Solving Problems with Red Hat Cloud Services

Grand Rapids/Detroit User Group
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Nerav Doshi
Managed OpenShift Black Belts

Red Hat

I am pleased to meet you

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Nerav Doshi

Managed OpenShift Black Belt

2012 ✓ **IBM**
Mathematical Optimization, Data Science, Technical Pre and Post Sales, Customer Success

2004 ✓ **Menlo Logistics**
Distribution, Supply Chain & Logistics

2002 ✓ **Delphi**
Manufacturing, Production Planning & Scheduling, Logistics

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Google Trends Home Explore Trending Now

Supply Chain man...
Search term

Cloud Computing
Search term

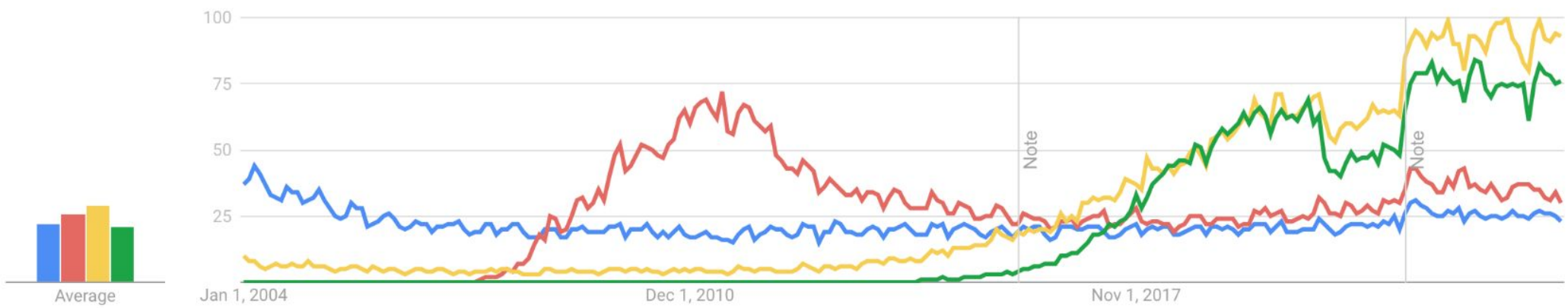
Data Science
Search term

Kubernetes
Search term

+

Worldwide | 2004 - present | All categories | Web Search

Interest over time

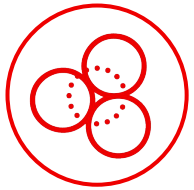


Today’s business goals and blockers

What are business trying to achieve?

Innovation at speed

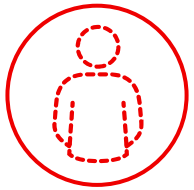
Positive customer experiences that lead to growth and the ability to scale



Flexibility to adapt, business agility

What else are you trying to achieve?

What’s blocking them?



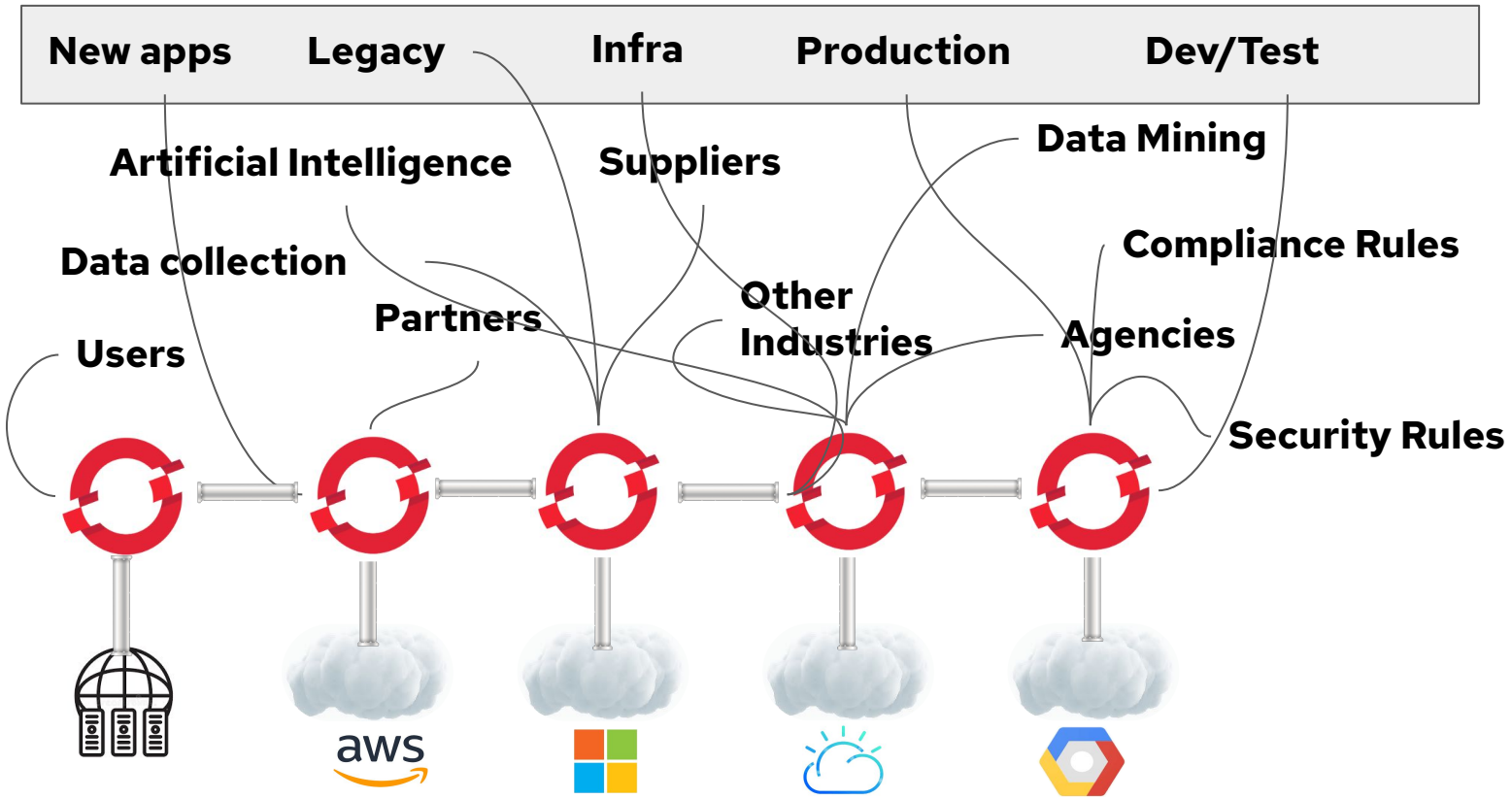
Limited time, resources & budget?

