

Red Hat
Summit

Connect

Red Hat OpenShift on AWS

ROSA: Servicio Gestionado Inteligente y Seguro

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for Modern Applications

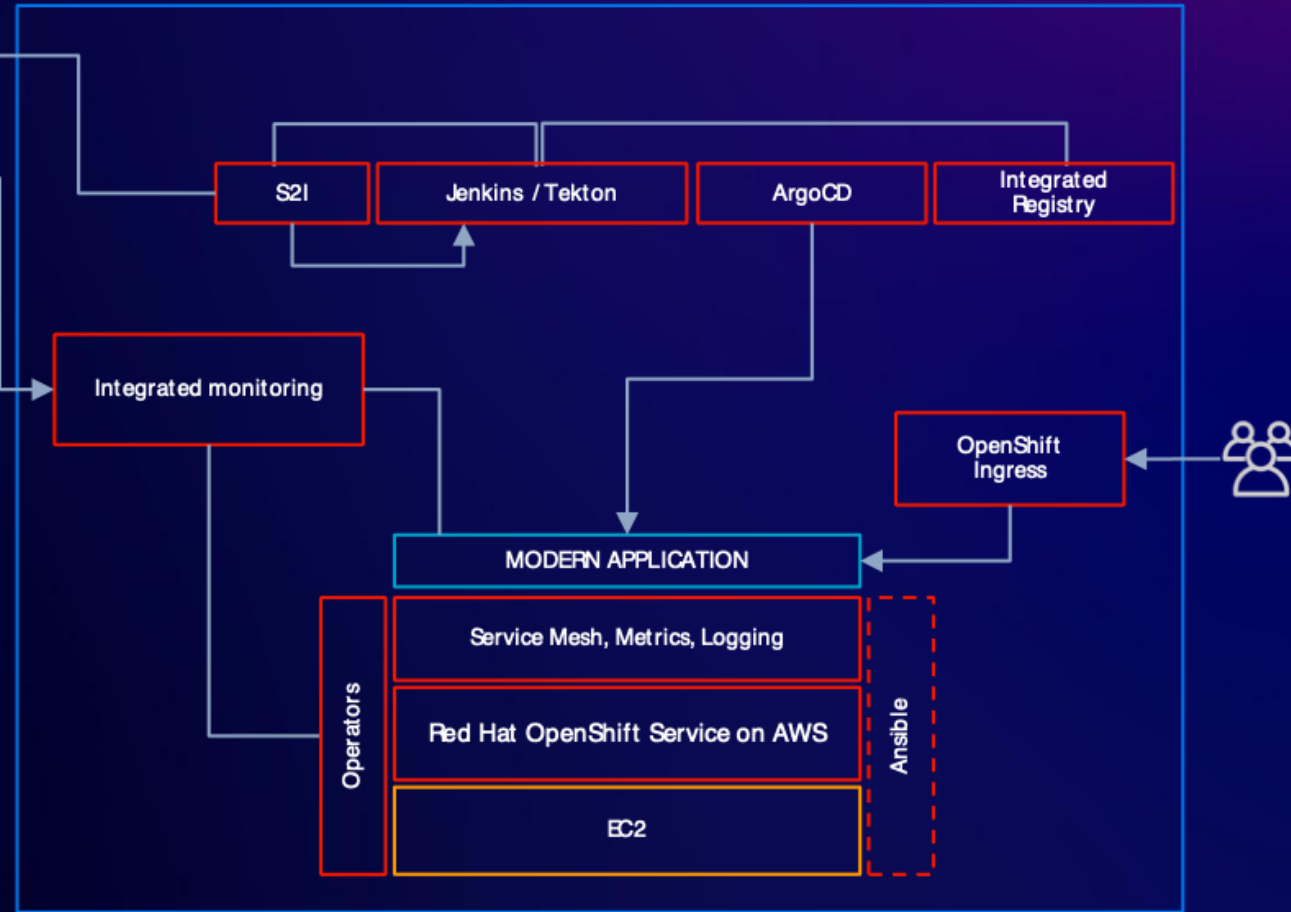
Red Hat OpenShift Service on AWS (ROSA)

Integration



Turnkey and integrated platform

- 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
- Unified support model, with and a consumption based pricing.



