



**Red Hat  
Summit**

# What's New from Summit 2020

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I Like Things that Go Fast

I miss my Loons!



# Agenda

- At a Glance...
- The BIG Announcements
  - The Road to the Edge
  - So Many Clusters, So Little Time...
  - I Still Have These VMs Though...
- In Case You Missed It...

## At a Glance...

- **82,670** people registered
- **56,064** attended
- **118,000** unique total views
- **322,000** unique visits to all of the 2020 session content
- **13,859** people participated in our track chats

# The BIG Announcements

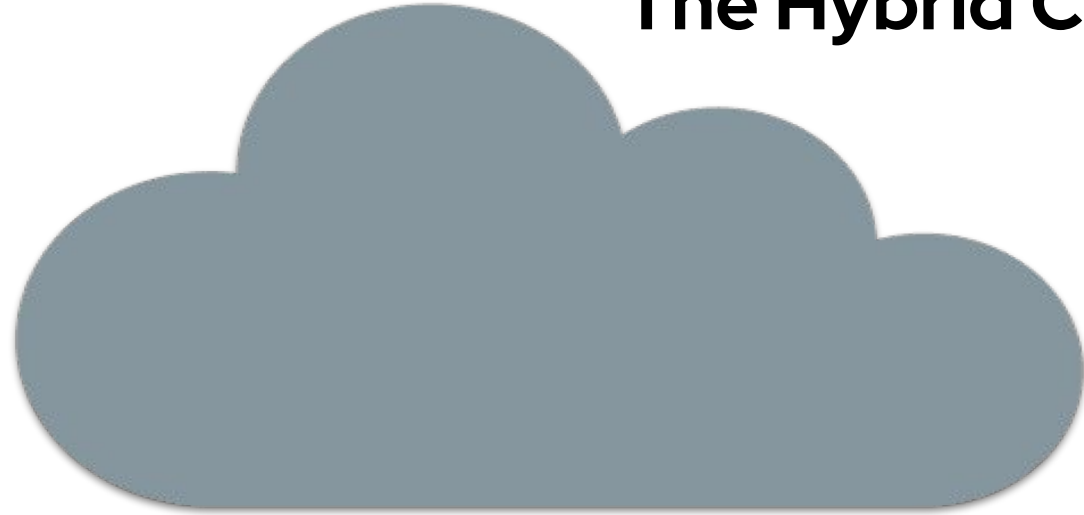
# The Road to the Edge

## Kubernetes Adoption Leads to MultiCluster

*As Kubernetes gains adoption across the industry, scenarios are arising in which I&O teams are finding **they must deploy and manage multiple clusters**, either in a single region on-premises or in the cloud, or across multiple regions....for a number of reasons, including multi-tenancy, disaster recovery, and with hybrid, multi-cloud, or edge deployments.*

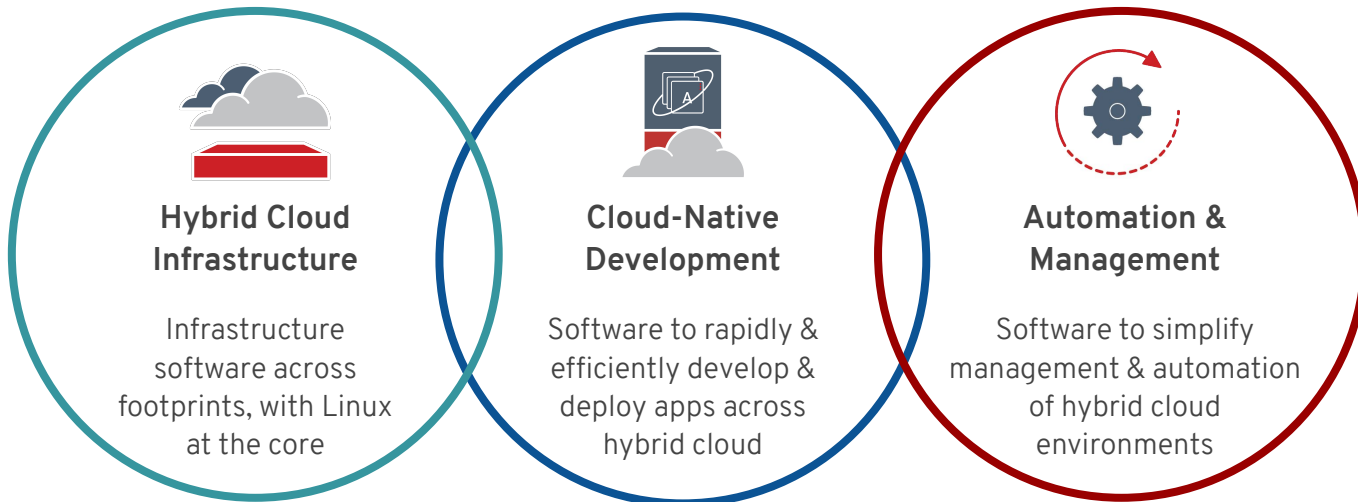
Source: Assessing Patterns for Deploying Distributed Kubernetes Clusters doc # G00465217, by Tony Iams