Complex implementations & integrations?

Legacy systems, or other hurdles to modernization?

What else might be a blocker for you?

Why A Consistent Platform Matters



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A consistent platform no matter how or where you run

Red Hat OpenShift cloud services—Fully managed, start quickly

Red Hat OpenShift Service on AWS

Azure Red Hat OpenShift

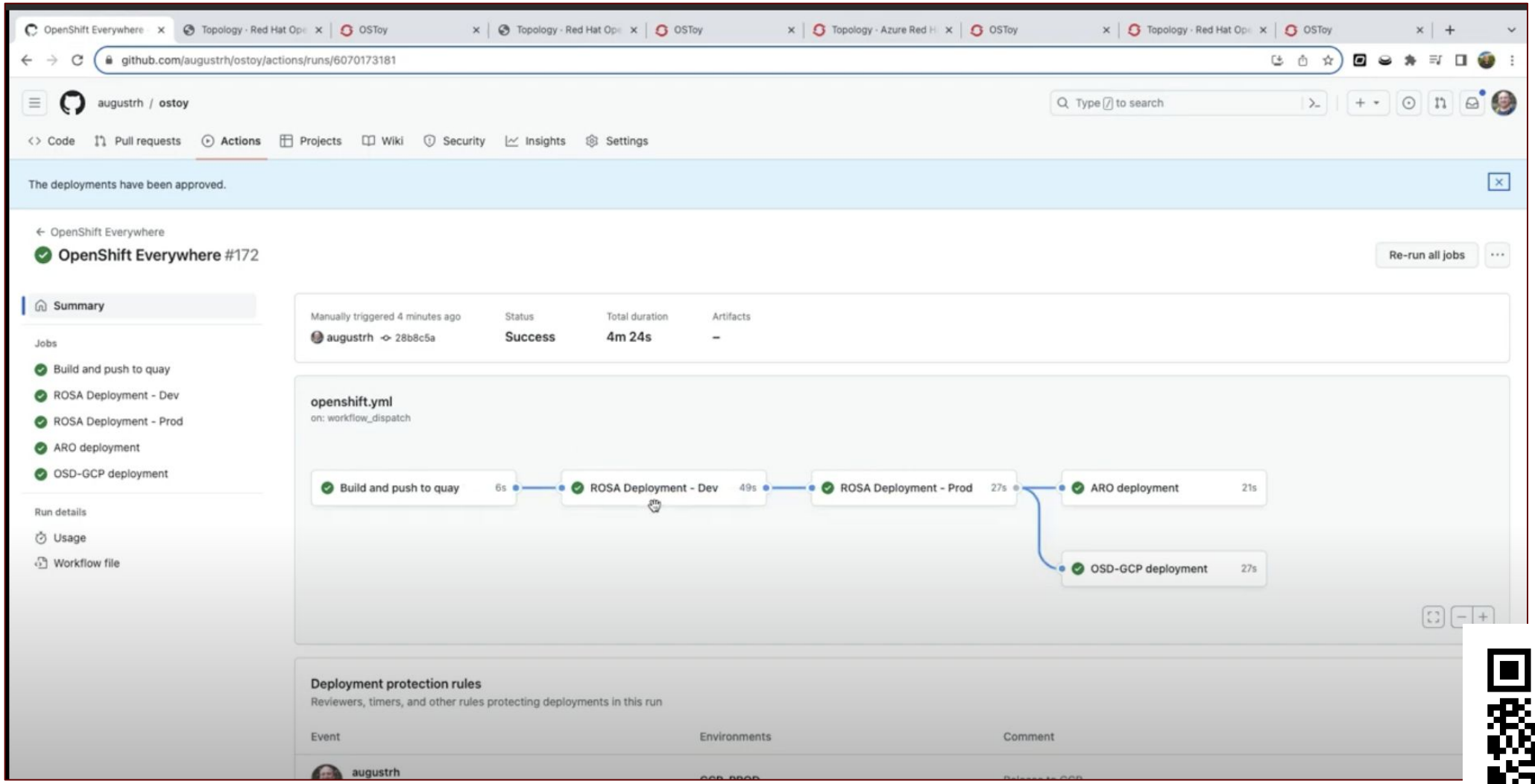
Red Hat OpenShift on IBM Cloud

Red Hat OpenShift Dedicated

Self-Managed Red Hat OpenShift—Customer managed, for control and flexibility

On **public cloud**, on-premises on **physical** or **virtual** infrastructure, and at the **edge**

DEMO: Consistent OpenShift experience across clouds



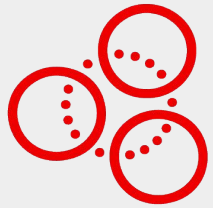
aws Microsoft Google Cloud

V0000000

Fully managed. 1st party.
Cloud native.