OpenShift Integrated Components

AWS Services



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Red Hat OpenShift Service on AWS (ROSA)

ROSA - A JOINT OFFERING FROM AWS AND RED HAT

On-premises

OpenShift Container Platform (OCP)

Control Plane

Customer

Compute

Customer

Data Plane

Customer

Support

 Red Hat

Billing

 Red Hat

AWS

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



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Red Hat OpenShift Service on AWS (ROSA)

Console service

Create OpenShift clusters in minutes

AWS Console experience to start with ROSA, Red Hat Console experience to manage ROSA

Unified bill

Leverage your existing AWS commitment like EPD

Single unified bill from AWS

Fully-managed by AWS and Red Hat

Platform, monitoring

Application networking

Cluster networking, upgrades

Control plane and infra. nodes

Worker nodes

Capacity Management

Physical infrastructure and security

24x7x365 support

Joint support

Integrated support systems

Financially backed SLA 99.95%

Foundation based on RHEL, decades of enterprise IT knowledge and experience

Turnkey Solution with Day 2 Operations built-in

Integration with AWS

Shared VPC, Local Zones, Amazon STS, Amazon PrivateLink

Containerized applications integrate to more than **170 AWS native services**

Customer Responsibility

Customer data and application

Application and data backups

Identity & User management




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ROSA Top 3 Customer Use Cases

HYBRID AND MIGRATION ACCELERATION

 Re-host on-premise
and self-managed Kubernetes/OpenShift

 Re-platform from
private
and public cloud

 Burst capacity in AWS
Hybrid strategy
Low latency workloads

 **OpenShift Virtualization:**
VM hypervisor in ROSA

 **Multi-cluster management**
Hybrid / AWS and other clouds

MODERN APPLICATIONS

 AWS native
architectures


 Flexible cost
models

 Quality and speed of
application delivery

 Security, platform
built-in support and
automation

COMMERCIAL AND OPEN SOURCE WORKLOADS

 ISV certified and
community integrations

 **OpenShift AI: Data and
AI/ML frameworks and
pipelines**

 Host specialized workloads
Eg Red Hat SSO, IBM CloudPaks



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ROSA Top 3 Customer Use Cases



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ROSA Feature Map

Multi-cluster management

Observability | Discovery | Policy | Compliance | Configuration | Workloads

Red Hat Advanced Cluster Management

Workload management

Service mesh (Istio, Kiali)
Serverless (Knative/ KEDA)
CI/ CD (Tekton), GitOps (ArgoCD)
Insight Cost Management service

Container security and registry

Declarative security | Container build & runtime vulnerability | Threat detection and response

Red Hat Advanced Cluster Security

ISV and community solutions

500 ISV certified (Red Hat SSO, CloudPaks) and community solutions
Languages and runtimes
API management (OpenShift API Mgt)
Messaging (OpenShift Streams)

VM Virtualization

Live migration | Snapshots | VM templates | VM as Code | CNI/ CSI/ Load Balancing

ROSA Virtualization

Cluster management

Automatable cluster upgrades
Ingress via AWS NLB (Default) or ALB
RWO, RWX, Object | CSI |
Cert., Custom Domain, TLS profile | Backup |
Observability (Prometheus, CloudWatch, Jaeger)

AI/ ML workloads

OpenShift AI: Jupyter Notebook server | Automated model serving | ML frameworks like TensorFlow, PyTorch, and KubeFlow
GPU acceleration on ROSA (NVIDIA)

Developer productivity

Developer CLI | IDE Plugins and extensions
DevSpaces workspaces
Developer Hub (Backstage)
Source-to-Image (S2I)

OpenShift cluster services

Install | Updates on schedule | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Identity Providers | Containers | Operators | Helm

Kubernetes (orchestration)



Linux (container host operating system)



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ROSA Feature Map

Only available in AWS ^{no}
other providers

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ROSA with Hosted Control Plane (HCP)

Only available in
AWS no other providers

Cost Optimization

Control plane runs in a ROSA management account, reducing AWS infrastructure fees.

Simplified policy management

AWS managed policies restrict SRE access to customer resources and simplify IAM role creation.

Streamlined Infrastructure Deployment

Cluster create time reduced by up to 2/3.



