



Red Hat and AWS

Better together

Andy Busch AWS Sr. PDM EMEA

Tingyi Li, Enterprise Solutions Architect AWS

Robert Åkerblom, Senior Black Belt Managed OpenShift Red Hat



AWS and Red Hat Partnership Helps Customers Meet Digital Needs

Red Hat and AWS are industry leaders with extensive experience in **IT infrastructure, hybrid cloud, digital transformation, and open source innovation.**

Through **collaborative engineering** activities, they offer integrated, certified solutions to meet modern, digital business needs.

Consistent, enterprise-grade platforms with advanced security and management features help organizations build IT infrastructure that supports their business efficiently and cost-effectively and adapts on their **schedule.**

“Given that Red Hat is the world’s leading provider of open-source solutions, our enterprise customers have been passionate about seamlessly running Red Hat Enterprise Linux and various other Red Hat solutions on AWS.”

Andy Jassy | CEO, Amazon

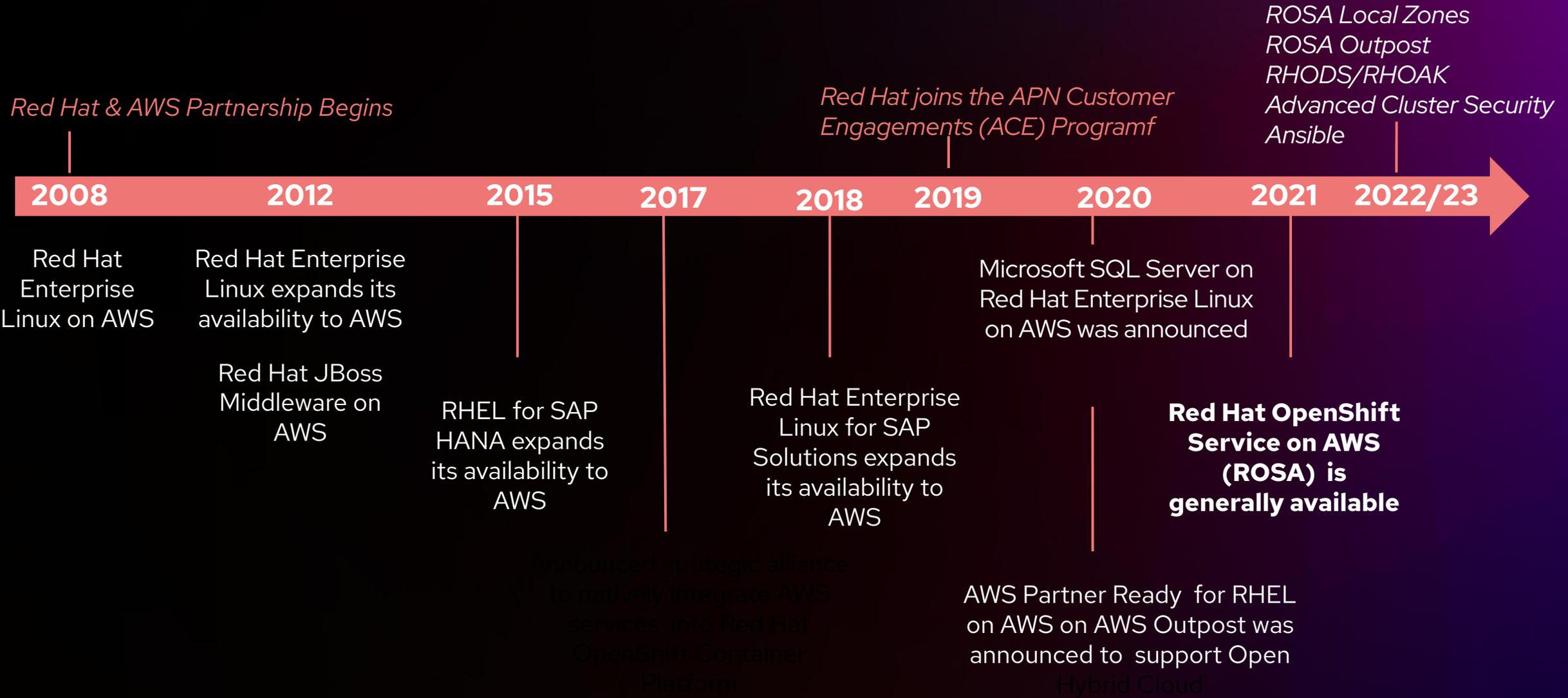
Red Hat and AWS by the numbers

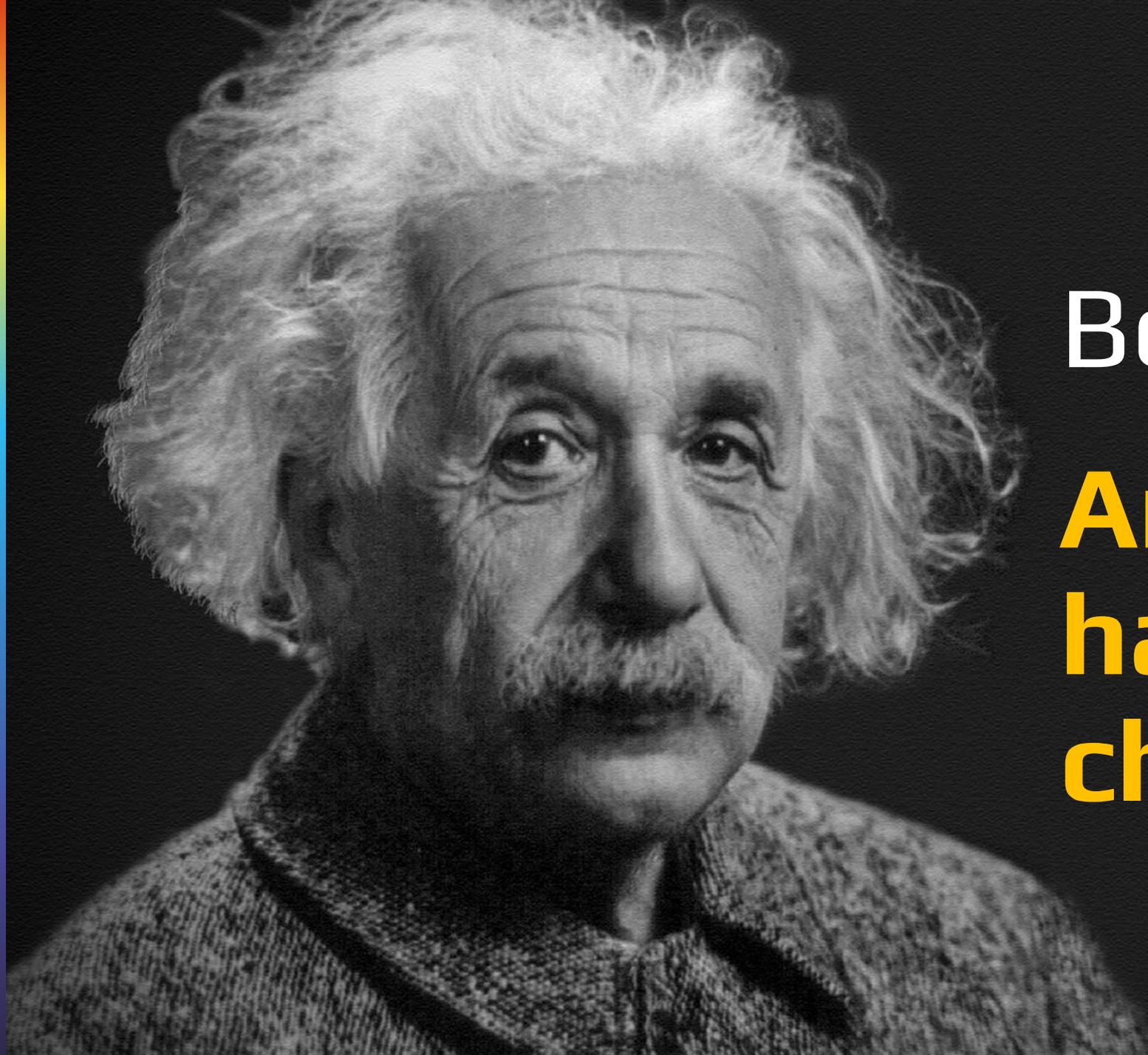
Partners since **2008**

>70,000
of AWS customers consume Red Hat products and solutions



AWS + Red Hat partnership





Because...

