

Solving Problems with Red Hat Cloud Services

Grand Rapids/Detroit User Group
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Nerav Doshi

Managed OpenShift Black Belts

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



Supply Chain man...
Search term

Cloud Computing
Search term

Data Science
Search term

Kubernetes
Search term



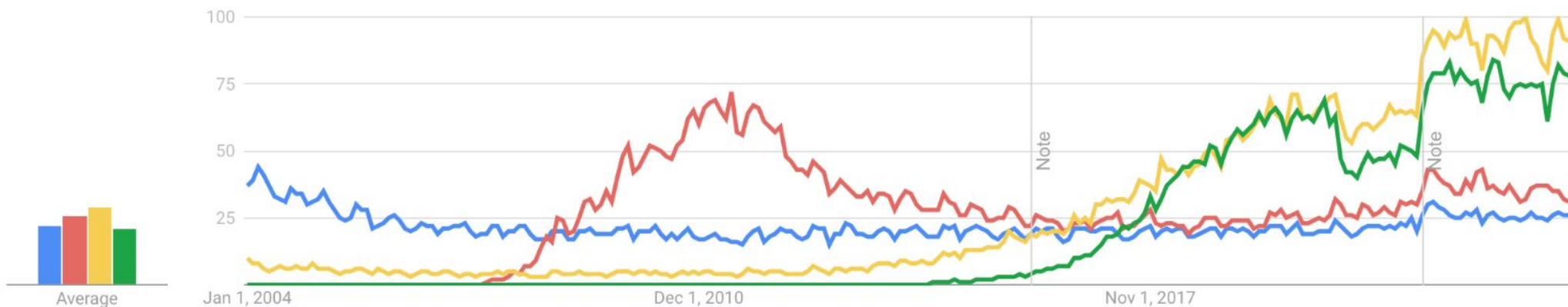
Worldwide

2004 - present

All categories

Web Search

Interest over time



Today's business goals and blockers

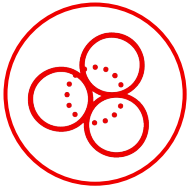
What are business trying to achieve?



Innovation at speed



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

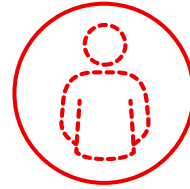


Flexibility to adapt, business agility

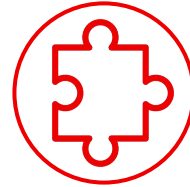


What else are you trying to achieve?

What's blocking them?



Limited time, resources & budget?



Complex implementations & integrations?