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ROSA Low Latency: Iberia Region

The new region is already available providing reduced latency to AWS customers based in Spain and Portugal



- €2.5 billion over the next 10 years
- €1.8 billion increase in GDP
- 1,300 equivalent full-time jobs
- 368MW in four off-site solar projects



AWS workforce development in Spain

With over **60** educational programs

AWS and sustainability

AWS's infrastructure is **3.6** times more energy efficient



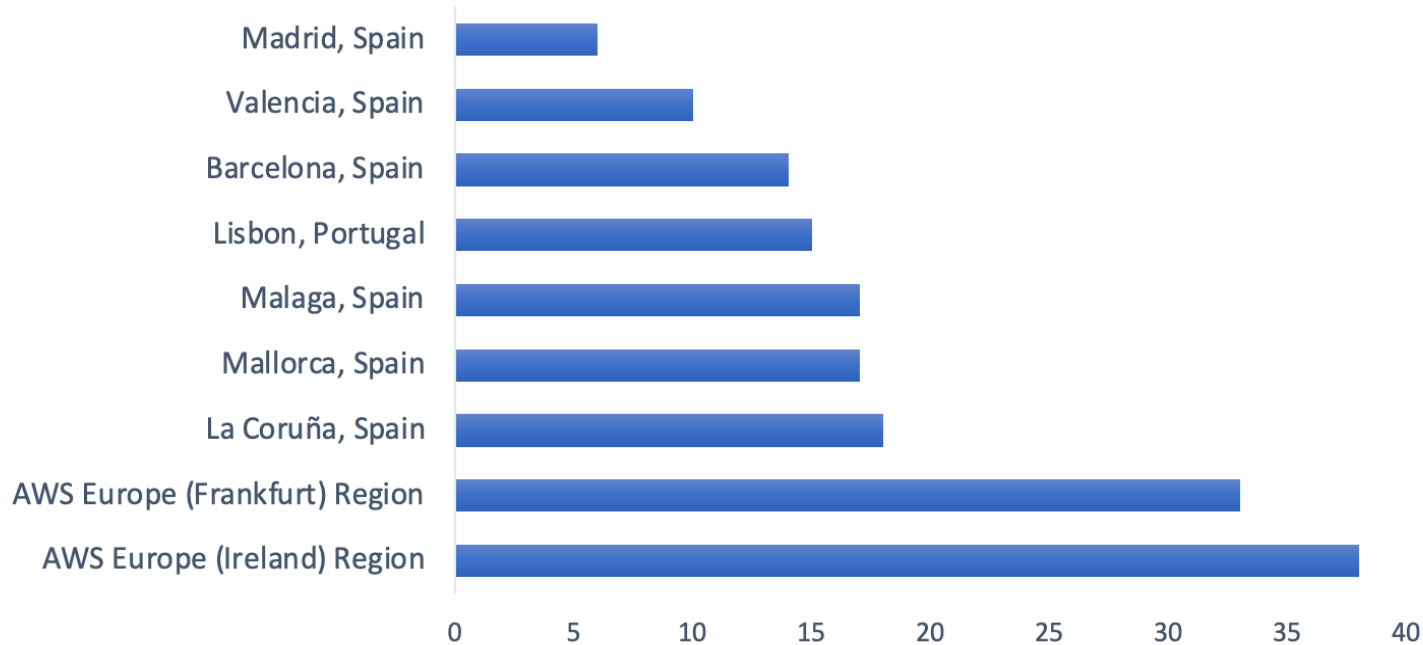
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ROSA Low Latency: Iberia Region

The n

Latency (in ms) from AWS Europe (Spain) Region



ain and Portugal

development in Spain



and sustainability

are is

6 times more energy efficient



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Coming Soon

Added Compute Capabilities

Inferentia and Trainium instance support

Up to 249 compute nodes per classic cluster

Up to 501 compute nodes per HCP cluster

Graviton Instance Support (initially HCP only)



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IBM software on ROSA



- IBM SaaS products powered by ROSA (MAXIMO, TRIRIGA,...)
- Self-host IBM software on ROSA



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ROSA Programs - 2024

ROSA PoC funding (2 months)	AWS Credits and \$0 AWS Marketplace Private offer
OpenShift on-prem to ROSA Discount	Up to 75% Discount off ROSA service fees over 1 year for unused subscriptions
OpenShift Virtualization Partner Training Funding	70% savings off self-paced virtualization bundle
AWS Windows Migration Accelerator (WMA)	Up to \$250 USD cash per Windows Server migrated https://aws.amazon.com/application-migration-service/windows/
AWS Migration Acceleration Program Funding (MAP)	15% MAP Lite (<100k) 25% MAP (>100k) https://aws.amazon.com/migration-acceleration-program/
AWS Enterprise Discount Program (EDP)	https://aws.amazon.com/pricing/enterprise/