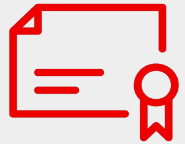
What does that mean for me?

OpenShift cloud services are joint, 1st party solutions.



Integrated Dev tools and cloud native services

Joint Support & Engineering



Security and compliance

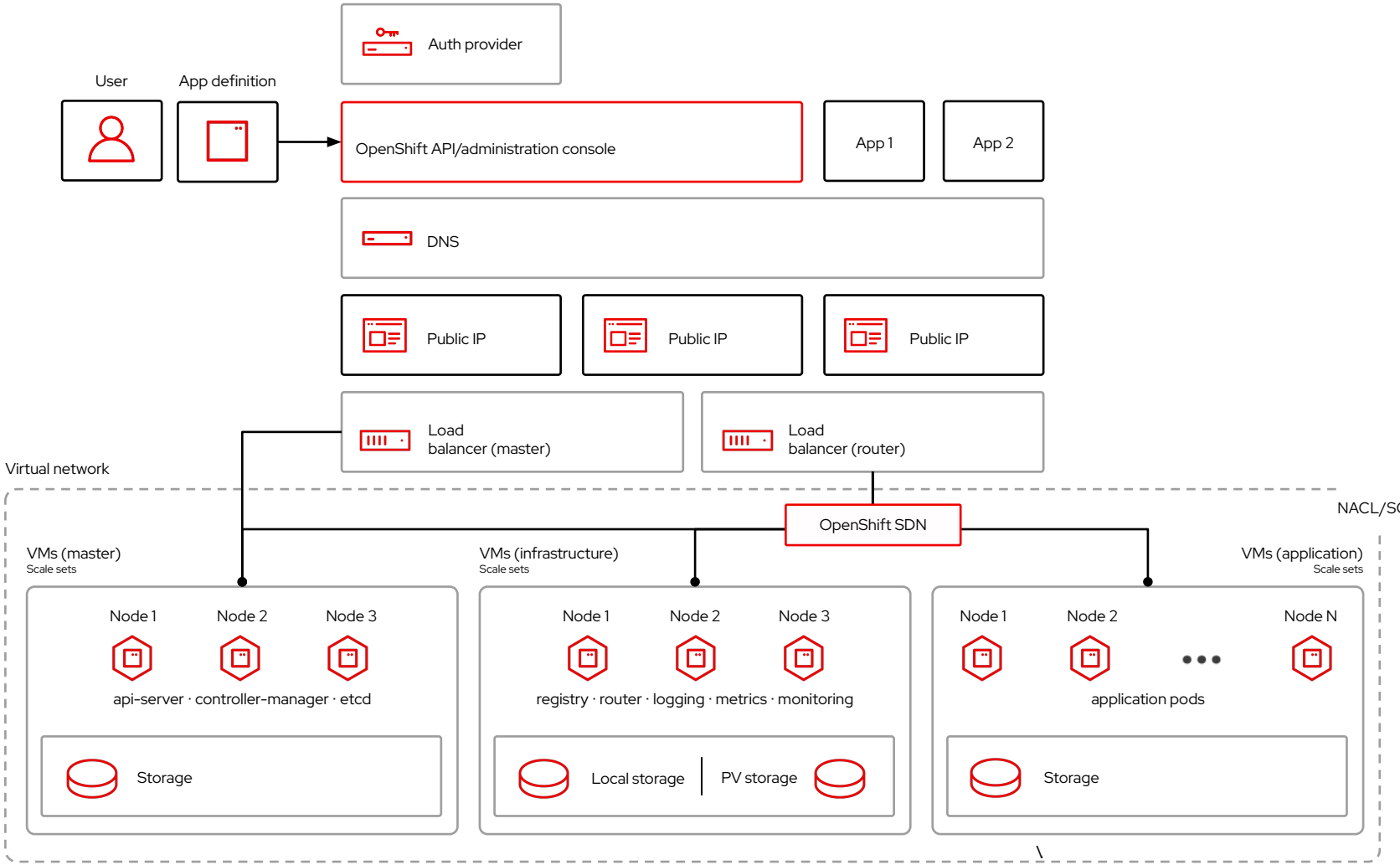
Single invoicing, utilize cloud committed spend

*OpenShift Dedicated on Google Cloud is a fully managed, 3rd party solution.