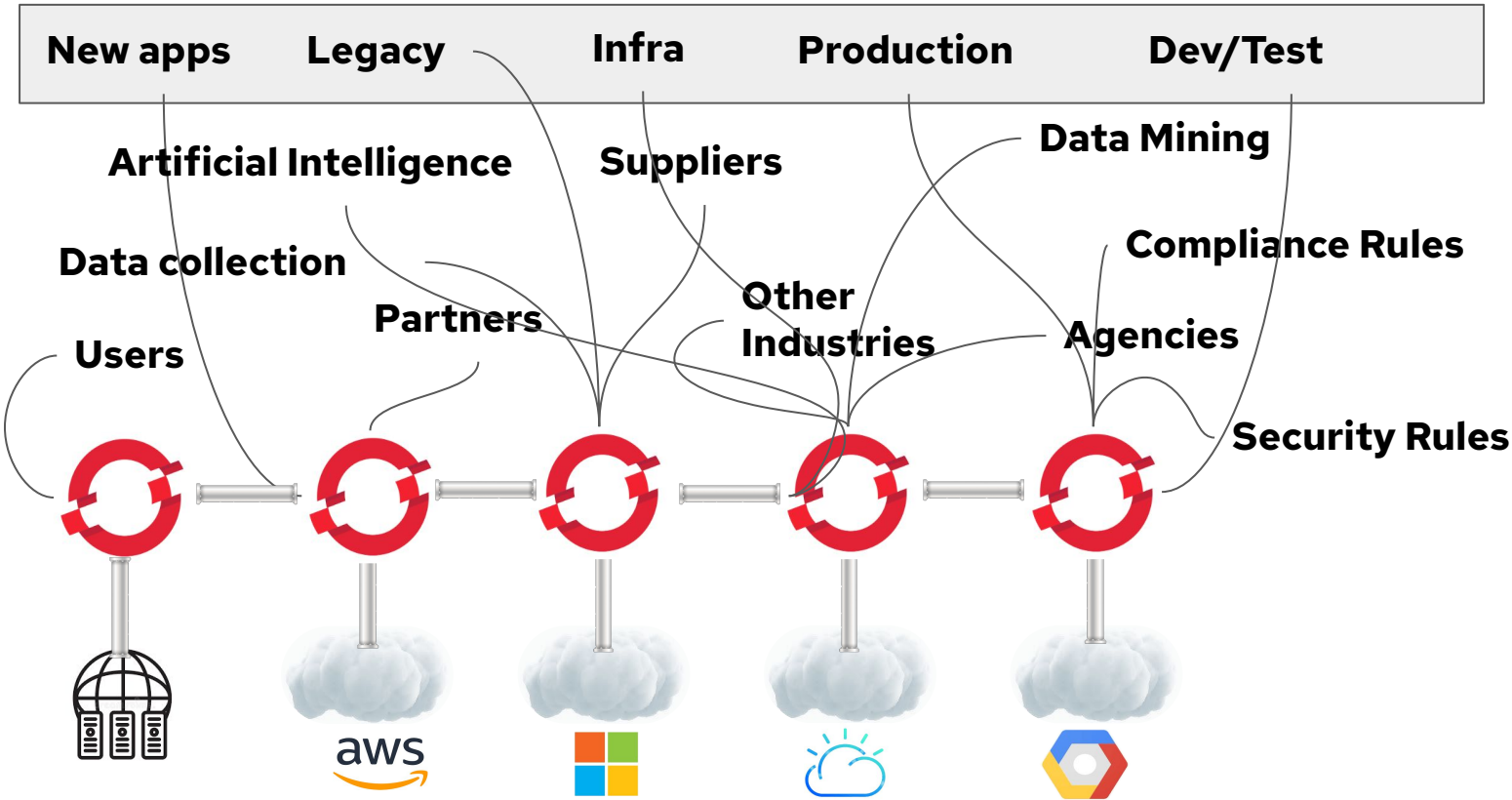


Legacy systems, or other hurdles to modernization?



What else might be a blocker for you?

Why A Consistent Platform Matters



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



IBM **Cloud**

Red Hat OpenShift
on IBM Cloud



Google 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

The screenshot shows a GitHub Actions workflow run for the repository 'augustrh / ostoy'. The workflow is titled 'OpenShift Everywhere #172' and has a status of 'Success'. It was manually triggered 4 minutes ago and completed in a total duration of 4m 24s. The workflow consists of several jobs: 'Build and push to quay' (6s), 'ROSA Deployment - Dev' (49s), 'ROSA Deployment - Prod' (27s), 'ARO deployment' (21s), and 'OSD-GCP deployment' (27s). The workflow is triggered by a 'workflow_dispatch' event. The screenshot also shows a notification that 'The deployments have been approved.' and a 'Re-run all jobs' button.

Job	Duration
Build and push to quay	6s
ROSA Deployment - Dev	49s
ROSA Deployment - Prod	27s
ARO deployment	21s
OSD-GCP deployment	27s

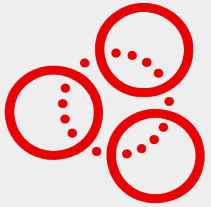


Fully managed. 1st party.
Cloud native.