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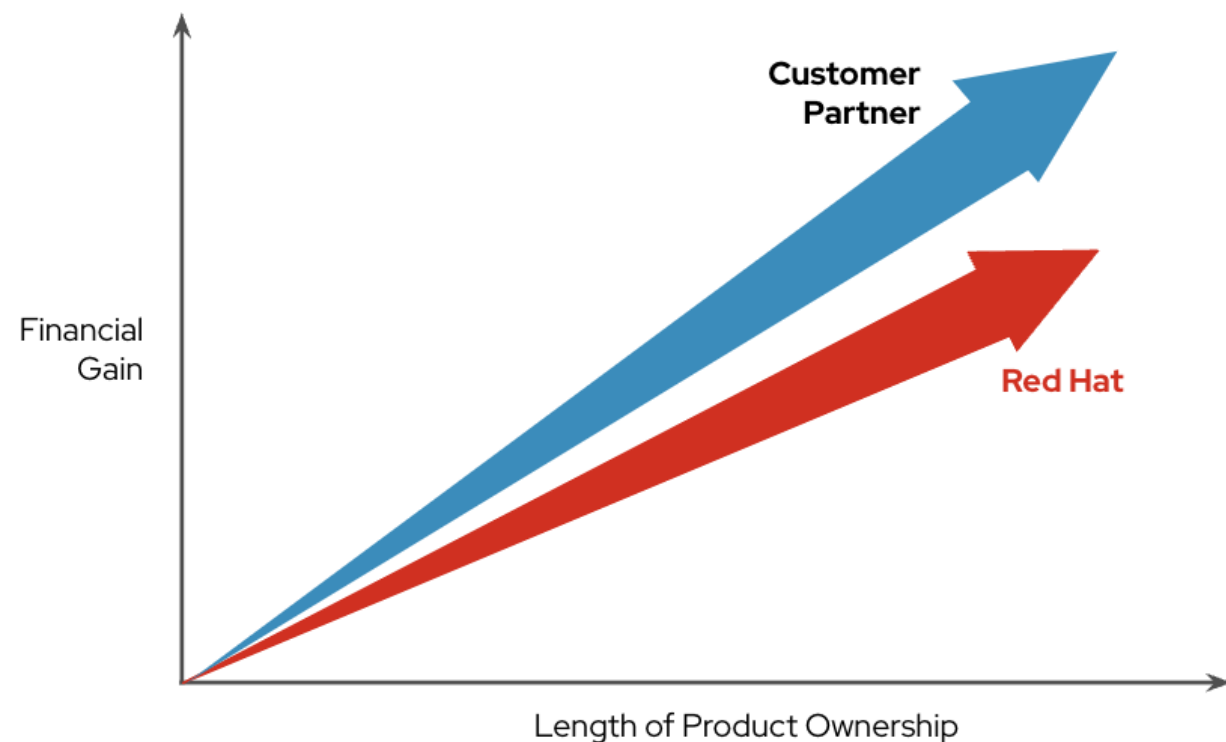


Red Hat

Víctor Hernando

Senior Black Belt, Managed OpenShift

Together in the Journey



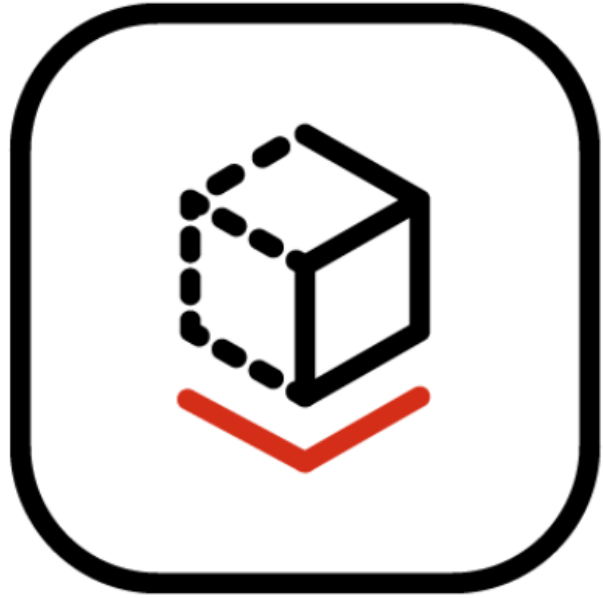
Red Hat Cloud Services Black Belts

- **Guide and enable customers and RH stakeholders.**
- **Remove technical, organizational and business blockers.**
- **Improve the product with feedback to SRE, BU and PnT**