# The Hybrid Cloud Is Reality



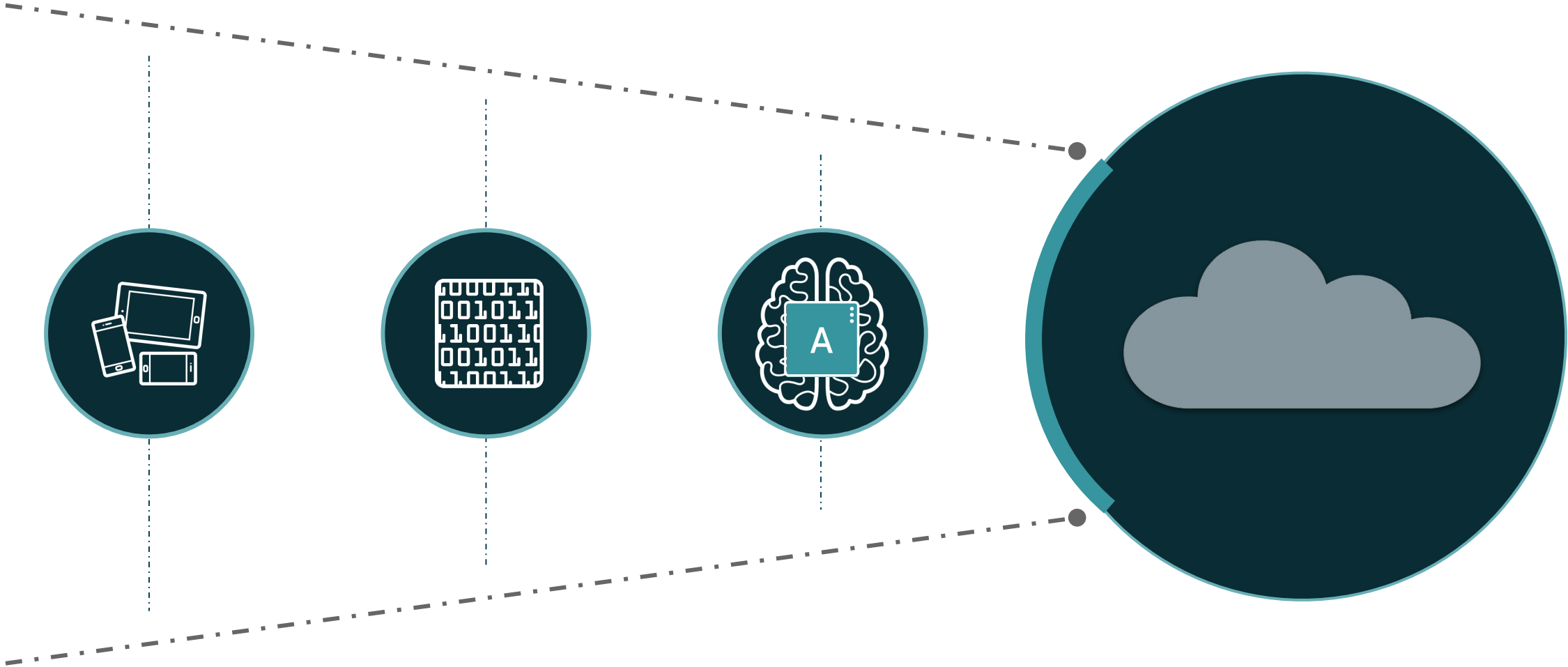
Enterprises with a hybrid strategy grew to **58 percent** in 2019 from 51 percent in 2018.