**Answers
have
changed**

Modernization: Happening now – and fast

500 million

**new apps in the
next 3–4 years**



Modernization: Happening now – and fast

500 million

**new apps in the
next 3–4 years**



**Total apps developed
in the last 40 years**

In the next few years, organizations will build over 500M new apps – more than the number developed in the previous 40 years combined

Modernization Journey

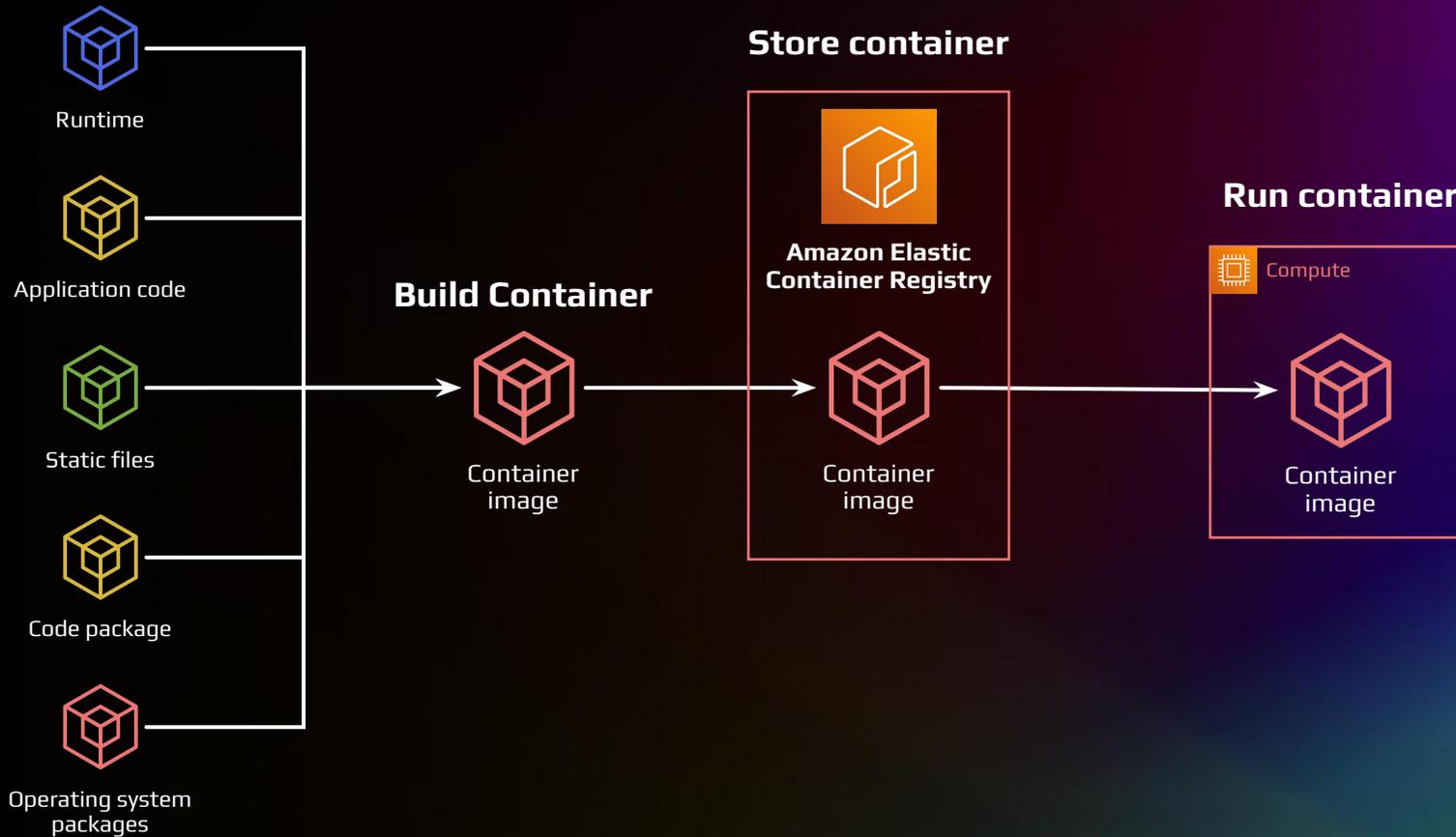
- 
- Moving from Monolithic
 - Moving to Kubernetes
 - Moving to the cloud
 - Running more clusters
 - Running bigger clusters
 - Running in more places





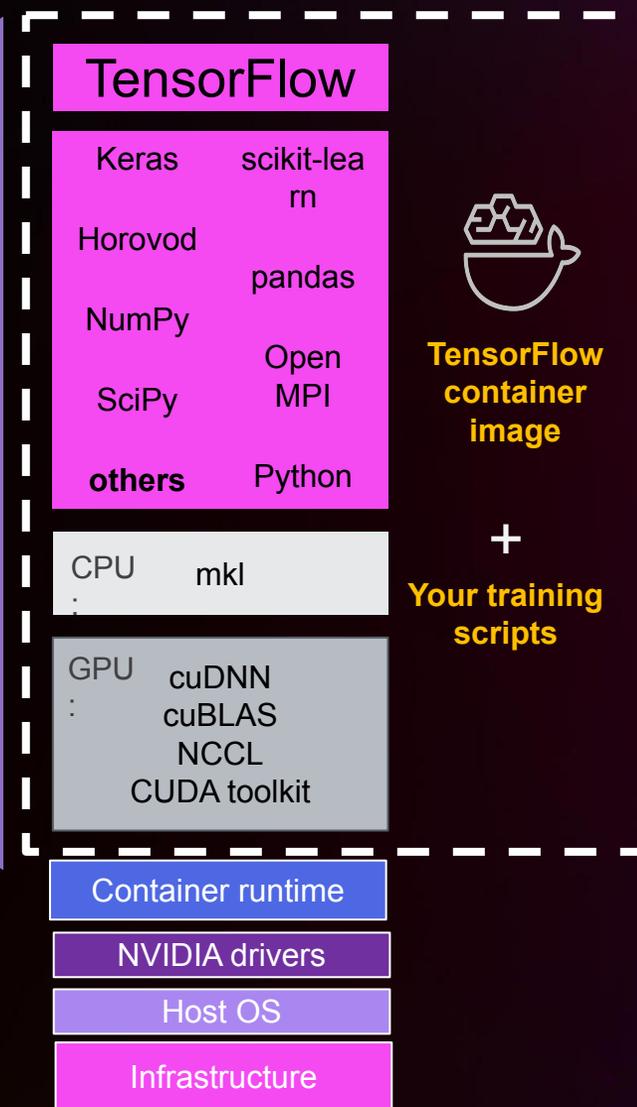
“Our customers say that **80%** of developers’ time is spent on the **operations and maintenance of applications** and only **20%** of time is actually spent on **innovation.**”

Containers are awesome for modern applications.



"Containers" by [s_volenszki](#) is licensed under [CC BY-NC 2.0](#)

Why machine learning with **containers**?