Red Hat Cloud Services Customer Success Executive/Architect

- **Success Planning & Consumption Tracking:** Capturing customers' short and long-term objectives for ROSA, coordinating a strategy to achieve those objectives by positioning the right technical resources, and tracking the customers' cloud consumption over time.
- **Onboarding:** Through proactive or digital outreach, helping customers navigate early milestones in their usage of Red Hat's Managed Cloud Services.
- **Adoption Assessments:** Assessing customers' current adoption of our Cloud Services and establishing a mitigation plan.

OpenShift Virtualization



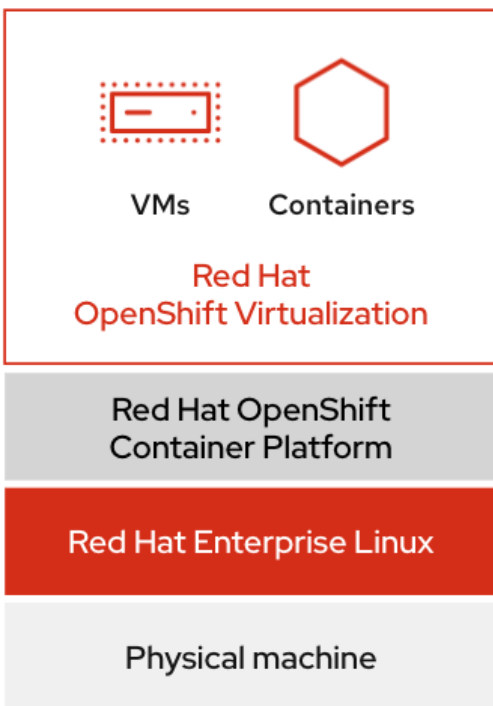
A virtualization API and runtime for OpenShift, built on KubeVirt, to run and manage virtual machines using a Kubernetes-native way

OpenShift Virtualization is **included** at no cost in all OpenShift editions since 2020

The only **requirement** is OpenShift to be running on bare metal

Red Hat OpenShift Virtualization

The alternative option for modern virtualization



- ▶ **Unified platform**

for running virtual machines and containers
Unified DevOps for VMs and Containers

- ▶ **Consistent management**

toolings, interface, and ecosystem,
multi cluster management

- ▶ **Performance and stability**

of Kernel-based Virtual Machine (KVM),
the Linux kernel-based hypervisor

- ▶ **Built on KubeVirt**

Rapid innovation through Open Source
community. Top 10 CNCF active project with
190+ contributing companies

- ▶ **Included feature**

of the Red Hat OpenShift application
platform

- ▶ **Diverse Ecosystem**

of the Red Hat OpenShift
application platform

- ▶ **Includes Red Hat Enterprise Linux**

guest entitlements for RHEL
included at no cost

- ▶ **Supports Microsoft Windows**

guests through Microsoft Server Virtualization
Validation Program (SVVP)

Bring traditional VMs into OpenShift

Traditional VM behavior in a modern platform

- ▶ Administrator concepts and actions
- ▶ Network connectivity
- ▶ Live migration

Leverage existing VM roles and responsibilities

- ▶ Maintain business critical application components
- ▶ Modernize skill sets over time

Migration Tooling

- ▶ **Migration Toolkit for Virtualization** (MTV)
- ▶ Warm migration of VMs at scale

Create Migration Plan

2 VM selection

Filter VMs

Select VMs

3 Storage mapping

4 Network mapping

5 Hooks

6 Review

Select VMs

Select VMs for migration. The Migration analysis column shows the risk associated with migrating a VM as determined by Red Hat's Migration Analytics service. The Flags indicate the reason for that risk assessment.