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



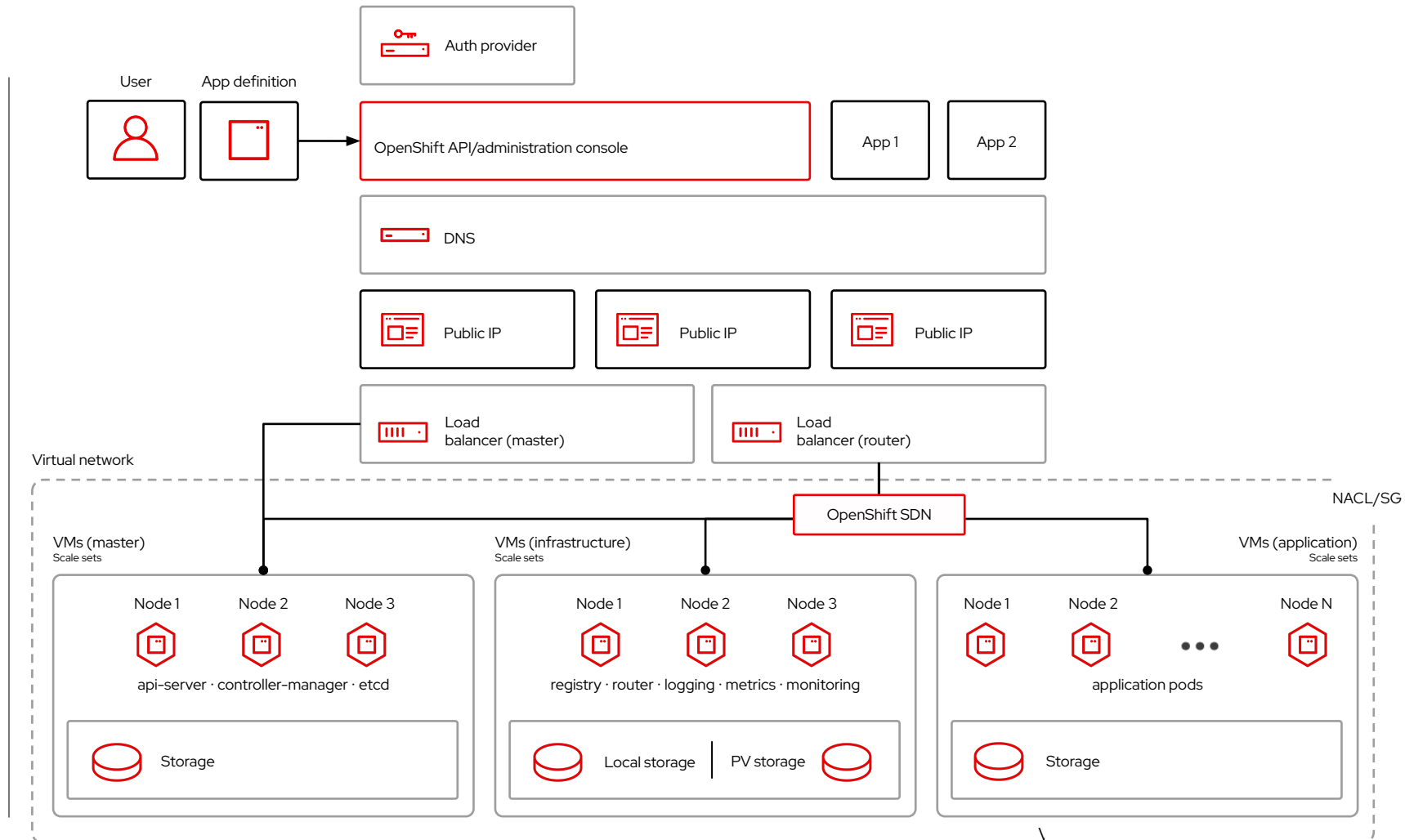
Single invoicing, utilize
cloud committed spend

*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



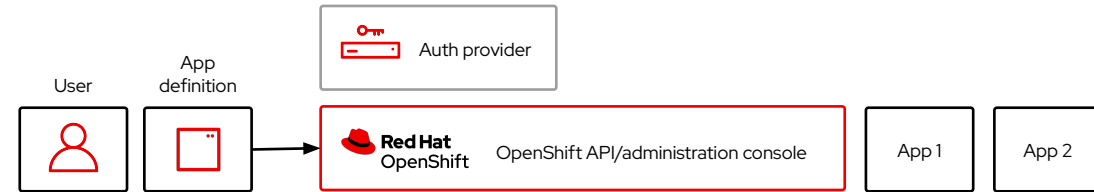
Simplify with fully managed clusters

Red Hat OpenShift cloud services

Responsibilities	
User management	■
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 and Red Hat



Let Red Hat & your cloud provider...

Manage all your clusters.

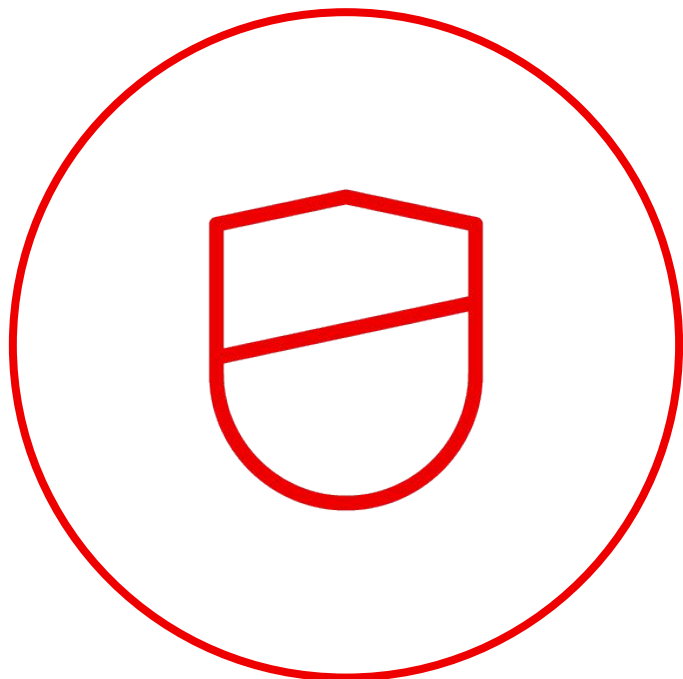
Monitor and operate your VMs.