RightScale [2019 State of the Cloud Report](#)



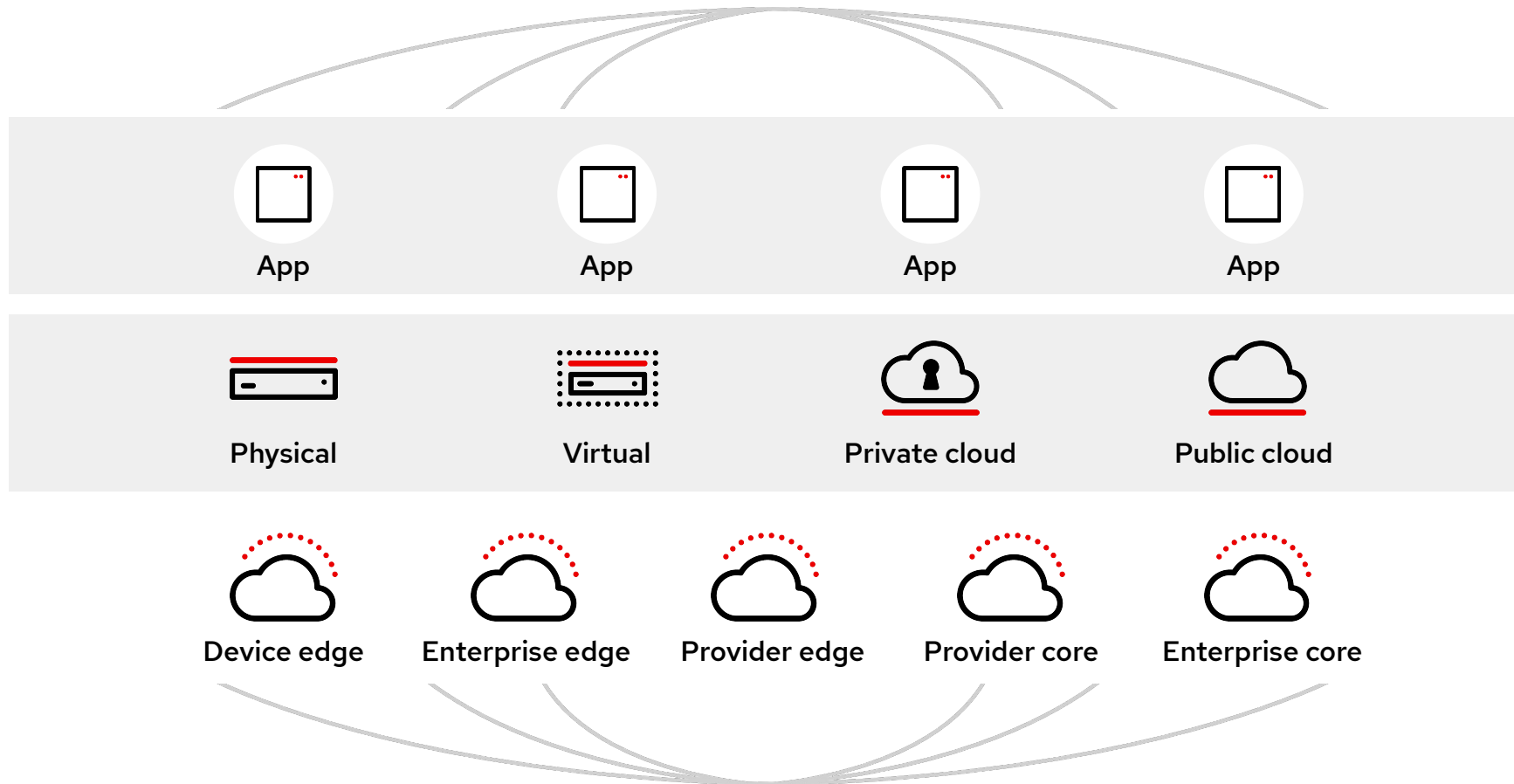


# Result: Hybrid Cloud Is Becoming Increasingly Distributed



# The Open Hybrid Cloud

Any workload, any footprint, **any location**



WHAT IS THE OHC

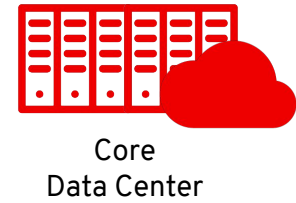
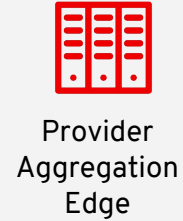
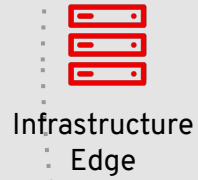
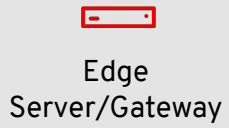


# Edge Tiers

## End-User Premises Edge

## Provider Edge

## Provider/Enterprise Core



"last mile"

Partners

\* Edge computing == Fog computing (there is no real difference other than marketing)

## Red Hat is focused on four edge architectures



### Small footprint device edge

A small footprint deployment with long-lived release support. Key building blocks are Red Hat Enterprise Linux and a container runtime.



### Single node edge servers

Red Hat OpenShift deployment on a single box (master + worker) with resources to run full Kubernetes cluster as well as application workloads.

Under development



### Remote worker nodes

Control services reside in a central location while workloads are running at reliably-connected distributed edge sites, sharing a control plane.



### Edge clusters (3+ node HA)

Controller and worker functions reside on the same node. High availability (HA) setup with 3 servers.