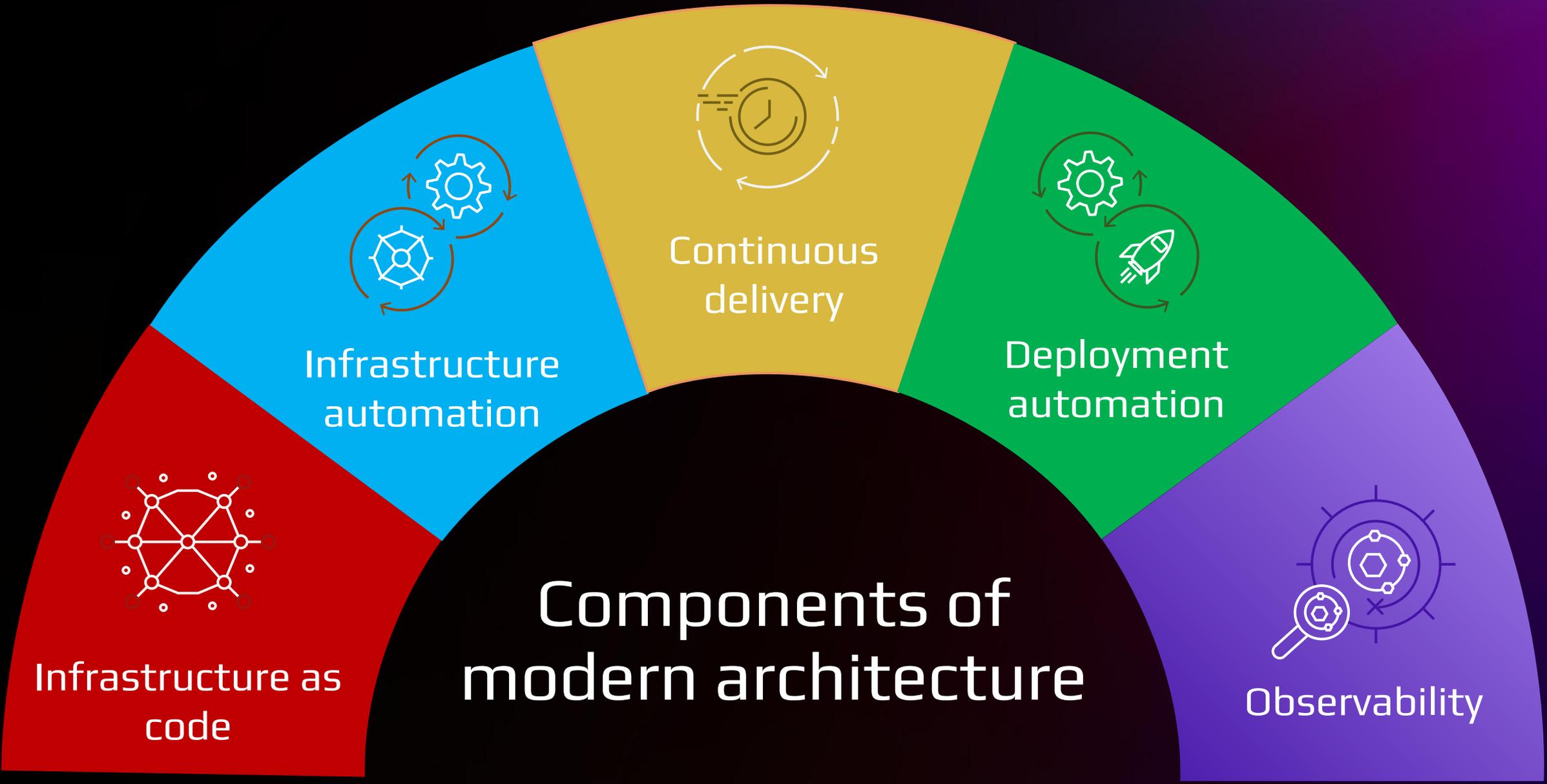


Packages

- Training code
- Dependencies
- Configurations

ML environments that are

- Lightweight
- Portable
- Scalable
- Consistent



Infrastructure as code

Infrastructure automation

Continuous delivery

Deployment automation

Observability

Components of modern architecture



“Always be wary of any helpful item that weighs less than its operating manual.”

- Sir Terry Pratchett, Author



The containers landscape is vast & complicated

The image is a large grid of logos for various cloud native technologies, organized into several functional categories. The categories are:

- App Definition and Development:** Database, Streaming & Messaging, Application Definition & Image Build, Continuous Integration & Delivery.
- Orchestration & Management:** Scheduling & Orchestration, Coordination & Service Discovery, Remote Procedure Call, Service Proxy, API Gateway, Service Mesh.
- Runtime:** Cloud Native Storage, Container Runtime, Cloud Native Network.
- Provisioning:** Automation & Configuration, Container Registry, Security & Compliance, Key Management.
- Special:** Kubernetes Certified Service Provider, Kubernetes Training Partner.

On the right side, there are four additional panels:

- Platform:** Certified Kubernetes - Distribution, Certified Kubernetes - Hosted, Certified Kubernetes - Installer, PaaS/Container Service.
- Serverless:** A screenshot of a serverless interactive display.
- Members:** A screenshot of a members directory.
- CO Foundation Landscape:** A screenshot of a CO Foundation Landscape.

At the bottom right, there is a section for **Observability and Analysis**, including Monitoring, Logging, Tracing, and Chaos Engineering.

At the very bottom right, there is a QR code and the text: "This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path." Below the QR code is the URL l.cncf.io.

The containers landscape is vast & complicated

“There is no shortage of amazing tools in container world, but there is no guide for how to pull all the tools together.”

AWS container computing services landscape

Application platform

Accelerate and standardize application management

Build your own application platform



AWS App Runner



AWS Proton



Amazon CloudWatch



EKS Blueprints



AWS X-Ray



Amazon Managed Service for Prometheus

Containers orchestration

Deployment, scheduling, and scaling, containerized applications



Amazon Elastic Container Service
(Amazon ECS)



Amazon Elastic Kubernetes Service
(Amazon EKS)

Containers infrastructure

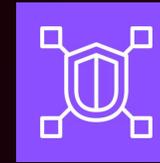
Registry, networking, CI/CD



Amazon Elastic Container Registry
(Amazon ECR)



AWS Code* Services



Amazon VPC Lattice
(Software defined application networking)

Compute



Amazon Elastic Compute Cloud
(Amazon EC2)



AWS Fargate

Container orchestration: ECS, EKS, and ROSA



ECS

Powerful simplicity

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

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

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

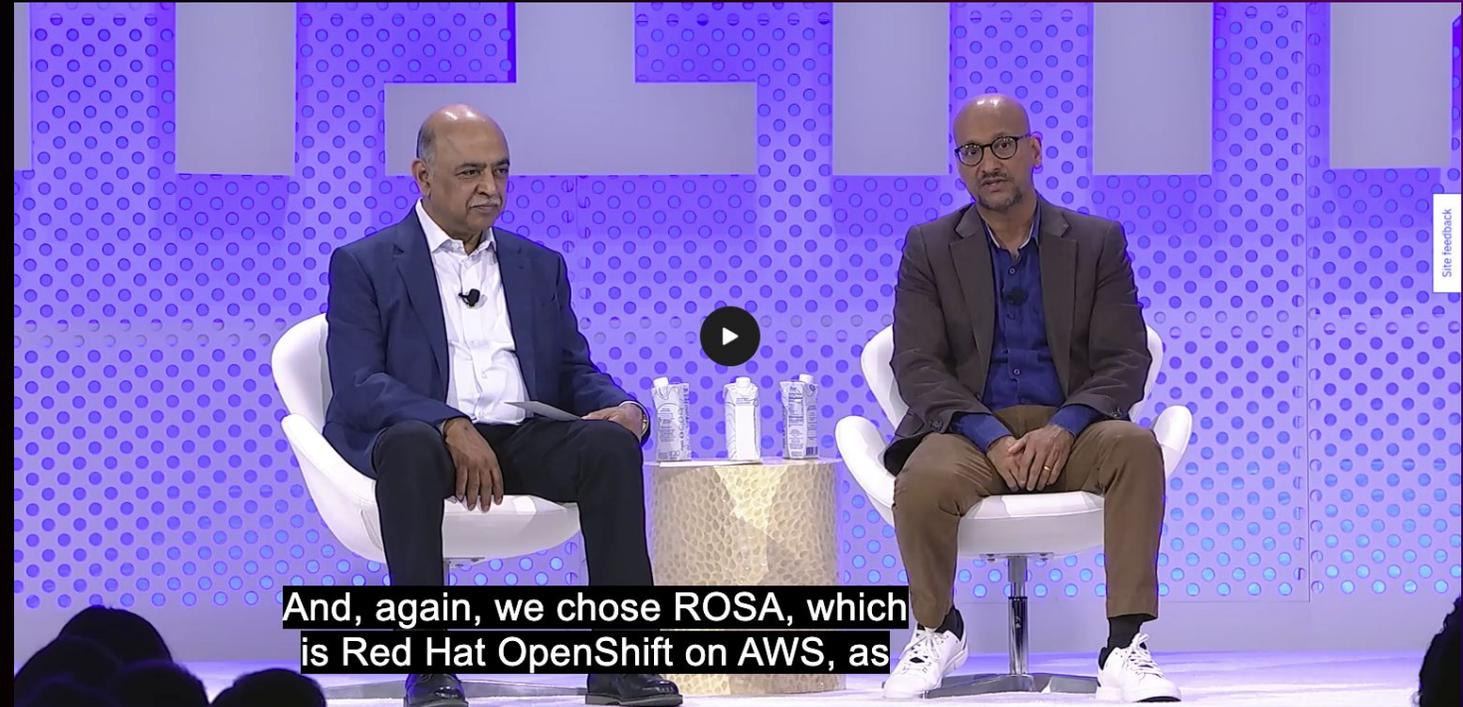
Continue with existing OpenShift skills and processes from on-prem environments to the cloud

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

Delta Airlines running Wi-Fi on 600+ planes using Red Hat OpenShift Service on AWS (ROSA)

“...That entire chassis, that entire user experience is built on the cloud in a native way on ROSA. A real example of **business value, business benefit, speed to market with security, with portability, with scalability, resilience**, all of those things that we need as technologists.”