Secure your nodes.

Manage environment patches.

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**

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.



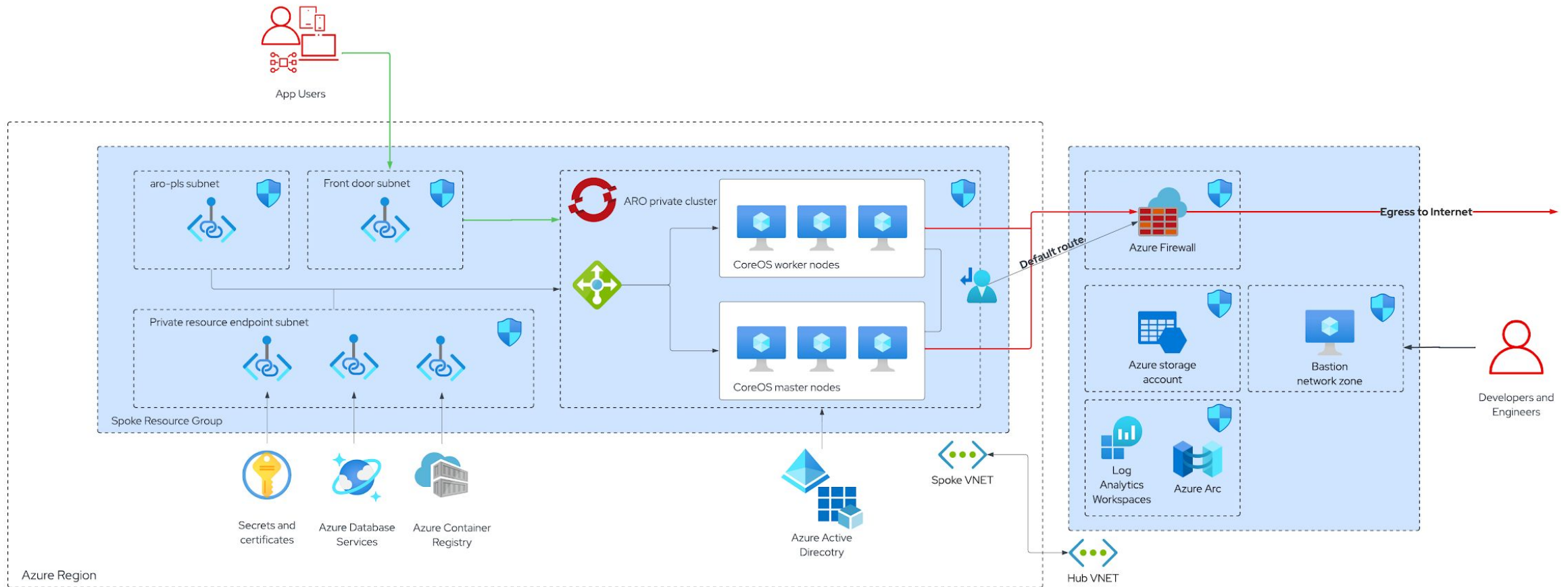
Day 2 OPs

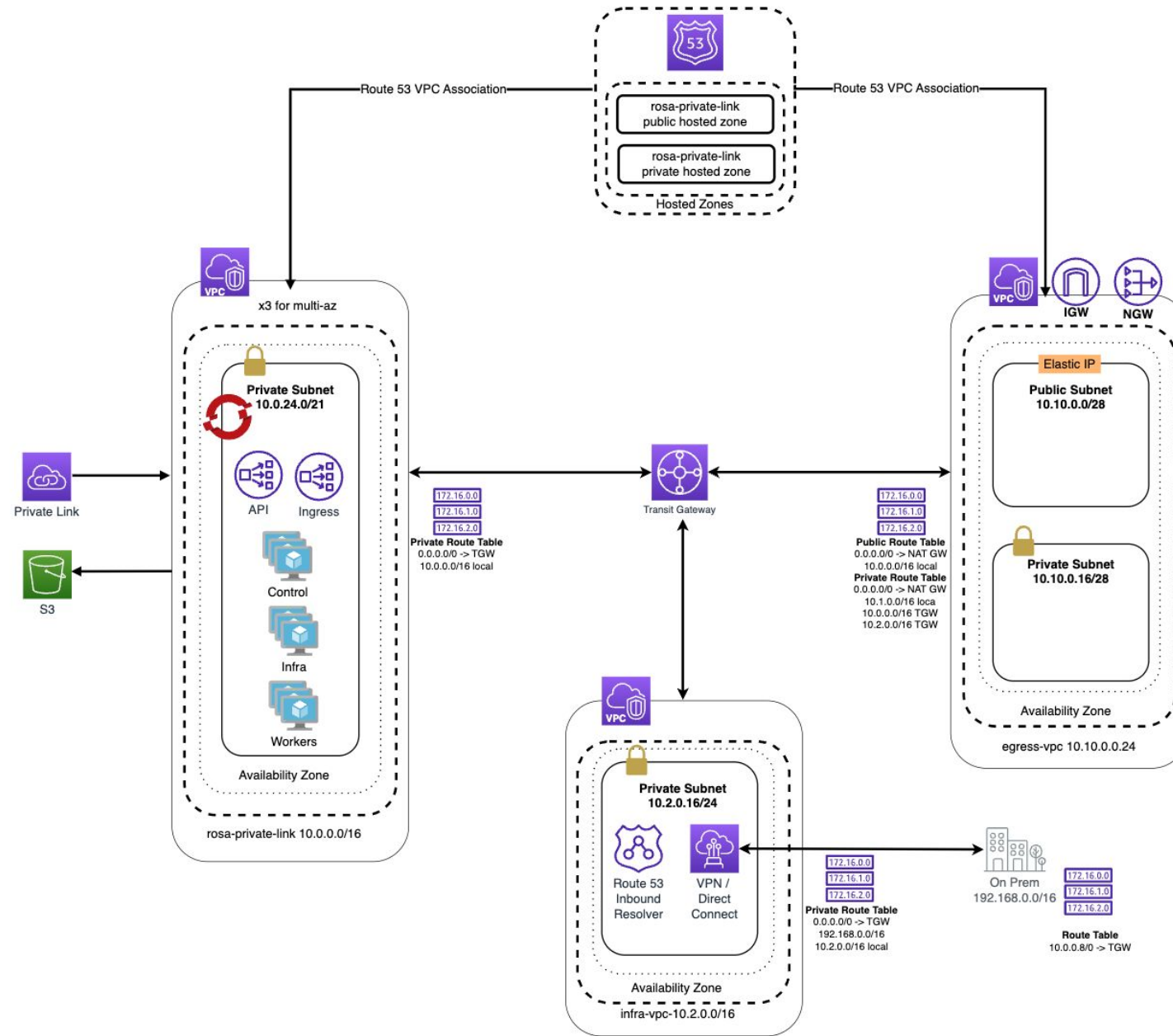
- Segregation of infra vs app workloads
- Log forwarding to 3rd party/ native cloud tools (SIEM, DAM, Azure monitor)
- GitOps practices integrated with ACM/ACS.
- Disconnected day2 cluster upgrades
- ACM/ ACS Integration

DEMO: Easy updates to OpenShift cloud services

The screenshot displays the Red Hat Hybrid Cloud Console interface for the 'august-rosa' OpenShift cluster. The left sidebar contains navigation options: OpenShift, Clusters, Learning Resources, Overview, Releases, Developer Sandbox, Downloads, Red Hat Insights, Advisor, Vulnerability Dashboard, Subscriptions, Cost Management, and Red Hat Marketplace. The main content area is titled 'august-rosa' and includes tabs for Overview, Access control, Add-ons, Cluster history, Networking, Machine pools, Support, and Settings. The 'Settings' tab is active, showing the 'Monitoring' section with 'Enable user workload monitoring' checked. Below this is the 'Update strategy' section, which includes a note about CVEs and two radio button options: 'Individual updates' and 'Recurring updates'. The 'Recurring updates' option is selected. To the right, the 'Update status' section shows 'Update available' between versions 4.12.23 and 4.13.13, with a progress bar and a red 'Update' button circled in red. A QR code with a Red Hat logo is located in the bottom right corner of the console view.