Intricacy of running your own Kubernetes cluster

Responsibilities	
User management	
Project and quota management	
Application life cycle	
Cluster creation	
Cluster management	
Monitoring and logging	
Network configuration	
Software and security updates	
Platform support	

Customer Cloud provider & Red Hat

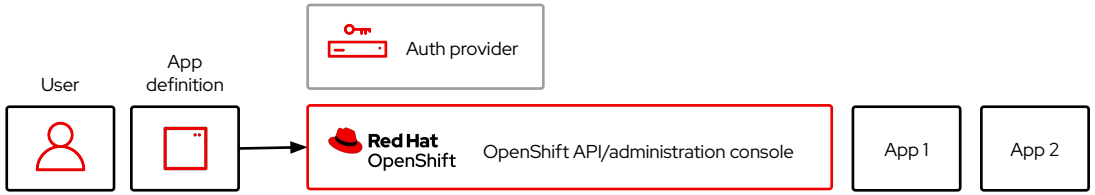


Simplify with fully managed clusters

Red Hat OpenShift cloud services

Responsibilities	
User management	Customer
Project and quota management	Customer
Application life cycle	Customer
Cluster creation	Customer / Cloud provider and Red Hat
Cluster management	Customer / Cloud provider and Red Hat
Monitoring and logging	Customer / Cloud provider and Red Hat
Network configuration	Customer / Cloud provider and Red Hat
Software and security updates	Cloud provider and Red Hat
Platform support	Cloud provider and Red Hat

Customer Cloud provider and Red Hat



Let Red Hat & your cloud provider...

Manage all your clusters.
Secure your nodes.
Monitor and operate your VMs.
Manage environment patches.

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Move from 24x7 operations to 9-5 innovation

End-to-End support for your entire application platform

- OpenShift cloud services includes full support for worker nodes
  - Upgrades done by SRE
  - Proactive monitoring
  - Automated patching
  - Compliance and certifications extend to worker nodes
- 99.95% financially backed SLA
- 24x7 joint support from Red Hat and cloud provider
- Automation and Day 2 Operations by global SREs

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1 "The Total Economic Impact™ of Red Hat OpenShift Cloud Services by Forrester, "Jan. 2022.

What are the considerations @ macro level in managed OpenShift adoption?

Security

- Non admin access for cluster setup
- Public IP removal and restricted Egress on **private cluster.**
- Secured communication via landing zone(s).
- End to end Encryption with custom keys
- Firewall / Service mesh for cluster internal/external bound communication
- Multi-layer VA/CA scan.
- Disconnected clusters

Accessibility

- Separate landing zones for intranet/internet bound traffic.
- Traffic routed via on premise.
- Additional ingress application load balancer.
- **Cluster exposed via services viz. front door, app gateway, Firewall/waf AKAMAI/GSLB**
- Usage if custom Domain
- Native cloud services integration
- Hybrid DNS setup
- Non-overlapping CIDRs