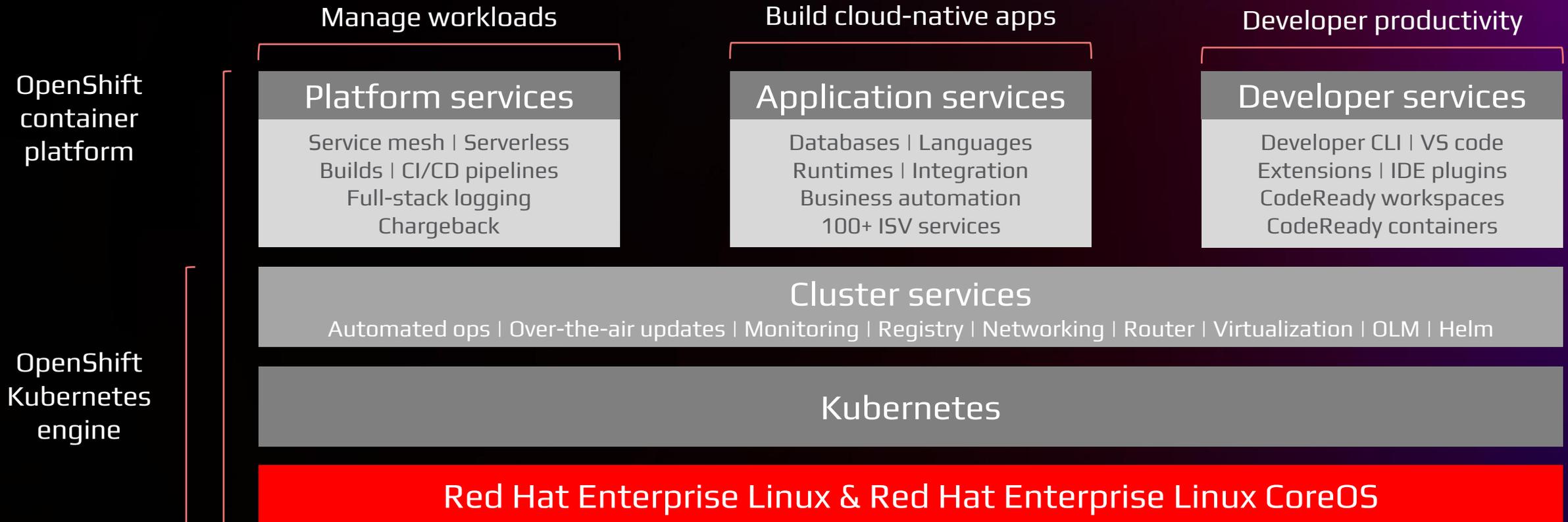
- Rahul Samant,
Executive Vice President and Chief Information Officer, Delta Air Lines



[View video. Timestamp ~ 48.00](#)

What is Red Hat OpenShift?

KUBERNETES-BASED APPLICATION PLATFORM



Physical



Virtual



Public cloud



Managed cloud



Edge



Red Hat OpenShift Service on AWS (ROSA)

- Red Hat OpenShift Service on AWS (ROSA) provides a managed OpenShift experience integrated with AWS
- Red Hat OpenShift is a turnkey containerized application platform built on Kubernetes, with runtimes, developer tools, CI/CD, and monitoring built in



Accelerate migration to the cloud with integrated AWS services

Application development and monitoring



Amazon
DynamoDB



Amazon
RDS



Amazon
Aurora



Amazon
API Gateway



AWS
CodeCommit



Amazon
EventBridge



Amazon
CloudWatch



ROSA

AWS Controllers for Kubernetes (ACK) is an open-source project built by AWS, which lets you define and use AWS service resources directly from Kubernetes

Infrastructure and operations



Amazon EC2



Amazon EBS



Amazon EFS



Amazon FSx



Elastic Load
Balancing (ELB)



Amazon VPC



Amazon
Route 53



AWS
PrivateLink



Amazon ECR

ROSA: Batteries included but swappable



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



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



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



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



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



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



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



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

Kubernetes Cluster Services

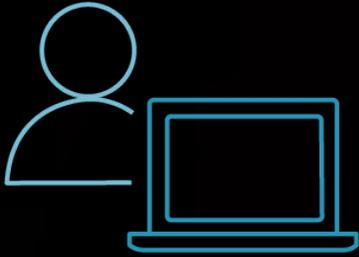
Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | Operators | Helm

Kubernetes

Linux



Benefits of ROSA turnkey application platform



Developers

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

Collaborate across teams via shared projects



Administrators

Standardized and streamlined operations across on-premises and AWS environments

Built-in monitoring, logging, and networking

Choose platform version upgrade as required for the business



Business leaders

Consolidated billing and cost management across the business

Consumption-based pricing for surge and R&D usage

24/7 full-stack management and support

Financially backed 99.95% SLA

Move from 24/7 operations to 9x5 innovation

24/7 operations



Customer sets up monitoring, alerting

Customer responds to alerts

Customer runs upgrades and maintenance

Customer integrates and validates components

9x5 innovation

Simplify operations so your teams can refocus on innovation, not managing infrastructure

Accelerate time to value

Quickly build, deploy, and manage applications that scale as needed

ROSA private cluster architecture example



ROSA cluster



ROSA – Joint offering from AWS & Red Hat

WHO'S RESPONSIBLE FOR WHAT?

On premises

OpenShift Container Platform (OCP)

Cloud

OpenShift Container Platform (OCP) on AWS

Red Hat OpenShift Service on AWS (ROSA)*

Control plane

Customer

Customer

 Red Hat

Compute

Customer

Customer

 Red Hat

Data plane

Customer

Customer

 Red Hat

Support

 Red Hat

 Red Hat

 Red Hat  *

Billing

 Red Hat

 Red Hat

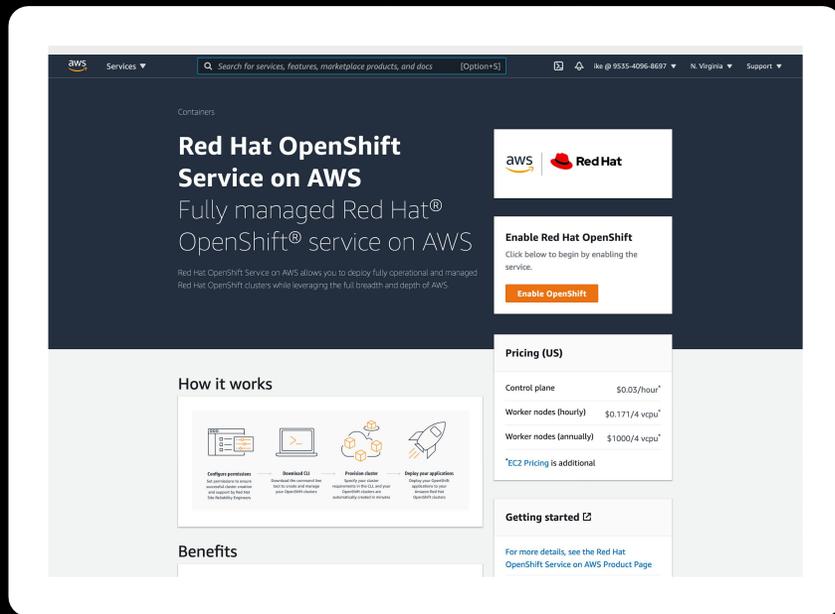


Fully managed 

*AWS Business Support Plan required



Red Hat OpenShift Service on AWS – Summary



- Focus on **innovation** to add value to your business
- Lower costs by increasing **resource utilization**
- Reduce **operational** overhead
- Increase **scaling** capabilities
- Increase **security** and **compliance**
- No need to **re-architect** existing applications
- Helps to **accelerate** your cloud migration journey

Amazon EKS vs. ROSA is a build vs. buy decision

Typical EKS customer

Platform team

- Has willingness to build/assemble
- Larger ops team
- Advanced K8s skills
- Interested in customizing the cluster
- Needs very large clusters
- Welcomes component choice/flexibility
- Operates their own clusters/fleet

Typical ROSA customer

App team/BU

- Prefers to buy complete solution/turnkey
- Usually smaller ops team (1–3 people)
- Range of skills (beginner to advanced)
- Less customization
- Small to medium clusters (<500 nodes)
- Less interested in component choices
- Wants to outsource day-to-day management

It's ~~not~~ rocket science . . .