<input type="checkbox"/>	Migration analysis	VM name	Datacenter	Cluster	Host	Folder path
<input type="checkbox"/>	⚠	VM1	datacenter1	cluster1	host1	folder1/folder2
<input type="checkbox"/>	✓	VM2	datacenter1	cluster1	host1	folder1/folder2
<input type="checkbox"/>	i	VM3	datacenter1	cluster1	host1	folder1/folder2
<input type="checkbox"/>	✓	VM4	datacenter1	cluster1	host1	folder1/folder2
<input type="checkbox"/>	⚠	VM5	datacenter1	cluster1	host1	folder1/folder2

This VM is a **high risk** for migration because it violates the following rules:

- VM shares a disk with other VMs
- VM uses remote device management
- VM was harvested during a month without an "*" in it

Creating a migration plan with MTV

Video: [VMware to OpenShift Virtualization Migration](#)

OpenShift Virtualization Unlocks **Tangible Value**

COST EFFECTIVENESS



Lower TCO



Cloud-native approach to VM manageability minus the cost of proprietary SW



Up to 21% Higher Operational Infrastructure Efficiency*

RISK MANAGEMENT



Highly resilient and scalable



Manage VM fleet with single-pane of glass with modern dashboard technology



Consistency of Management

ITERATIVE MODERNIZATION



Flexibility of approach



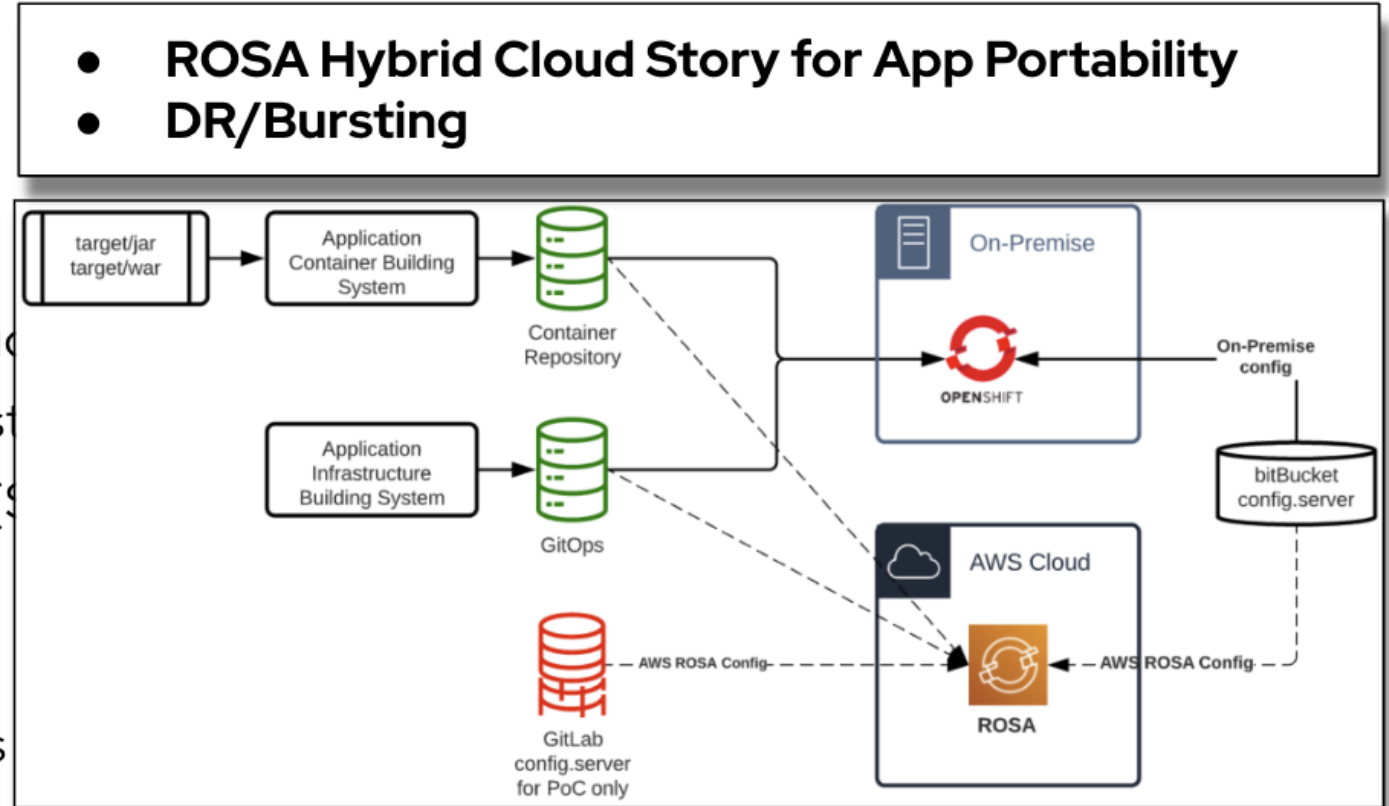
Traditional VM behavior while VMs participate in modern DevSecOps and GitOps for easy modernization at your own pace