**TODAY**



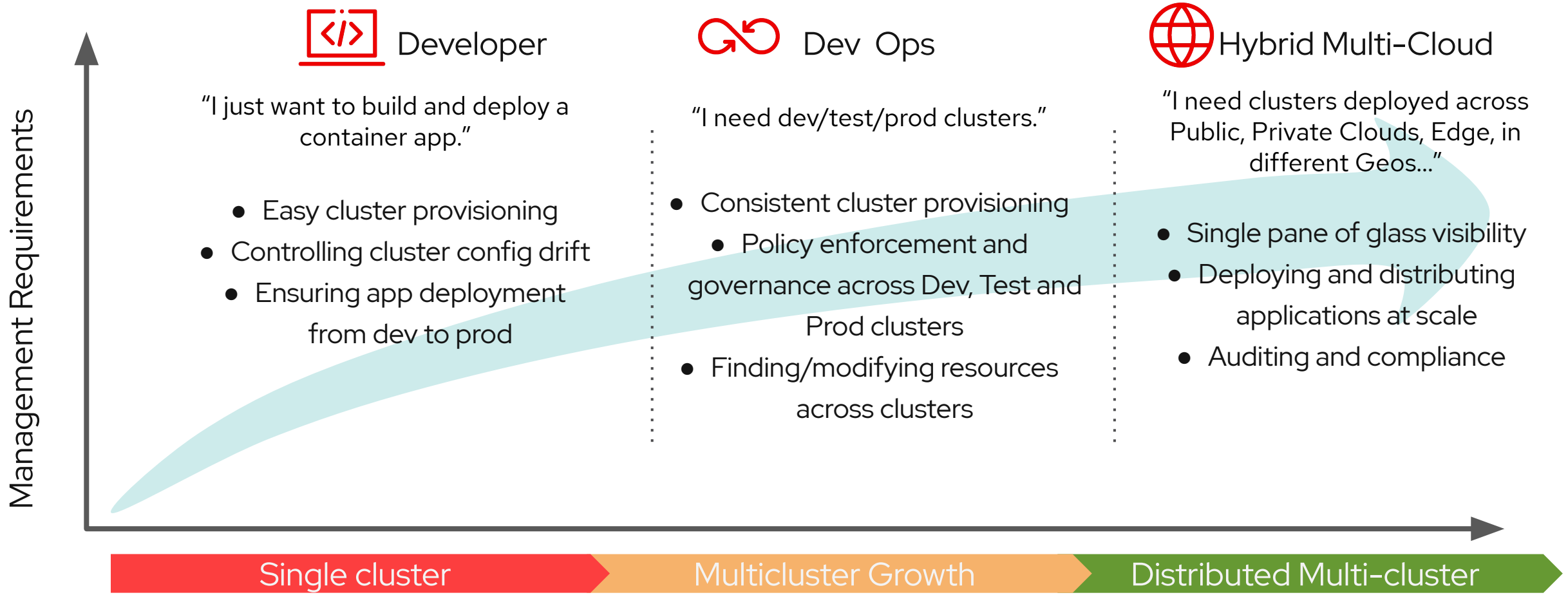
**FUTURE**



So Many Clusters, So Little Time...

# Multi-cluster Management Challenges:

How do I normalize and centralize key functions across environments?



# Introducing:

## Red Hat Advanced Cluster Management for Kubernetes

*(Tech Preview)*



Multicluster Lifecycle  
Management



Policy Driven  
Governance, Risk and  
Compliance



Advanced Application  
Lifecycle Management

# Benefits

## Red Hat OpenShift and Red Hat Advanced Cluster Management for Kubernetes

### **Accelerate Development to Production**

Self-service provisioning allows app dev teams to request clusters directly from a catalog removing central IT as a bottleneck.

### **Ease Compliance**

Policies can be written by the security team and enforced at each cluster, allowing environments to conform to your policy

### **Increase Application Availability**

Placement rules can allow quick deployment of clusters and applications across distributed locations for availability, capacity, and security.

### **Reduced Costs**

Centralized management of clusters reduces operational cost, makes the environment consistent, and removes the need to manually manage individual clusters.



# Unified Multi-Cluster Management

Single Pane for all your Kubernetes Clusters

The screenshot displays the Red Hat Advanced Cluster Management for Kubernetes (ACM) interface. The top navigation bar includes the Red Hat logo, the product name, and user information (kube:admin). The main content area is divided into several sections:

- Overview:** A dashboard showing a grid of cluster cards for Azure (1 cluster, 01 AKS), Amazon (1 cluster, 01 RHOC), auto-detect (2 clusters, 01 Other), and MyDataCenter (1 cluster, 01 RHOC). A summary bar below shows 4 Apps, 5 Clusters, 3 Kubernetes types, 1 Region, 17 Nodes, and 646 Pods.
- Cluster Compliance:** A circular gauge showing 100% compliance.
- VCPU usage:** A bar chart showing 94% usage.
- Clusters Table:** A detailed table listing individual clusters with their status, nodes, and resource usage.

Name	Namespace	Labels	Endpoint	Status	Nodes	Kubernetes Version	Kubernetes Version	Storage	Memory	CPU
exec2-iks	mcm-exec2-iks	cloud=IBM datacenter=dal13 environment=Dev name=exec2-iks region=US vendor=IKS	-	Offline	1	3.1.2-dev	v1.11.7+IKS	-	33%	70%
social-dev-1	mcm-social-dev-1	cloud=IBM datacenter=oregon environment=Dev name=social-dev-1 owner=marketing region=us-west vendor=ICP	launch	Ready	1	3.1.2	v1.11.5+icp-ee	100%	62%	45%
social-dev-2	mcm-social-dev-2	cloud=IBM datacenter=oregon environment=Dev name=social-dev-2 owner=marketing region=us-west vendor=ICP4Data	launch	Offline	1	3.1.2	v1.11.1+icp-ee	100%	48%	47%
social-dev-gke	social-dev-gke	cloud=Google datacenter=us-central1-a environment=Dev name=social-dev-gke owner=marketing region=US vendor=GKE	-	Ready	1	3.1.2-dev	v1.11.7-gke.12	-	6%	22%
social-prod-1	mcm-social-prod-1	cloud=IBM datacenter=oregon environment=Prod name=social-prod-1 owner=marketing region=us-west vendor=ICP	launch	Ready	1	3.1.2	v1.11.1+icp-ee	100%	52%	34%
social-prod-eks	social-prod-eks	cloud=AWS datacenter=us-east-1 environment=Prod name=social-prod-eks owner=marketing	-	Ready	1	3.1.2-dev	v1.11.8-eks-7c34c0	-	1%	10%