Azure Red Hat OpenShift (ARO) Reference architecture

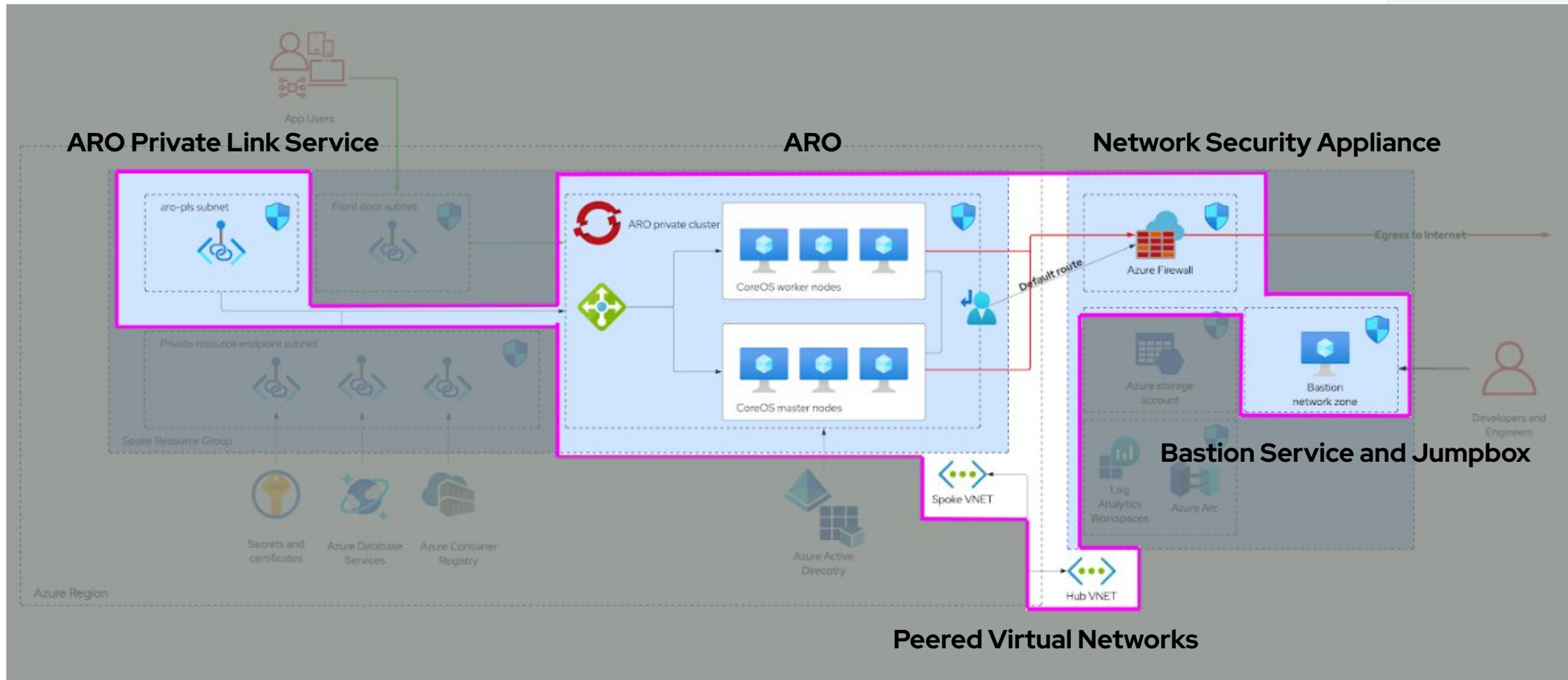




Github Actions Workflow - Demo

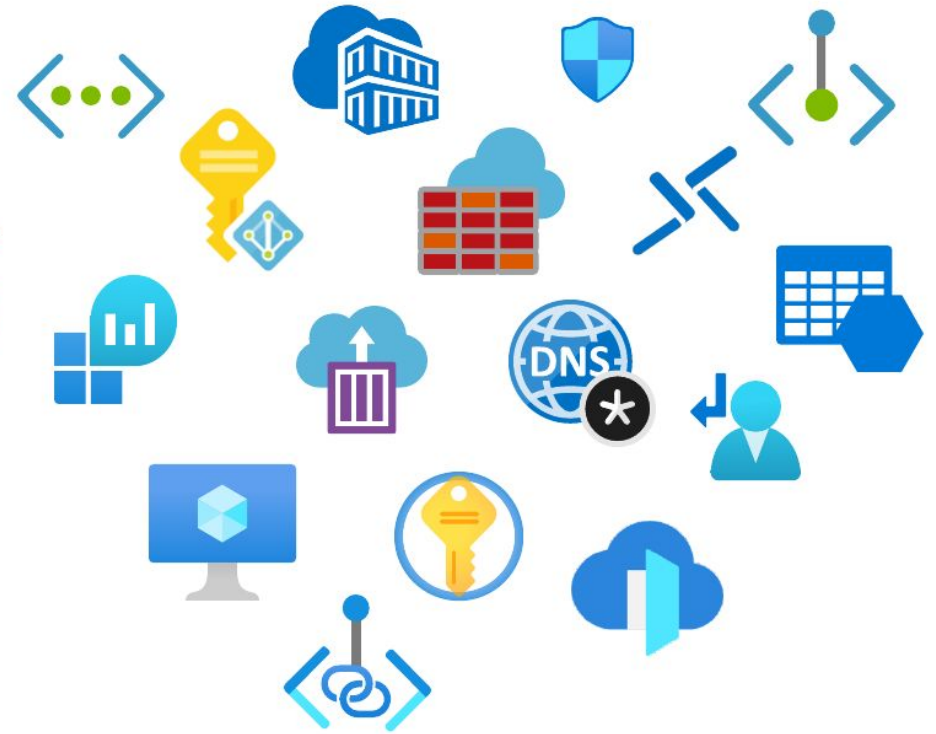


Azure Red Hat OpenShift (ARO) Landing Zone - Cloud Resources



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

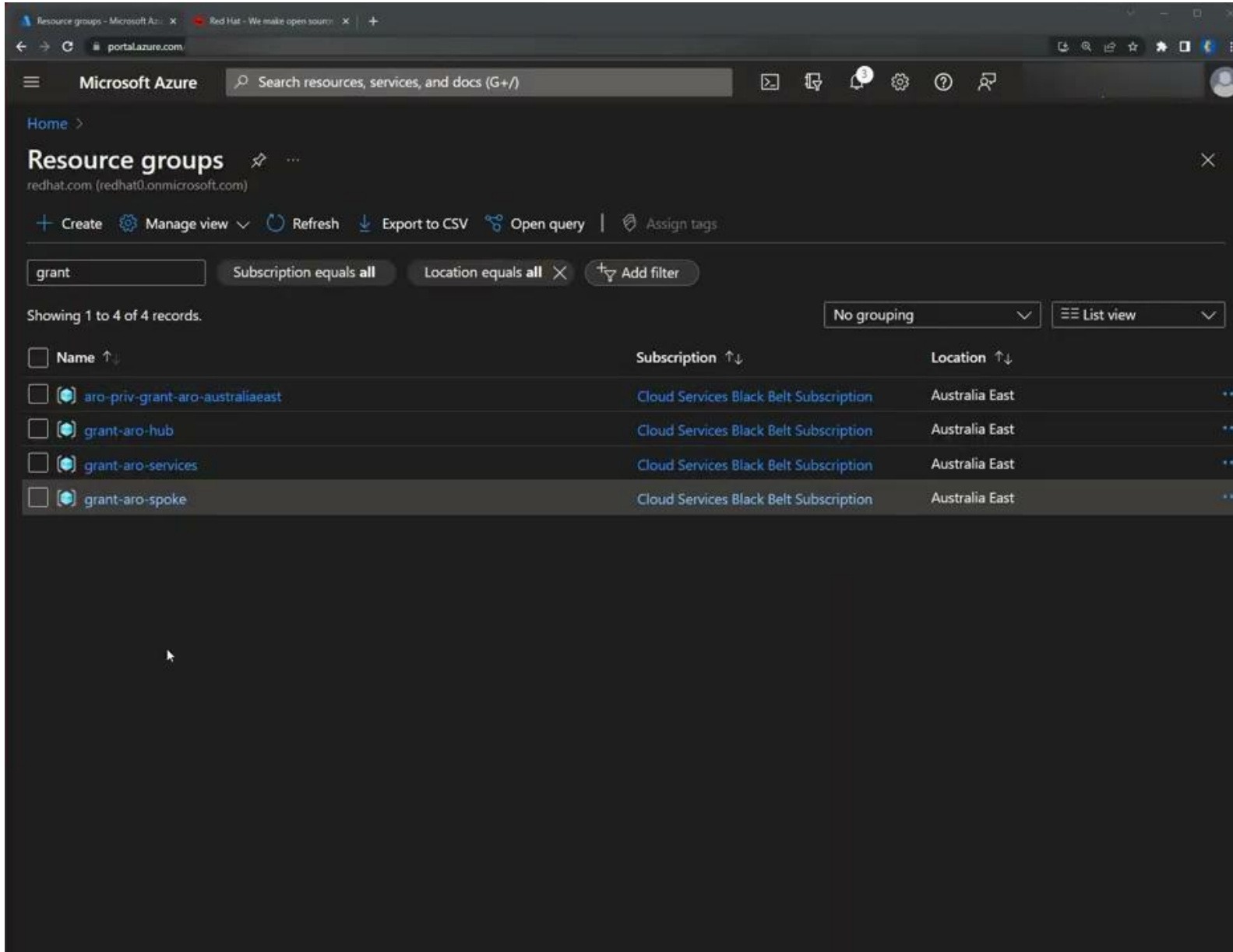


Azure Red Hat OpenShift (ARO) - Egress Lockdown

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and navigation options. The main heading is 'Resource groups' with a sub-heading 'redhat.com (redhat02onmicrosoft.com)'. Below this, there are filters for 'grant', 'Subscription equals all', and 'Location equals all'. The table below shows four resource groups:

Name	Subscription	Location
aro-priv-grant-aro-australiaeast	Cloud Services Black Belt Subscription	Australia East
grant-aro-hub	Cloud Services Black Belt Subscription	Australia East
grant-aro-services	Cloud Services Black Belt Subscription	Australia East
