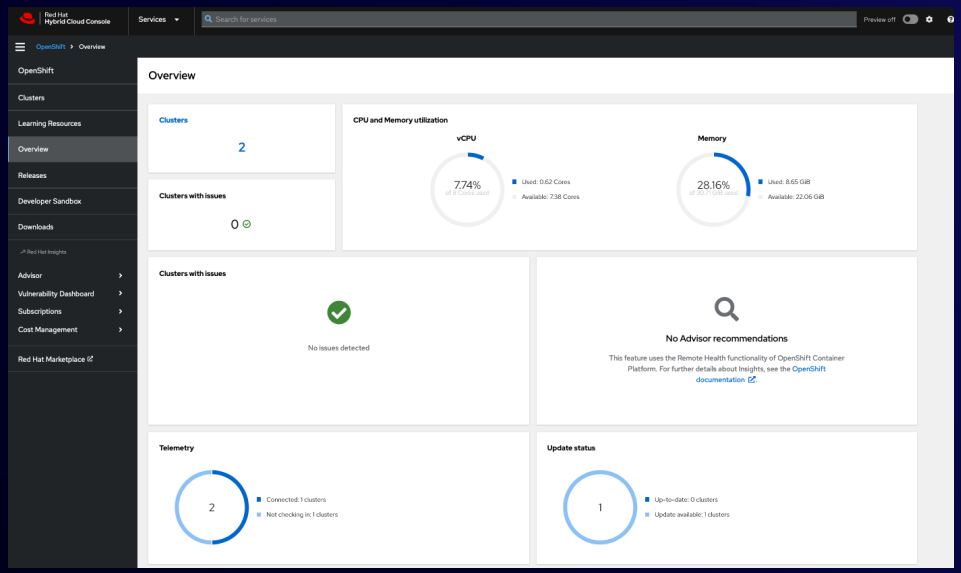
ROSA classic multi-AZ AWS PrivateLink cluster

ROSA with hosted control planes (HCP)

Secure access to AWS services



Migration and hybrid environment support



Red Hat Hybrid Cloud Console

Migration Toolkit for Containers (MTC)

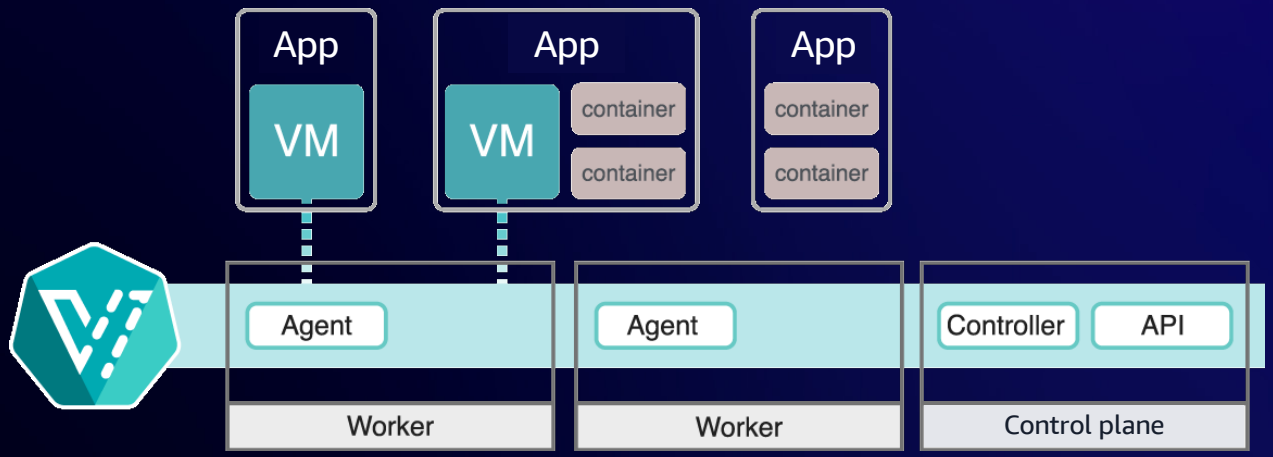
Source-to-image

OpenShift Virtualization

Lift and shift VMs to ROSA

Consistent management

Integrated workflows



Get started

ROSA Hands-on Experience

ROSA workshops

No-cost proof of concept

Let’s grow your business together

Thank You!

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Red Hat OpenShift on AWS (ROSA)

Console service

- Create OpenShift clusters from the AWS console or CLI
- AWS integrated experience for cluster creation and management
- Foundation based on RHEL

Unified bill

- Leverage your existing AWS commitment to use OpenShift
- Get a single unified bill from AWS for both OpenShift and AWS consumption

Joint support

- Integrated support systems
- Contact Red hat or AWS support
- Built on Red Hat and AWS' decades of enterprise IT knowledge and experience

Integration with AWS

- Build containerized applications that integrate natively with the more than 170 AWS cloud-native services

aws

ROSA Pricing

ROSA Classic Pricing:

- On-demand hourly pricing based on worker node vCPU and memory
- Example: $0.25 per vCPU per hour for m5.xlarge worker nodes
- No upfront costs or long-term commitments required

ROSA with Hosted Control Planes (HCP) Pricing:

- On-demand hourly pricing for worker nodes (same as classic)
- Plus an additional on-demand hourly fee per cluster for the hosted control plane
- Example: $0.48 per hour for a single-node cluster in addition to worker node pricing
- Option to purchase upfront RI-like pricing via Annual Upfront Contracts for discounts

So in the HCP model, you pay the standard per worker node pricing based on the EC2 instance types, plus this additional per cluster hourly fee for Red Hat to host and manage the control plane components.
However, the hosted control plane approach reduces the overall AWS infrastructure footprint in your account, resulting in lower overall TCO compared to the classic self-managed model.
Red Hat offers Annual Upfront Contracts for ROSA with HCP that provide discounted all-in hourly pricing if you can commit upfront similar to AWS Reserved Instances.

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Example

The example compares the costs of running a ROSA cluster with 10 m5.2xlarge worker nodes (8 vCPUs each) for a month in the US East (N. Virginia) region, between the classic ROSA deployment model and the new ROSA with Hosted Control Planes (HCP) model.

For the classic model:

- Worker node costs: $1,122
- Control plane costs (3 x m5.xlarge nodes): $421
- Other infrastructure service costs: ~$100
- Total monthly cost: $1,643

For the HCP model:

- Worker node costs: $1,122 (same as classic)
- Hosted control plane cost: $350 ($0.48/hour)
- Total monthly cost: $1,472

The HCP model costs around $171 (10%) less per month compared to the classic model. The savings come from:

1. Not having to run and pay for EC2 instances hosting the control plane components
2. Not incurring costs for other managed services required to run the control plane

As the cluster scales up with more worker nodes, the relative savings with HCP increase further since the control plane costs stay constant.

Actual costs may vary based on factors like instance types, region, number of clusters, and pricing model (on-demand vs upfront/reserved).

The example illustrates how the HCP model can provide a more cost-optimized deployment for running ROSA on AWS.

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