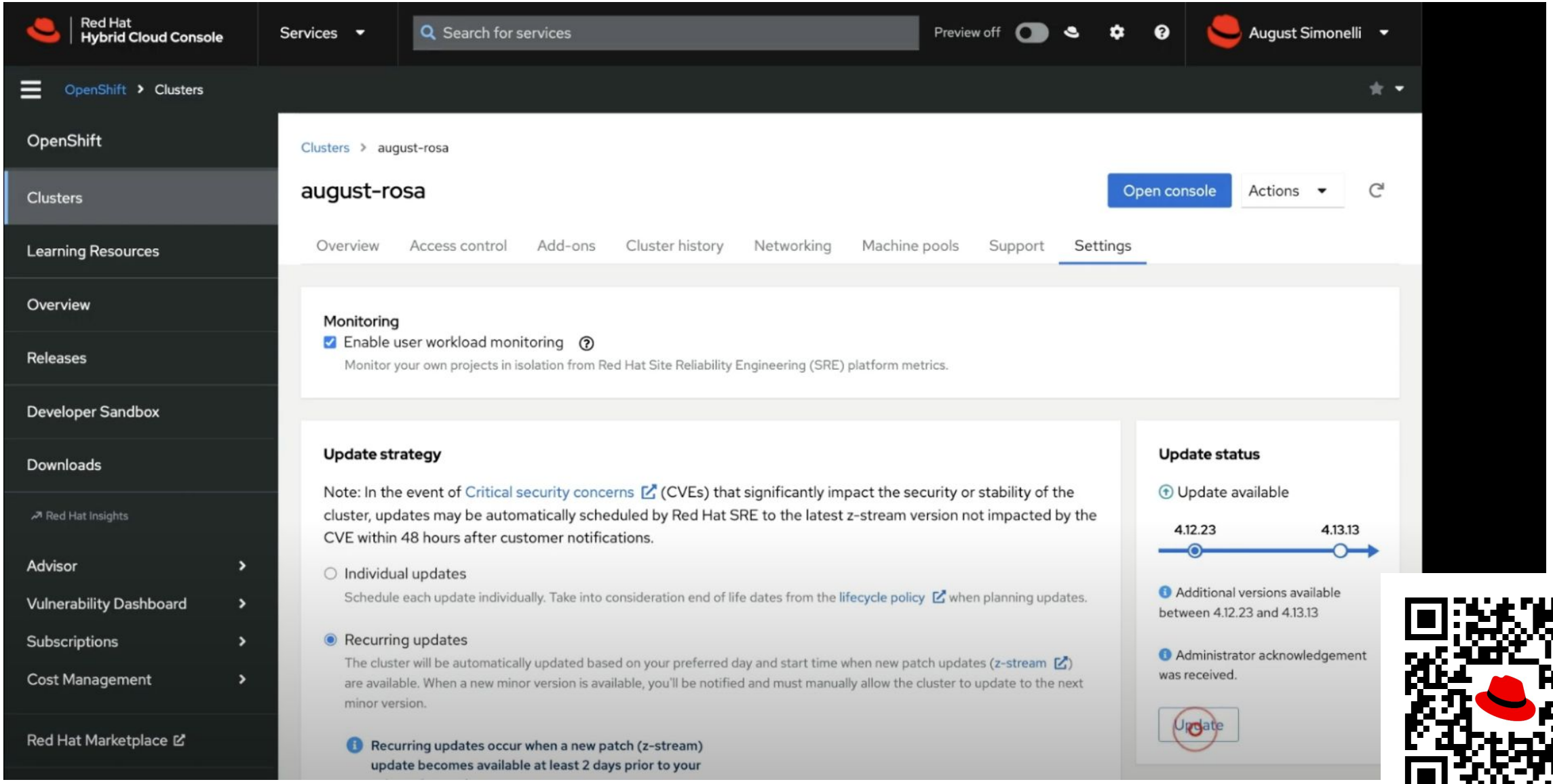
Reliability/availability

- ARO HA practices using HPA, VPA, Cluster autoscaler
- Elaborate DR strategies
- Usage of service mesh for application observability , fault tolerance
- HA strategies for DB, Firewall, Expressroute, etc.
- **Multi-az clusters , distributed applications in multiple AZs.**
- Separate app , infra and platform monitoring.

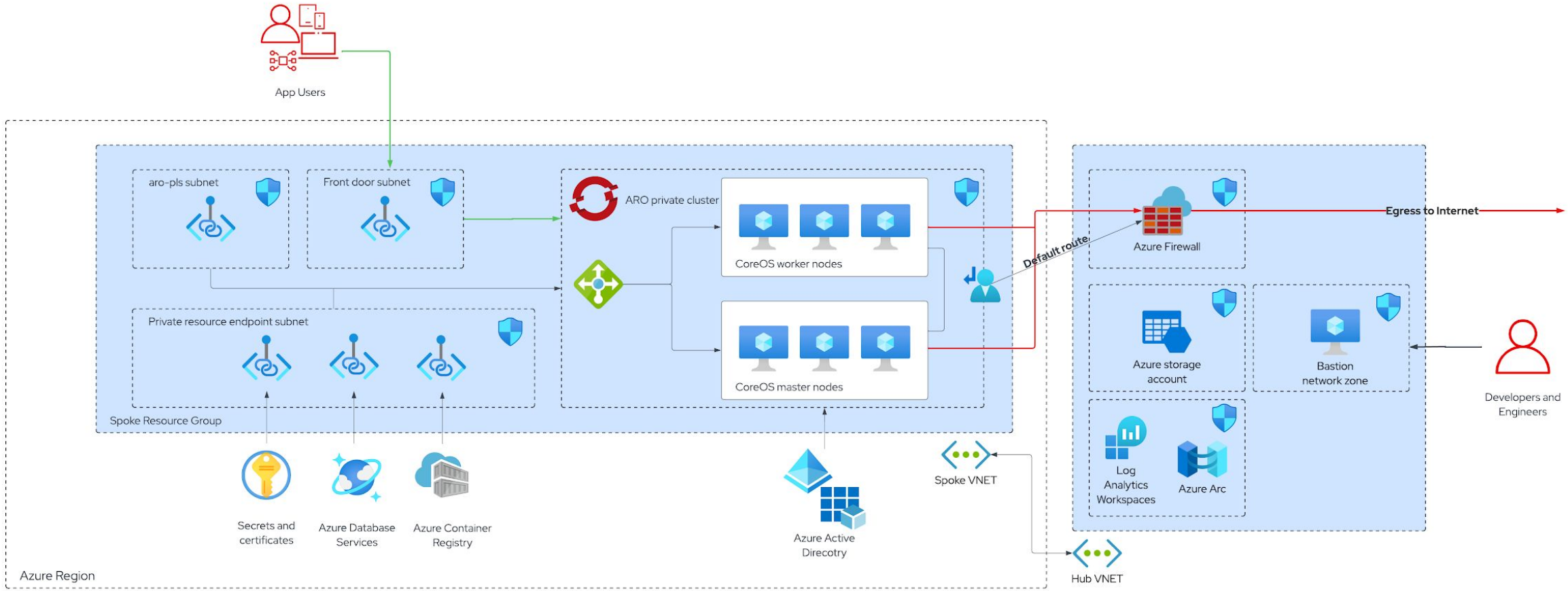
Day 2 OPs

- Segregation of infra vs app workloads
- Log forwarding to 3rd party/ native cloud tools (SIEM, DAM, Azure monitor)
- GitOps practices integrated with ACM/ACS.
- Disconnected day2 cluster upgrades
- ACM/ ACS Integration