grant-aro-spoke	Cloud Services Black Belt Subscription	Australia East

Azure Red Hat OpenShift (ARO) - Azure Front Door

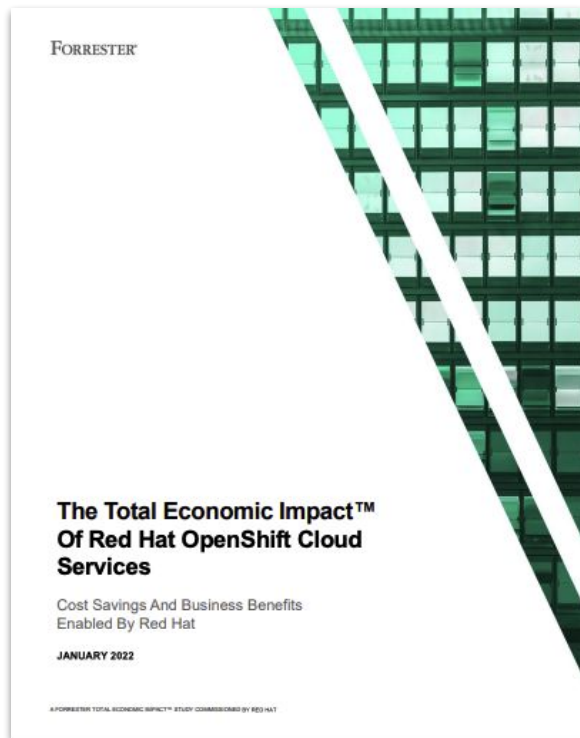


The screenshot displays the Microsoft Azure portal interface. At the top, there are browser tabs for 'Resource groups - Microsoft Az...' and 'Red Hat - We make open sour...'. The address bar shows 'portal.azure.com'. The main header includes the 'Microsoft Azure' logo, a search bar, and navigation icons. Below the header, the page title is 'Resource groups' with a breadcrumb 'Home >'. The user's profile is 'redhat.com (redhat0.onmicrosoft.com)'. Action buttons include '+ Create', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', and 'Assign tags'. A search filter 'grant' is applied, along with filters for 'Subscription equals all' and 'Location equals all'. The table shows 4 records, with columns for Name, Subscription, and Location. The records are:

<input type="checkbox"/>	Name ↑↓	Subscription ↑↓	Location ↑↓	
<input type="checkbox"/>	aro-priv-grant-aro-australiaeast	Cloud Services Black Belt Subscription	Australia East	***
<input type="checkbox"/>	grant-aro-hub	Cloud Services Black Belt Subscription	Australia East	***
<input type="checkbox"/>	grant-aro-services	Cloud Services Black Belt Subscription	Australia East	***
<input type="checkbox"/>	grant-aro-spoke	Cloud Services Black Belt Subscription	Australia East	***

Improve focus, efficiency and productivity

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



50%

50% improvement in operational efficiency¹

35%

35% increase in developer productivity¹

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

V0000000



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

V0000000



Thank you!

Questions?

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