- **Centrally** create, update and delete Kubernetes clusters **across multiple** private and public clouds
- Search, find and modify **any** kubernetes resource across the **entire** domain.
- **Quickly** troubleshoot and resolve issues across your **federated** domain

# Policy based Governance, Risk and Compliance

Don't wait for your security team to tap you on the shoulder

3 POLICY VIOLATIONS | 1 CLUSTER VIOLATIONS | 1 HIGH SEVERITY FINDINGS | 1 MEDIUM SEVERITY FINDINGS | 0 LOW SEVERITY FINDINGS

Top violations: 1 policy-cis, 1 policy-grc, 1 policy-role

Top security findings: 2 Policy violation finding, No other security findings

compliancePolicy

Type	Detail
Name	policy-prod
Message	-
Status	-
Enforcement	-
Exclude Namespaces	kube*
Include Namespaces	default

```
51 -   - from:
52 -     = podSelector: {}
53 -   podSelector:
54 -     matchLabels: null
55 - - complianceType: musthave
56 -   objectDefinition:
57 -     apiVersion: v1
58 -     kind: LimitRange
59 -     metadata:
60 -       name: mem-limit-range
61 -     spec:
62 -       limits:
63 -         - default:
64 -             memory: 512Mi
65 -           defaultRequest:
66 -             memory: 256Mi
67 -           type: Container
68 -       remediationAction: enforce
69
```

Object Templates

Name	Compliance Type	API version	Kind	Last Transition	Compliant
restricted-mcm	musthave	policy/v1beta1	PodSecurityPolicy	-	-
deny-from-other-namespaces	musthave	networking.k8s.io/v1	NetworkPolicy	-	-
mem-limit-range	musthave	v1	LimitRange	-	-

- **Centrally** set & enforce policies for security, applications, & infrastructure
- Quickly **visualize** detailed **auditing** on configuration of apps and clusters
- Built-in **CIS** compliance policies and audit checks
- **Immediate** visibility into your compliance posture based on **your** defined standards



## Getting access to the tech preview

Only existing RHOCP customers will be able to access the tech preview, Non-OCP customers can first try the OpenShift Container Platform evaluation.

Existing OCP customers who want to try Advanced Cluster Management for Kubernetes can gain access to the Tech Preview.

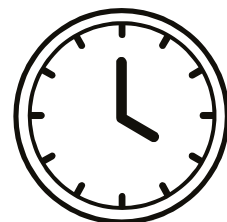
In either case, please reach out to your Red Hat account team!

I Still Have All These VMs Though...