IT orgs have a complicated estate to manage

- Have experience running OpenShift on premise but not necessarily in the cloud
- Have workloads running on OpenShift 3.11 with no easy upgrade path
- Multiple applications and components require refactoring/remediation
- Dozens to thousands of applications spanning a range of complexity and technology stacks
- Diverse set of internal + external application teams to support (employees in different teams/locations, consultants from different companies, people come and go etc)

And they typically face similar challenges

Delivery challenges

Resourcing – size of program

Storage architecture

Disaster recovery testing approach

DNS mapping issues

Skills development

Performance tuning

Operations

Self-managed to managed service

Clustering “good apps” with “bad apps”

Cybersecurity

End-to-end SLA/incident management

Managing the hybrid state for 12+ months

Buy once VS build N times

Speaking of diverse teams, let's take a **small example**

- 6 internal teams in different business units/locations

- 4 teams with mostly consultants from different companies

If everyone builds their own app platform

Your platform teams end up with 10 different app platform, some more similar than others, but none of them the same. Different update schedules, conflicting version dependencies etc.

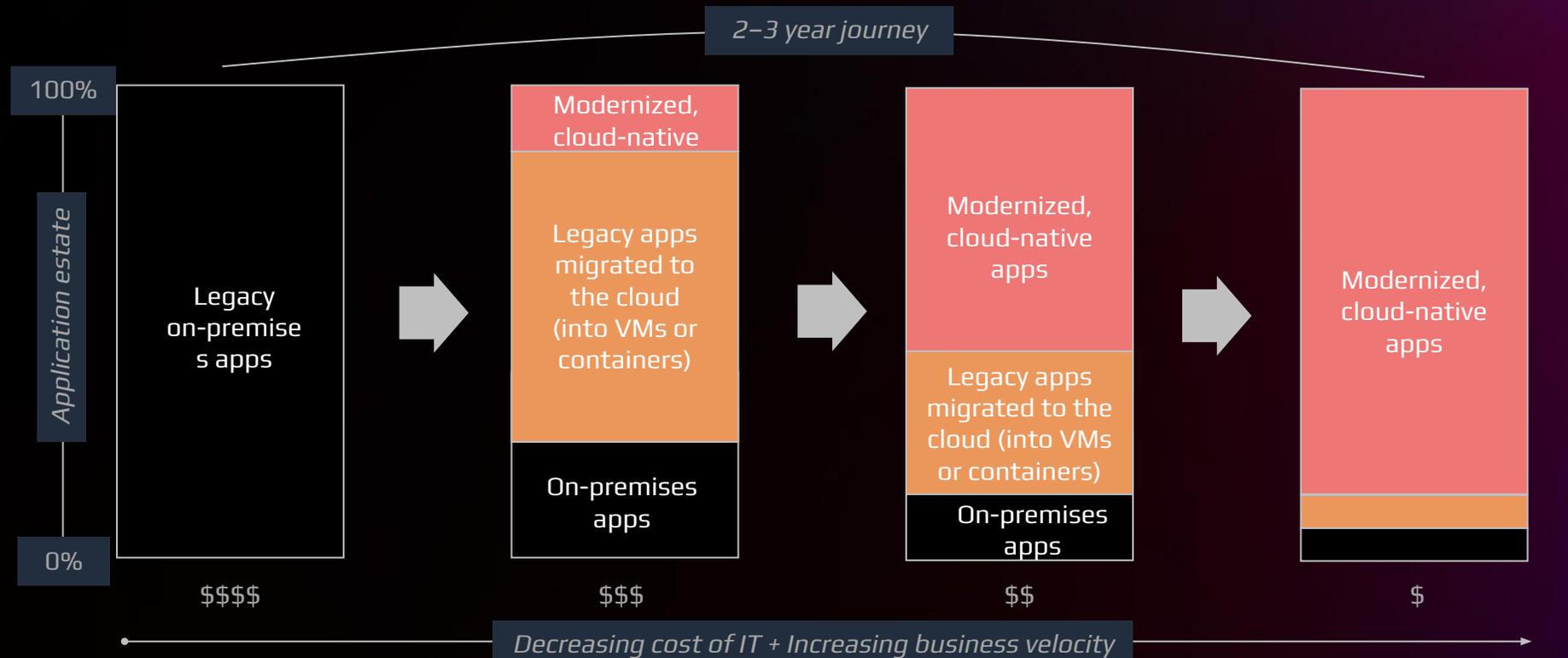
Compared to standardization on OpenShift

All 10 teams use the same platform, across AWS cloud and onprem infrastructure

Much more time for innovation



The modernization journey can take time



- 1 Conduct assessment/pilot
- 2 Migrate legacy apps
- 3 Containerize, modernize, or build new cloud-native apps
- 4 Transition migrated legacy apps to modernized apps
- 5 Complete cloud-native transformation

ROSA can help accelerate this

Expected benefits

- A fully managed platform – reduces resource-critical knowledge risk
- More reliable operations with less effort
- Empowers teams to leverage new platform capabilities

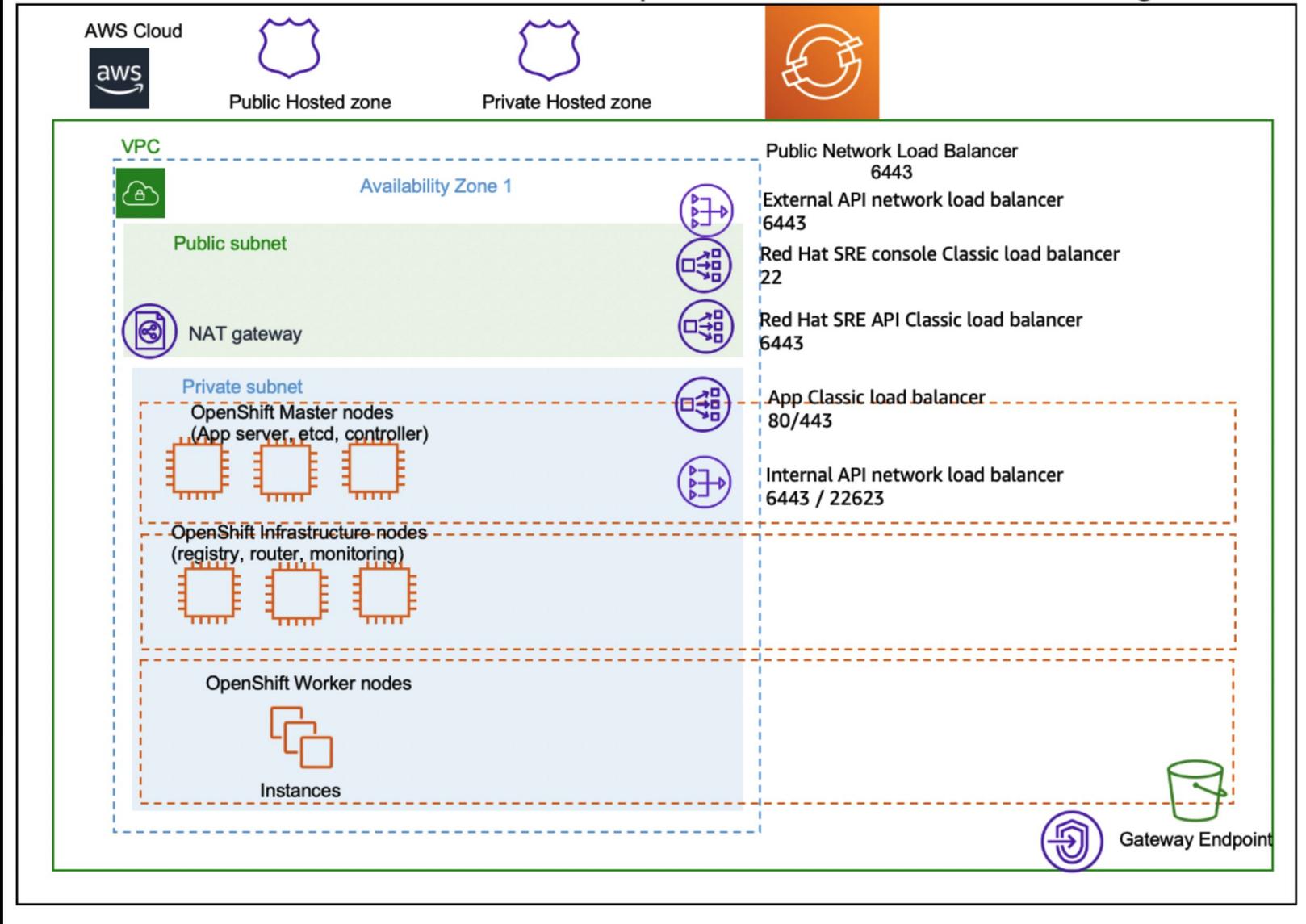
The unexpected benefits

- Flexible cost scaling based on need
- Capacity on-demand to meet performance needs
- Reduced reliance on third-party
- Compute resource tuning for specific applications

Its Demo time!