DEMO: Easy updates to OpenShift cloud services

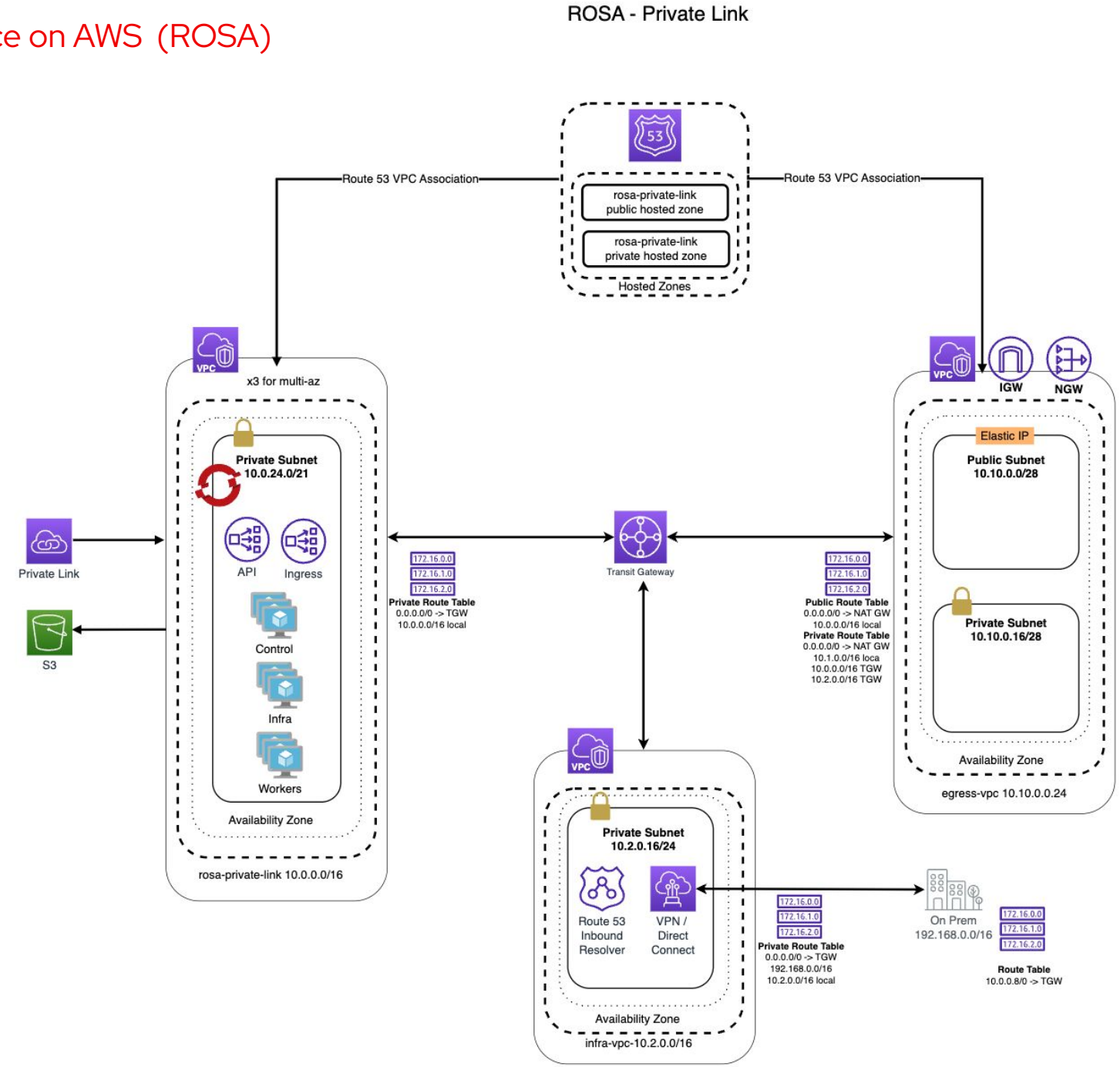


Azure Red Hat OpenShift (ARO) Reference architecture



Source:
https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/scenarios/app-platform/azure-red-hat-openshift/landing-zone-accelerator

Red Hat OpenShift Service on AWS (ROSA)



Github Actions Workflow - Demo

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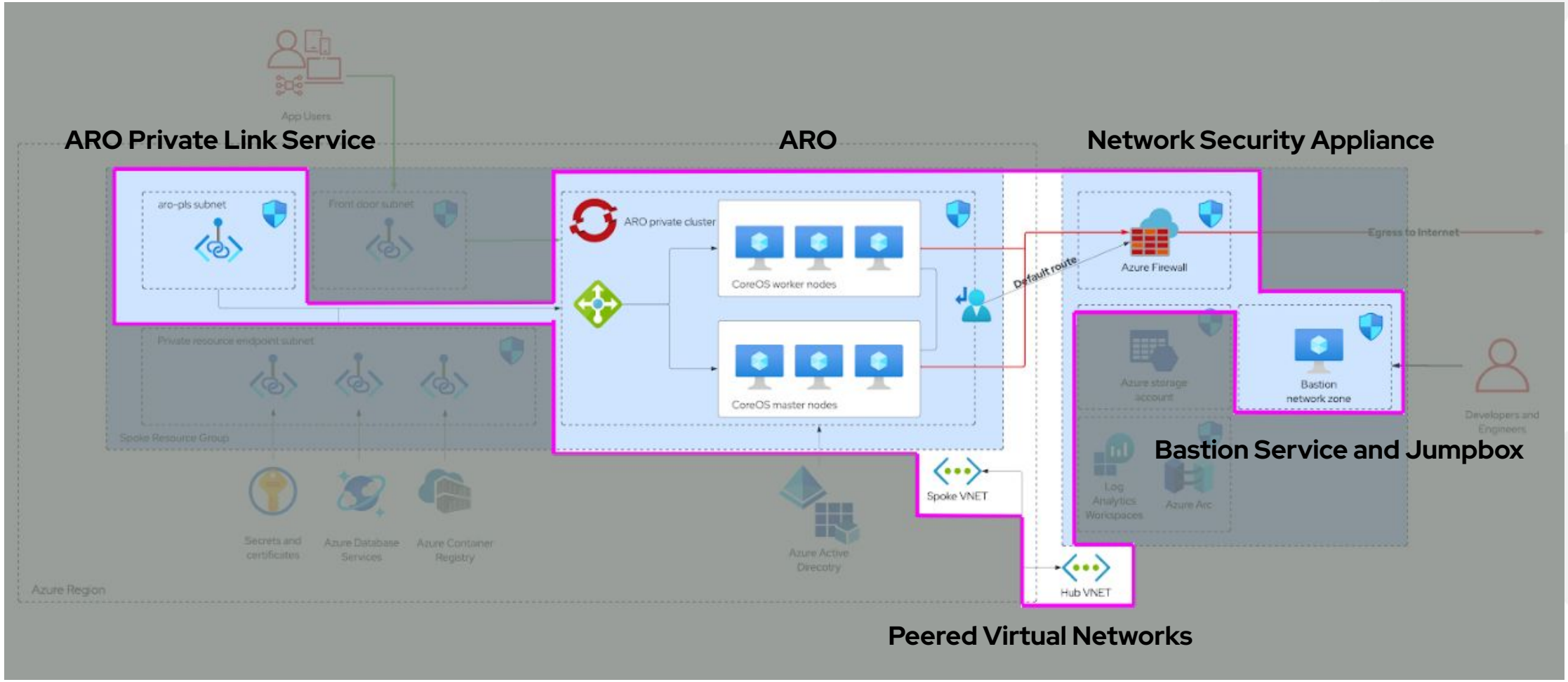
Azure Red Hat OpenShift (ARO) Landing Zone - Cloud Resources