Up to 42% reduction of Unplanned Outages*

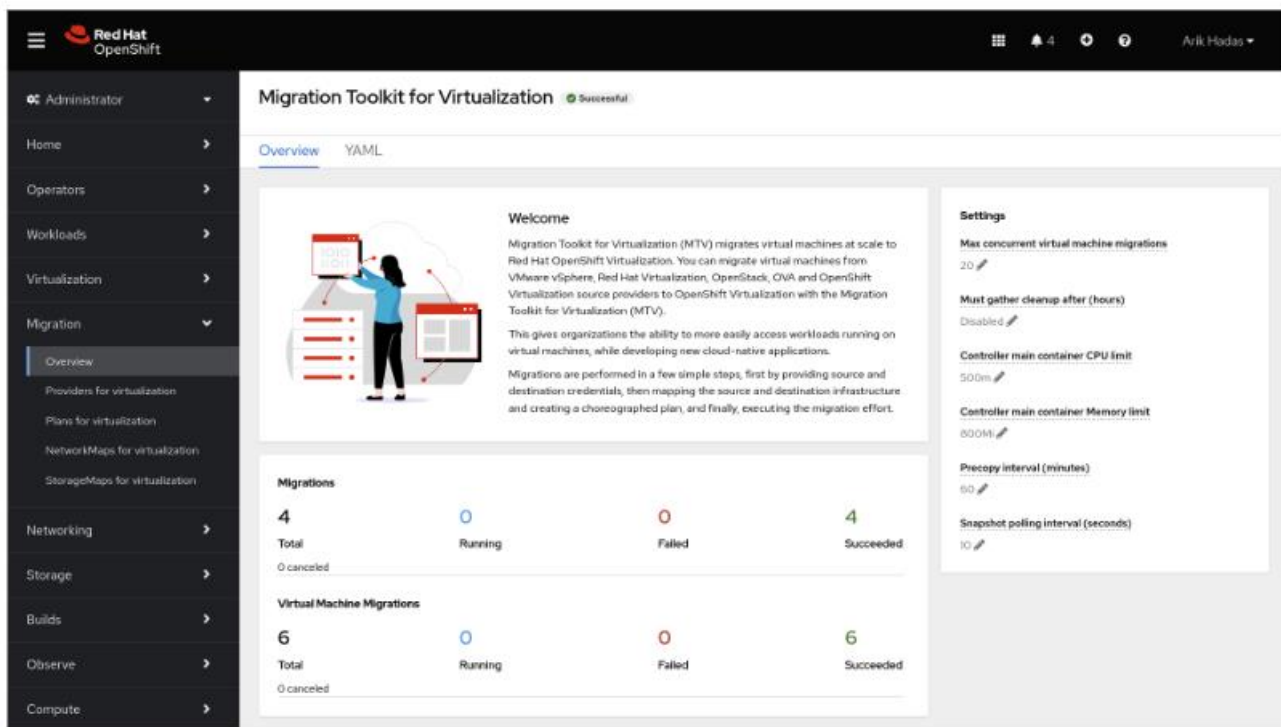
Key Benefits of Virt on ROSA

- ▶ OpenSource egressability
- ▶ **VM/Container Portability**
- ▶ Core Over Provisioning
- ▶ Live Migration/Multi-AZ
- ▶ Storage Efficiencies
- ▶ RHEL guest entitlements are included
- ▶ Supports Microsoft Windows guest
- ▶ Virtualization Validation Program (S)
- ▶ **Hybrid Options (DR/Bursting)**
- ▶ Common Tools with on prem
- ▶ Developer Automation Constructs
- ▶ AWS MAP Program Participation
- ▶ Red Hat and AWS HCS/EDP



Migrating VM-based applications with minimal disruption

 **Migration toolkit for virtualization (MTV)** included with OpenShift



Migration Toolkit for Virtualization Successful

Overview YAML

Welcome

Migration Toolkit for Virtualization (MTV) migrates virtual machines at scale to Red Hat OpenShift Virtualization. You can migrate virtual machines from VMware vSphere, Red Hat Virtualization, OpenStack, OVA and OpenShift Virtualization source providers to OpenShift Virtualization with the Migration Toolkit for Virtualization (MTV).