Red Hat OpenShift Service on AWS Default Single AZ



Three ways to create a ROSA cluster

- ROSA CLI
- **AWS + Red Hat Console**
- Terraform


```
Downloads: rosa create user-role <region:us-east-1>
I: Creating User role
? Role prefix: ManagedOpenShift
? Permissions boundary ARN (optional):
? Role Path (optional):
? Role creation mode: auto
I: Creating ocm user role using 'arn:aws:iam::274285055402:role/Admin'
? Create the 'ManagedOpenShift-User-thiru85@gmail.com-Role' role? Yes
I: Created role 'ManagedOpenShift-User-thiru85@gmail.com-Role' with ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-User-thiru85@gmail.com-Role'
I: Linking User role
? User Role ARN: arn:aws:iam::274285055402:role/ManagedOpenShift-User-thiru85@gmail.com-Role
? Link the 'arn:aws:iam::274285055402:role/ManagedOpenShift-User-thiru85@gmail.com-Role' role with account '2QHMYLGbSLn39tGhbcxC4ZPk1CM'? Yes
I: Successfully linked role ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-User-thiru85@gmail.com-Role' with account '2QHMYLGbSLn39tGhbcxC4ZPk1CM'
Downloads: █ <region:us-east-1>
```



```
Downloads: rosa create account-roles <region:us-east-1>
I: Logged in as 'thiru85@gmail.com' on 'https://api.openshift.com'
I: Validating AWS credentials...
I: AWS credentials are valid!
I: Validating AWS quota...
I: AWS quota ok. If cluster installation fails, validate actual AWS resource usage against https://docs.openshift.com/rosa/rosa_getting_started/rosa-require-aws-service-quotas.html
I: Verifying whether OpenShift command-line tool is available...
W: OpenShift command-line tool is not installed.
Run 'rosa download oc' to download the latest version, then add it to your PATH.
I: Creating account roles
? Role prefix: ManagedOpenShift
? Permissions boundary ARN (optional):
? Path (optional):
? Role creation mode: auto
I: Creating roles using 'arn:aws:iam::274285055402:role/Admin'
I: Created role 'ManagedOpenShift-Installer-Role' with ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-Installer-Role'
I: Created role 'ManagedOpenShift-ControlPlane-Role' with ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-ControlPlane-Role'
I: Created role 'ManagedOpenShift-Worker-Role' with ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-Worker-Role'
I: Created role 'ManagedOpenShift-Support-Role' with ARN 'arn:aws:iam::274285055402:role/ManagedOpenShift-Support-Role'
I: To create an OIDC Config, run the following command:
    rosa create oidc-config
I: To create a cluster with these roles, run the following command:
    rosa create cluster --sts
Downloads: █ <region:us-east-1>
```



Create a ROSA Cluster

- 1 Accounts and roles
- 2 Cluster settings >
- 3 Networking >
- 4 Cluster roles and policies
- 5 Cluster updates
- 6 Review and create

Welcome to Red Hat OpenShift Service on AWS (ROSA)

Create a managed OpenShift cluster on an existing Amazon Web Services (AWS) account.

Prerequisites

To use the web interface to create a ROSA cluster you will need to have already completed the prerequisite steps to prepare your AWS account on the [Get started with a Red Hat OpenShift Service on AWS \(ROSA\) page](#).

AWS infrastructure account

Select an AWS account that is associated with your Red Hat account or associate a new account. This account will contain the ROSA infrastructure.

Associated AWS infrastructure account * ⓘ

274285055402

Refresh

[How to associate a new account](#)

Account roles

Account roles ARNs

The following roles were detected in your AWS account. [Learn more about account roles](#).

Refresh ARNs

Installer role * ⓘ

arn:aws:iam::274285055402:role/ManagedOpenShift-Installer-Role

Support role * ⓘ

arn:aws:iam::274285055402:role/ManagedOpenShift-Support-Role

Worker role * ⓘ

arn:aws:iam::274285055402:role/ManagedOpenShift-Worker-Role

Control plane role * ⓘ

arn:aws:iam::274285055402:role/ManagedOpenShift-ControlPlane-Role

i The selected account-wide roles are compatible with OpenShift version 4.13 and earlier.

Next

Back

Cancel

Create a ROSA Cluster

1 Accounts and roles

2 Cluster settings

Details

Machine pool

3 Networking

4 Cluster roles and policies

5 Cluster updates

6 Review and create

Default machine pool

Select a compute node instance type and count for your default machine pool.
After cluster creation, your selected default machine pool instance type is permanent.

Compute node instance type * ⓘ

m5.xlarge - 4 vCPU 16 GiB RAM

Autoscaling ⓘ

Enable autoscaling

Minimum node count * Maximum node count * ⓘ

- 2 + - 4 +

> [Edit node labels](#)

Next

Back

Cancel

Create a ROSA Cluster

- 1 Accounts and roles
- 2 Cluster settings >
- 3 **Networking** ▾
 - Configuration
 - CIDR ranges
- 4 Cluster roles and policies
- 5 Cluster updates
- 6 Review and create

Networking configuration

Configure network access for your cluster.

Cluster privacy

Install your cluster with all public or private API endpoints and application routes.

- Public**
Access Kubernetes API endpoint and application routes from the internet.
- Private**
Access Kubernetes API endpoint and application routes from direct private connections only.

Virtual Private Cloud (VPC)

By default, a new VPC will be created for your cluster. Alternatively, you may opt to install to an existing VPC below.

- Install into an existing VPC
 - Configure a cluster-wide proxy**
Enable an HTTP or HTTPS proxy to deny direct access to the internet from your cluster.

Next

Back

Cancel

Create a ROSA Cluster

- 1 Accounts and roles
- 2 Cluster settings >
- 3 **Networking** ▾
 - Configuration
 - CIDR ranges**
- 4 Cluster roles and policies
- 5 Cluster updates
- 6 Review and create

CIDR ranges

i CIDR ranges cannot be changed after you create your cluster.
Specify non-overlapping ranges for machine, service, and pod ranges. Each range should correspond to the first IP address in their subnet.
[Learn more to avoid conflicts](#) 

Use default values

The below values are safe defaults. However, you must ensure that the Machine CIDR is valid for your chosen subnet(s).

Machine CIDR 

10.0.0.0/16

Subnet mask must be between /16 and /25.

Service CIDR 

172.30.0.0/16

Subnet mask must be at most /24.

Pod CIDR 

10.128.0.0/16

Subnet mask must allow for at least 32 nodes.

Host prefix 

/23

Must be between /23 and /26.

Next

Back

Cancel



Create a ROSA Cluster

- 1 Accounts and roles
- 2 Cluster settings >
- 3 Networking >
- 4 Cluster roles and policies**
- 5 Cluster updates
- 6 Review and create

Cluster roles and policies

Set whether you'd like Red Hat to manage your OIDC configuration or you'd like to manage it yourself.

Red Hat manage the OIDC Manage the OIDC myself

Choose the preferred mode for creating the operator roles and OIDC provider. [Learn more about ROSA roles](#) 

Manual

You can choose from two options to manually generate the necessary roles and policies for your cluster operators and the OIDC provider: ROSA CLI commands, or AWS CLI commands. **You must complete one of those options after cluster review for your cluster to complete installation.**

Auto

Immediately create the necessary cluster operator roles and OIDC provider. This mode requires an admin privileged OCM role.

Name operator roles

To easily identify the Operator IAM roles for a cluster in your AWS account, the Operator role names are prefixed with your cluster name and a random 4-digit hash. You can optionally replace this prefix.

Custom operator roles prefix

thiru-rosa1-yip8

Maximum 32 characters. Changing the cluster name will regenerate this value.

Next

Back

Cancel

Create a ROSA Cluster

- 1 Accounts and roles
- 2 Cluster settings >
- 3 Networking >
- 4 Cluster roles and policies
- 5 Cluster updates**
- 6 Review and create

Cluster update strategy

Note: In the event of [Critical security concerns](#) (CVEs) that significantly impact the security or stability of the cluster, updates may be automatically scheduled to the z-stream version not impacted by the CVE within 48 hours after customer notifications.

Individual updates

Schedule each update individually. Take into consideration end of life dates from the [lifecycle policy](#) when planning updates.