Source:
https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/scenarios/app-platform/azure-red-hat-openshift/landing-zone-accelerator

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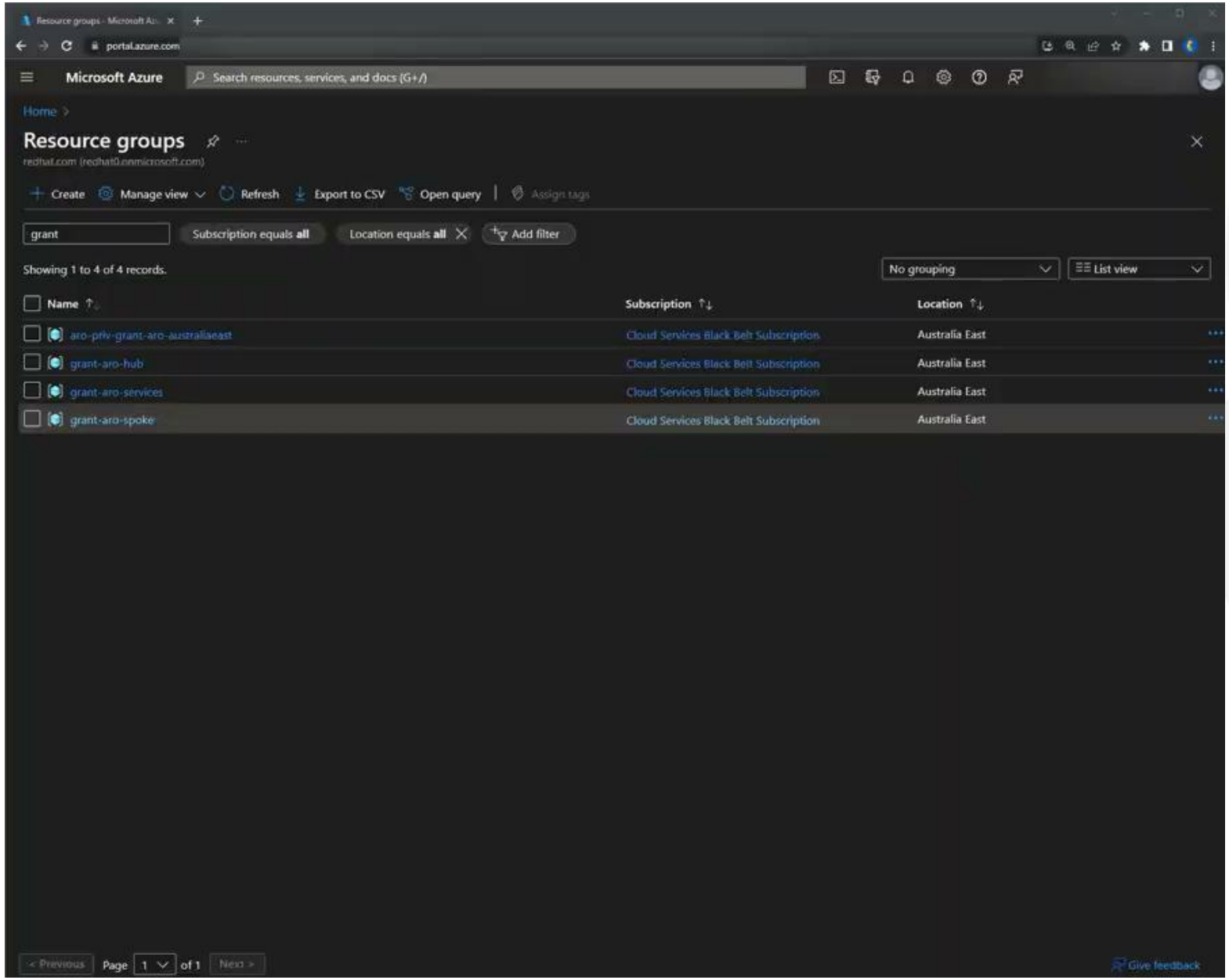
Azure Resources