This gives organizations the ability to more easily access workloads running on virtual machines, while developing new cloud-native applications.

Migrations are performed in a few simple steps, first by providing source and destination credentials, then mapping the source and destination infrastructure and creating a choreographed plan, and finally, executing the migration effort.

Settings

- Max concurrent virtual machine migrations: 20
- Must gather cleanup after (hours): Disabled
- Controller main container CPU limit: 500m
- Controller main container Memory limit: 800Mi
- Precopy interval (minutes): 60
- Snapshot polling interval (seconds): 10

Migrations				
4	0	0	0	4
Total	Running	Failed	Completed	Succeeded
0	0	0	0	0
Canceled				

Virtual Machine Migrations				
6	0	0	0	6
Total	Running	Failed	Completed	Succeeded
0	0	0	0	0
Canceled				

Mass migration of virtual machines

- Migrate virtual machines at scale to OpenShift Virtualization in a few simple steps
- Provide source and destination credentials, map infrastructure and create migration plans



Taller sobre el servicio Red Hat OpenShift en AWS

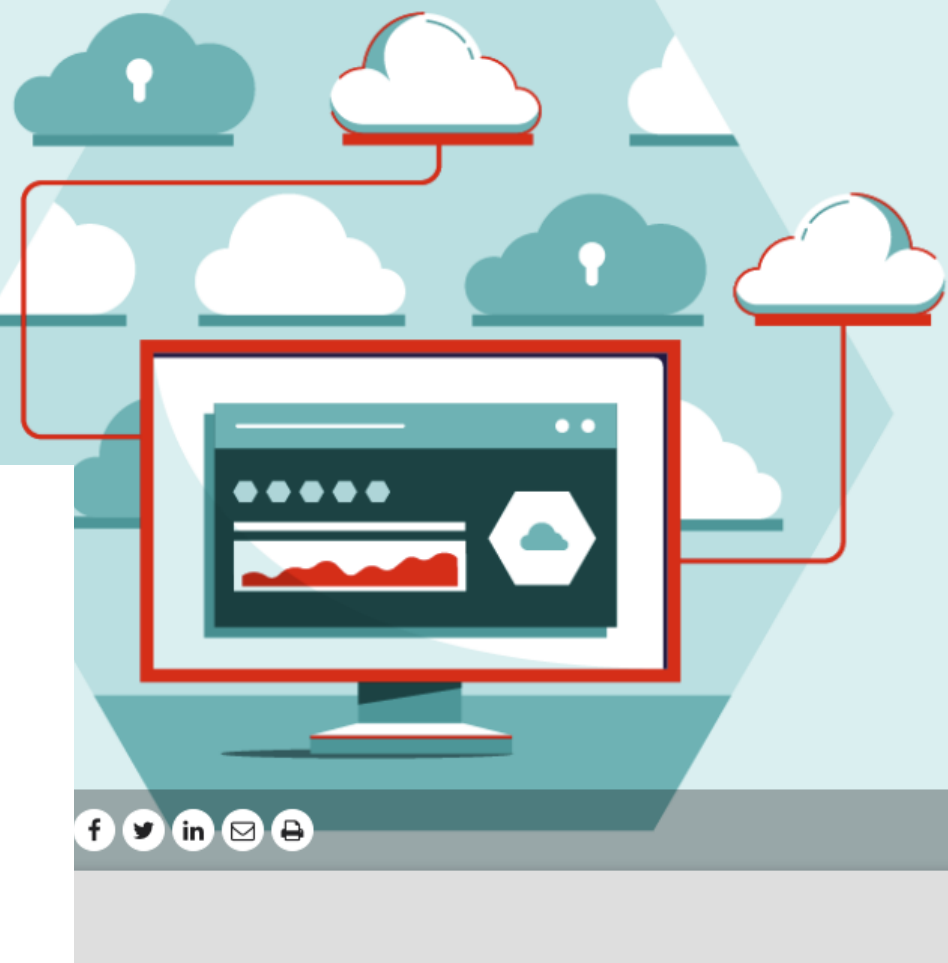
27 de noviembre 2024 | 9:00 - 18:00 h. CET

[AGENDA](#)

[PONENTES](#)

[LOCALIZACIÓN](#)

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