Recurring updates

The cluster will be automatically updated based on your preferred day and start time when new patch updates ([z-stream](#)) are available. When a new minor version is available, allow the cluster to update to the next minor version.

Node draining

You may set a grace period for how long pod disruption budget-protected workloads will be respected during updates. After this grace period, any workloads that have not been successfully drained from a node will be forcibly evicted.

Grace period

1 hour ▾

Next

Back

Cancel

5 Cluster updates

6 Review and create

Version	4.13.0
Region	us-east-1
Availability	Single zone
User workload monitoring	Enabled
Encrypt volumes with customer keys	Disabled
Additional etcd encryption	Disabled
FIPS cryptography	Disabled

▼ **Default machine pool** [Edit step](#)

Node instance type	m5.xlarge
Autoscaling	Enabled
Compute node range	Minimum nodes: 2 Maximum nodes: 4

▼ **Networking** [Edit step](#)

Cluster privacy	Public
Install into existing VPC	Disabled
Machine CIDR	10.0.0.0/16
Service CIDR	172.30.0.0/16
Pod CIDR	10.128.0.0/16
Host prefix	/23

▼ **Cluster roles and policies** [Edit step](#)

Operator roles and OIDC provider mode	auto
Operator roles prefix	thiru-rosal-yip8

▼ **Updates** [Edit step](#)

Update strategy	Individual updates
Node draining	60 minutes

Create cluster

Back

Cancel



thiru-rosa1

Overview Access control Settings

Installing cluster [Download OC CLI](#)

Cluster creation usually takes 30 to 60 minutes to complete.



Details

Cluster ID N/A	Status Waiting
Type ROSA	Total vCPU 0 vCPU
Region us-east-1	Total memory 0 B
Availability Single zone	Infrastructure AWS account 274285055402
Version OpenShift: 4.13.0	Nodes Control plane: 0 Infra: N/A Compute: N/A
Created at 5/29/2023 2:56:04 PM	Autoscale ⓘ Enabled Min: 2 Max: 4
Owner Thirumalai Aiyalu	Network Machine CIDR: 10.0.0.0/16 Service CIDR: 172.30.0.0/16 Pod CIDR: 10.128.0.0/16 Host prefix: 23

Instances (1) Info

Find instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic I
red-hat-region-init	i-0edcad0d149e98cd9	Pending	t2.micro	-	No alarms	us-east-1b	ec2-54-234-227-169.compute-1.amazonaws.com	54.234.227.169	-

Installing cluster [Download OC CLI](#)

Cluster creation usually takes 30 to 60 minutes to complete.



3722 lines

```
time="2023-05-29T13:01:26Z" level=debug msg="module.vpc.aws_lb.api_external[0]: Still creating... [1m10s elapsed]"
time="2023-05-29T13:01:26Z" level=debug msg="module.vpc.aws_lb.api_internal: Still creating... [1m10s elapsed]"
time="2023-05-29T13:01:26Z" level=debug msg="module.dns.data.aws_route53_zone.int: Read complete after 1s [id=Z044753825UP3GUVE1029]"
time="2023-05-29T13:01:26Z" level=debug msg="module.vpc.aws_nat_gateway.nat_gw[0]: Still creating... [1m10s elapsed]"
time="2023-05-29T13:01:36Z" level=debug msg="module.vpc.aws_lb.api_internal: Still creating... [1m20s elapsed]"
time="2023-05-29T13:01:36Z" level=debug msg="module.vpc.aws_nat_gateway.nat_gw[0]: Still creating... [1m20s elapsed]"
time="2023-05-29T13:01:46Z" level=debug msg="module.vpc.aws_lb.api_external[0]: Still creating... [1m30s elapsed]"
time="2023-05-29T13:01:46Z" level=debug msg="module.vpc.aws_lb.api_internal: Still creating... [1m30s elapsed]"
time="2023-05-29T13:01:56Z" level=debug msg="module.vpc.aws_lb.api_external[0]: Still creating... [1m40s elapsed]"
time="2023-05-29T13:01:56Z" level=debug msg="module.vpc.aws_nat_gateway.nat_gw[0]: Still creating... [1m40s elapsed]"
time="2023-05-29T13:02:01Z" level=debug msg="module.vpc.aws_route.to_nat_gw[0]: Creating..."
time="2023-05-29T13:02:06Z" level=debug msg="module.vpc.aws_lb.api_external[0]: Still creating... [1m50s elapsed]"
time="2023-05-29T13:02:06Z" level=debug msg="module.vpc.aws_lb.api_internal: Still creating... [1m50s elapsed]"
```

Details

Cluster ID	N/A	Status	Installing
Type	ROSA	Total vCPU	0 vCPU
Region	us-east-1	Total memory	0 B

Availability

Single zone

Version

OpenShift: 4.13.0

Created at

5/29/2023 2:56:04 PM

Owner

Thirumalai Aiyalu

Instances (4) Info

Find instance by attribute or tag (case-sensitive)

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 D
<input type="checkbox"/>	red-hat-region-init	i-0edcad0d149e98cd9	Terminated	t2.micro	-	No alarms	us-east-1b	-
<input type="checkbox"/>	thiru-rosa1-n24vq-master-2	i-013e05a8738ddf033	Running	m5.2xlarge	Initializing	No alarms	us-east-1a	-
<input type="checkbox"/>	thiru-rosa1-n24vq-master-1	i-03e21b0c036cd6dbc	Running	m5.2xlarge	Initializing	No alarms	us-east-1a	-
<input type="checkbox"/>	thiru-rosa1-n24vq-master-0	i-00cfc1277d88e4eff	Running	m5.2xlarge	Initializing	No alarms	us-east-1a	-

Service CIDR: 172.30.0.0/16
Pod CIDR: 10.128.0.0/16
Host prefix: 23



thiru-rosa1

⚠️ Missing identity providers

Identity providers determine how users log into the cluster. [Add OAuth configuration](#) to allow others to log in.

- Overview
- Access control
- Add-ons
- Cluster history
- Networking
- Machine pools
- Support
- Settings

✔️ Cluster installed successfully

Details

Cluster ID

fcdaa586-98bf-41fa-8292-c937b507b5cd

Type

ROSA

Region

us-east-1

Availability

Single zone

Version

OpenShift: 4.13.0

Created at

5/29/2023 2:56:04 PM

Owner

Thirumalai Aiyalu

Status

✔️ Ready

Total vCPU

32 vCPU

Total memory

122.52 GiB

Infrastructure AWS account

274285055402

Nodes

Control plane: 3

Infra: 0

Compute: 2

Autoscale ?

Enabled

Min: 2 Max: 4

Network

Machine CIDR: 10.0.0.0/16

Service CIDR: 172.30.0.0/16

Pod CIDR: 10.128.0.0/16

Host prefix: 23



</> Developer

+Add

Topology

Observe

Search

Builds

Helm

Project

ConfigMaps

Secrets

Project: All Projects

Getting Started

OpenShift helps you quickly develop, host, and scale applications. To get started, create a project for your application.

To learn more, visit the OpenShift [documentation](#).

Download the [command-line tools](#)

[Create a new project](#)

Add

Select a Project to start adding to it or [create a Project](#).

No Projects found

```
Downloads: oc login https://api.thiru-rosa1.i8th.p1.openshiftapps.com:6443 --username admin --password P@ssw0rd123456 <region:us-east-1>
Login successful.
```

You don't have any projects. You can try to create a new project, by running

```
oc new-project <projectname>
```

```
Downloads: oc get nodes <region:us-east-1>
```

```
Error from server (Forbidden): nodes is forbidden: User "admin" cannot list resource "nodes" in API group "" at the cluster scope
```

```
Downloads: oc get nodes <region:us-east-1>
```

NAME	STATUS	ROLES	AGE	VERSION
ip-10-0-140-237.ec2.internal	Ready	control-plane,master	45m	v1.26.3+b404935
ip-10-0-161-177.ec2.internal	Ready	worker	37m	v1.26.3+b404935
ip-10-0-167-255.ec2.internal	Ready	control-plane,master	45m	v1.26.3+b404935
ip-10-0-185-209.ec2.internal	Ready	worker	13m	v1.26.3+b404935
ip-10-0-196-98.ec2.internal	Ready	worker	37m	v1.26.3+b404935
ip-10-0-201-166.ec2.internal	Ready	infra,worker	16m	v1.26.3+b404935
ip-10-0-218-146.ec2.internal	Ready	infra,worker	16m	v1.26.3+b404935
ip-10-0-228-18.ec2.internal	Ready	control-plane,master	45m	v1.26.3+b404935

```
Downloads: █ <region:us-east-1>
```



- Developer
- +Add
- Topology
- Observe
- Search
- Builds
- Helm
- Project
- ConfigMaps
- Secrets

Project: awsdemo Application: All applications

Display options Filter by resource Name Find by name...