- Azure Red Hat OpenShift (ARO)
- Virtual Networks and Firewall
- Managed Identity
- KeyVault
- Container Registry
- Front Door
- Log Analytics Workspace
- Container Instance (self hosted runner)
- Bastion Service and Windows jumpbox
- Private Endpoints with associated Private DNS zones

Azure Red Hat OpenShift (ARO) - Egress Lockdown



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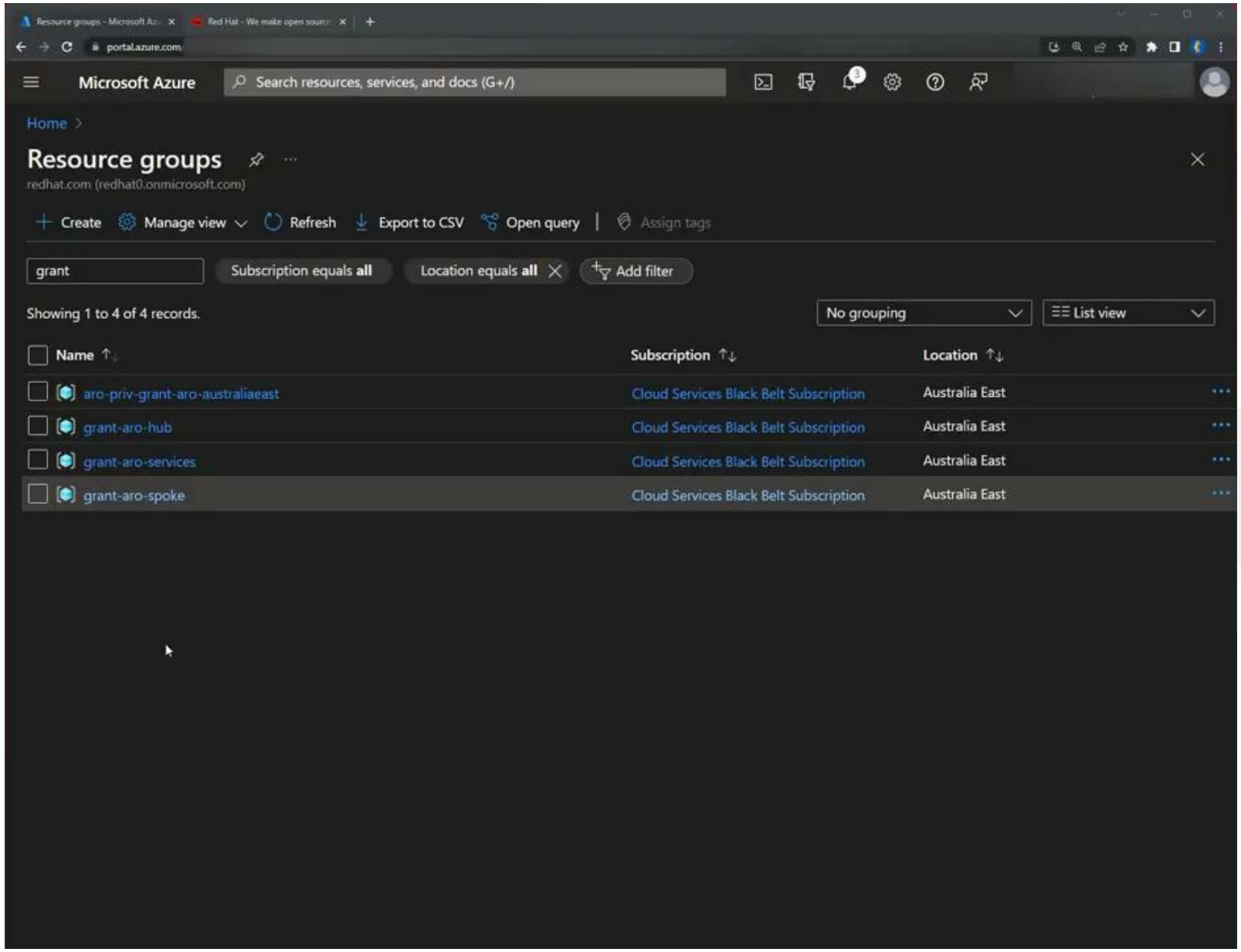
Azure Red Hat OpenShift (ARO) - Azure Front Door



Red Hat

Improve focus, efficiency and productivity

Forrester Research: The Total Economic Impact™ of OpenShift cloud services

50%

50% improvement in operational efficiency[1]

35%

35% increase in developer productivity[1]

65%

Shortened development cycle by 65%[1]

"One of our pain points is we don't want to do infrastructure. We just want to **focus on building great experiences**. We wanted to find somebody who could **manage this for us**, so we didn't have to."

Director for operations and infrastructure,
Telecom company

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1 "The Total Economic Impact™ of Red Hat OpenShift Cloud Services by Forrester, "Mar. 2024.

Next best steps you can take

Try OpenShift on AWS or Azure with a PoC

red.ht/Level-Up

Launch a hands-on experience of Red Hat® OpenShift® Service on AWS

red.ht/hands-on

Visit the Azure Red Hat OpenShift Learning Path

red.ht/azure-path

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Thank you!

Questions?


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