D code-w...uarkus

A sample-app

code-with-quarkus

Health checks
Container code-with-quarkus does not have health checks to ensure your application is running correctly. [Add health checks](#)

Details Resources Observe

Pods

P code-with-quarkus-65bdc69bb-1phv	Running	View logs
------------------------------------	---------	-----------

Builds

BC code-with-quarkus	Start Build
Build #1 was complete (18 minutes ago)	View logs

Services

S awsservice-quarkus	Service port: TCP/80 → Pod port: 8081
S code-with-quarkus	Service port: http → Pod port: 8081

Routes

RT code-with-quarkus	Location: http://code-with-quarkus-awsdemo.apps.thiru-rosalibth.pl.openshiftapps.com
----------------------	--

ROSA enhancements in 2023 announced at re:Invent 2022



ROSA improved provisioning workflows

- Automated requirement checks
- Actionable guidance from within the getting started experience
- AWS managed IAM policies for ROSA
- Full cluster install from AWS Console

aws Services Search for services, service features, Marketplace products, docs, and more [Alt+S] N. Virginia MyRole/AWSUser @ 0123-4567-8901

ROSA > Get started

Verify ROSA prerequisites info

The ROSA prerequisite wizard checks many required prerequisites all at once. It saves your time from jumping through different CLIs and going back-and-forth between AWS console and Red Hat Hybrid Console, and see all needed steps at a single place.

Enable ROSA info

We are checking multiple permissions that are needed to enable ROSA. Lorem ipsum

Share your contact information with Red Hat

You need to agree to share your contact information with Red Hat in order to use ROSA

Red Hat OpenShift Service on AWS (ROSA) is a fully-managed and jointly supported Red Hat OpenShift offering that combines the power of Red Hat OpenShift and AWS. We collaborate with Red Hat to provide ROSA as a fully managed service. To enable this experience, you will need to create a Red Hat account and share contact information with Red Hat.

I agree to share my contact information with Red Hat.

AWS Marketplace permissions info

Checking your AWS Marketplace permissions ↻

Enable ROSA info

Enabling ROSA ↻

Verify AWS quota info

Certain Amazon Web Service (AWS) service quotas are required to run Red Hat OpenShift Service on AWS cluster.

Verifying AWS quota to run ROSA

Verifying your AWS quota ↻

Service Linked Role info

Red Hat OpenShift Service on AWS (ROSA) uses a service-linked role: Elastic Load Balancing (ELB) role to connect to AWS services to orchestrate them on your behalf. The first time you use ROSA the service-linked role is created for you with the correct permissions.

Checking service-linked role... ↻

Associate AWS account with Red Hat info

Link your AWS account with Red Hat

Red Hat login or email Password

[Log in to Red Hat](#) [Register for a Red Hat account](#)

While we are checking your ROSA prerequisite, you can still log in to Red Hat Hybrid Cloud console, although you will not succeed if you don't meet all the ROSA prerequisites.

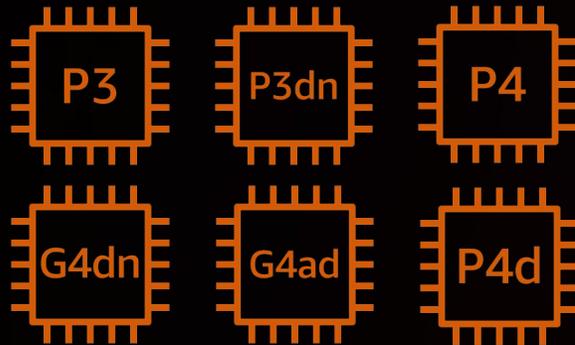
[Cancel](#) [Navigate to Red Hat Hybrid Cloud console](#)

Feedback © 2021, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences



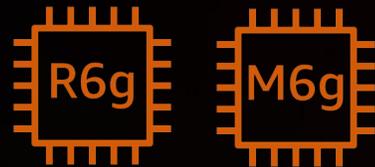
ROSA expanded instance types

Accelerated computing instances (GPUs)



Available now
(most of them)

Graviton instances



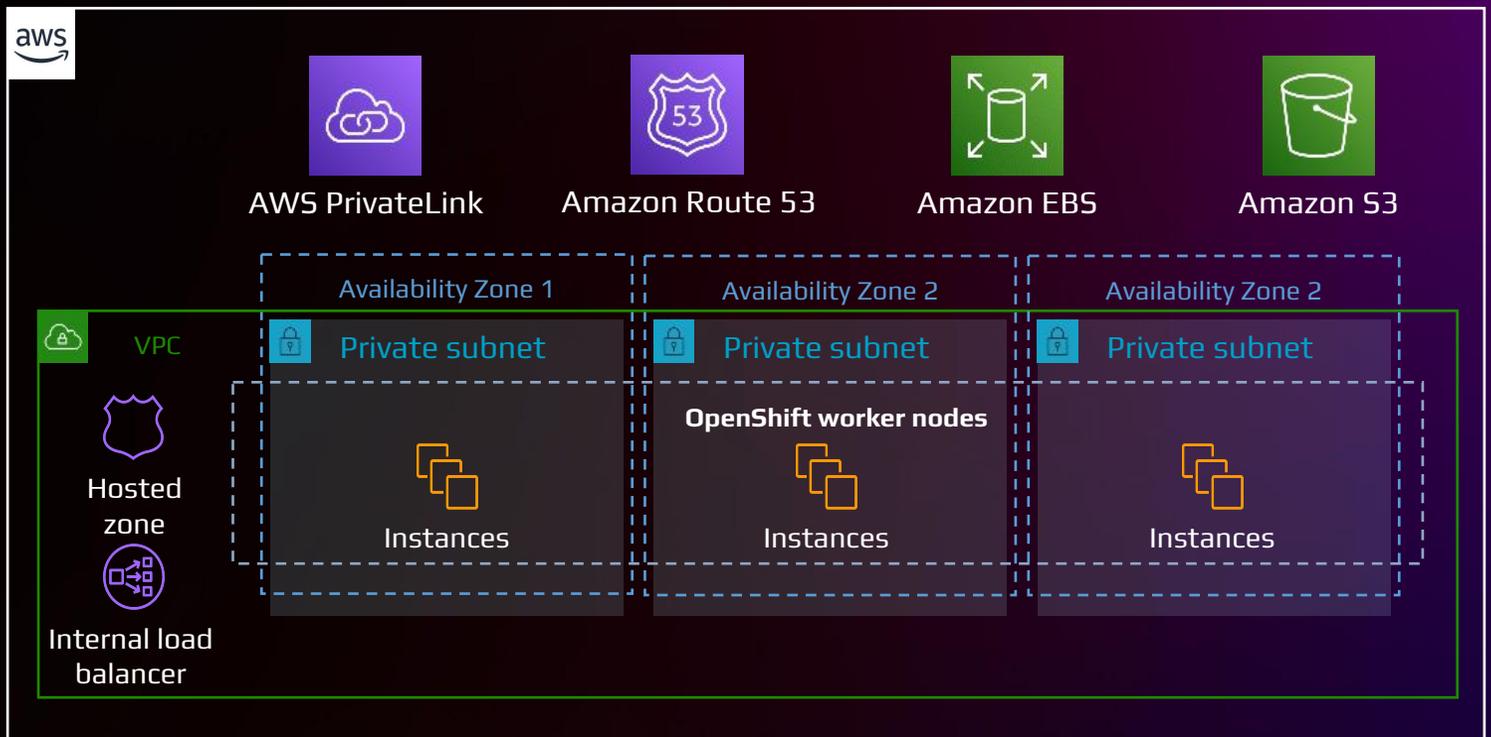
Coming soon

ROSA hosted control plane architecture (Tech Preview now, GA very soon...)



ROSA cluster

- Control plane and infrastructure nodes centralized in service account
 - Moving from customer account
 - Reducing infrastructure costs
- Faster provisioning: 10 vs 40 min
- Lower cost: 2 node minimum vs 7
- Flexible upgrade options
 - Upgrade node pools independently



Additional resources



[AWS ROSA product page](#)

Main AWS ROSA web page



[ROSA pricing](#)

Pricing details for ROSA



[ROSA Documentation](#)

ROSA documentation pages



[ROSA Videos](#)

Curated YouTube playlist of ROSA videos



Thank you!