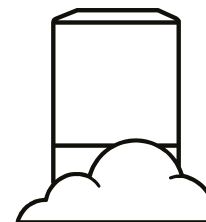
# New applications require



Cloud-like developer  
experience



Improved time to  
market



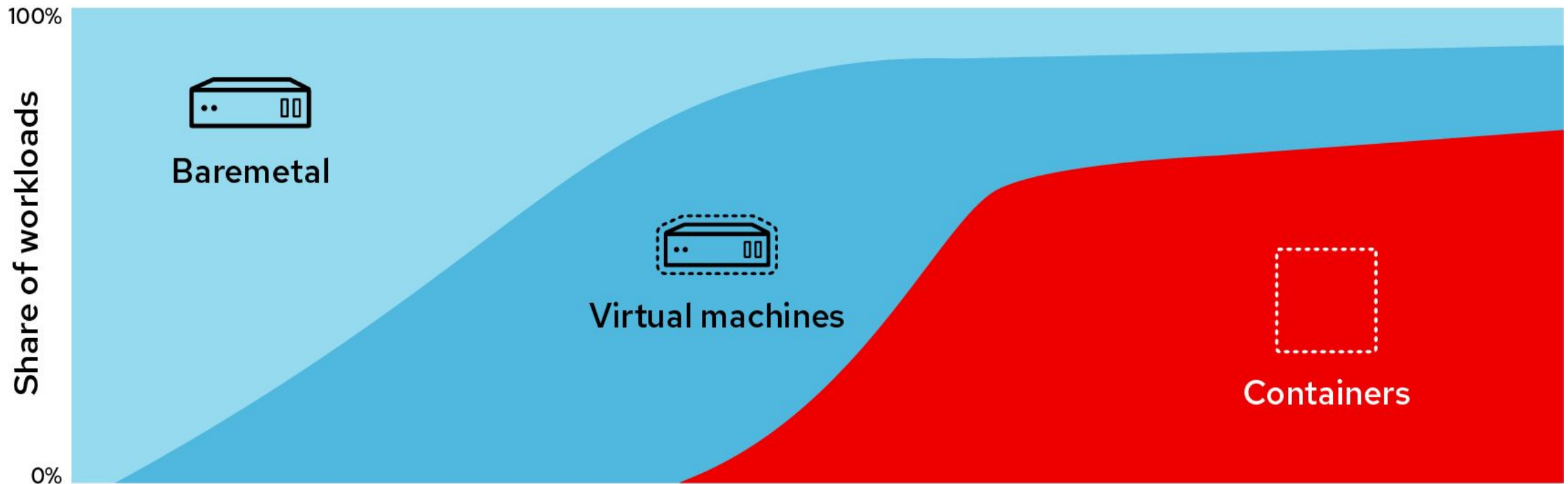
Flexibility between  
on-premises and the  
cloud



Integration with new  
key technologies

# Applications Require Multiple Technologies

Where are you? Where do you want to be?



# Red Hat

acknowledges organizations use both containers and virtualization today and delivers an efficient process to manage both in one centralized platform...



# OpenShift Virtualization

Meeting business, customer, AND developer needs



## Meets Developer Needs: Faster Time to Market

Deliver ability to modernize applications over time and slowly deconstruct existing virtual machines



## Delivers Operational Flexibility: Simplified Management

Reduce overhead by simplifying the management of virtual machines and containers with a single platform.



## Standardized Deployment: Reduced Cost

Avoid unnecessary application refactoring and build services with the right platform and existing resources

# Automate Complexity, Focus on Code

## Containerize your VMs

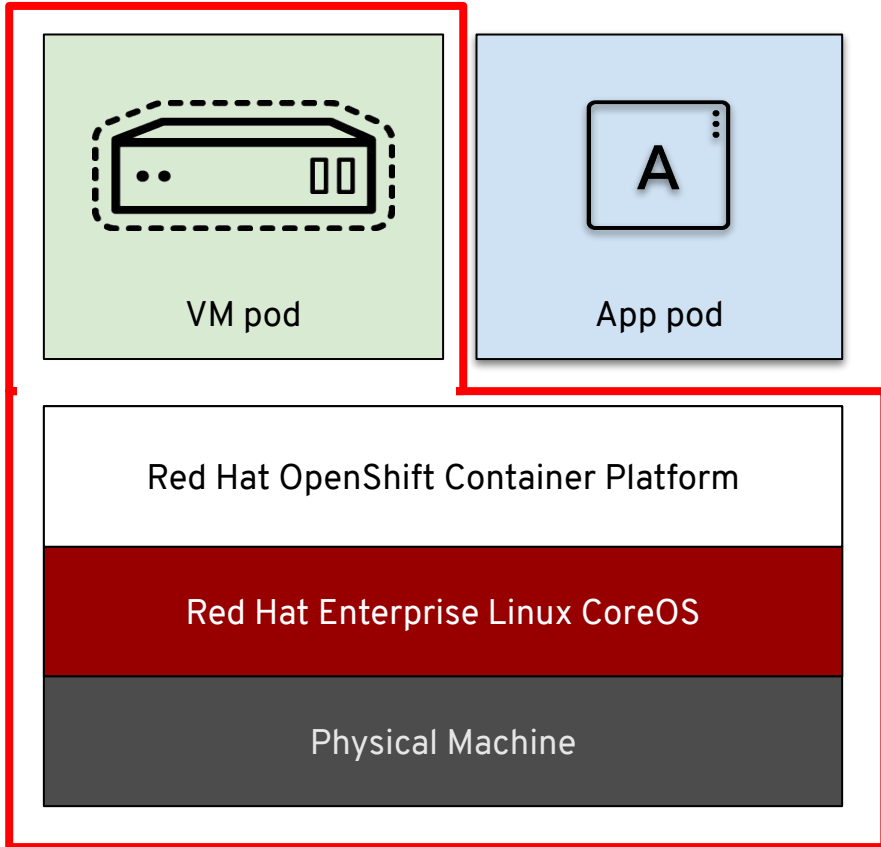
Using a common platform, Kubernetes, to manage virtual machines  
AND containers teams automate their experience with:

- ▶ One management platform
- ▶ One development platform
- ▶ One security practice

Red Hat OpenShift delivers Container-native virtualization with a common understanding of application needs from ops to development

# OpenShift Virtualization

The benefits of virtualization, the performance and agility of containers

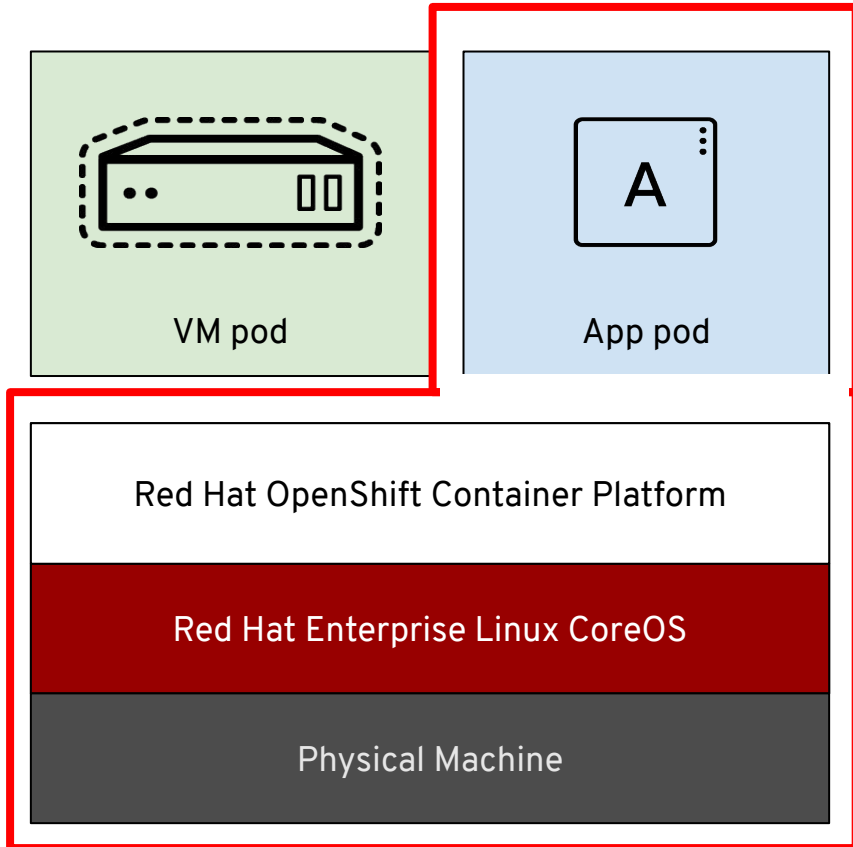


## VMs and Containers Managed by Kubernetes

- Manage VMs and containers from a single platform
- Realize Kubernetes benefits even for application components which can't be directly containerized
- Support immediate and long term goals for container adoption

# OpenShift Virtualization

The benefits of virtualization, the performance and agility of containers



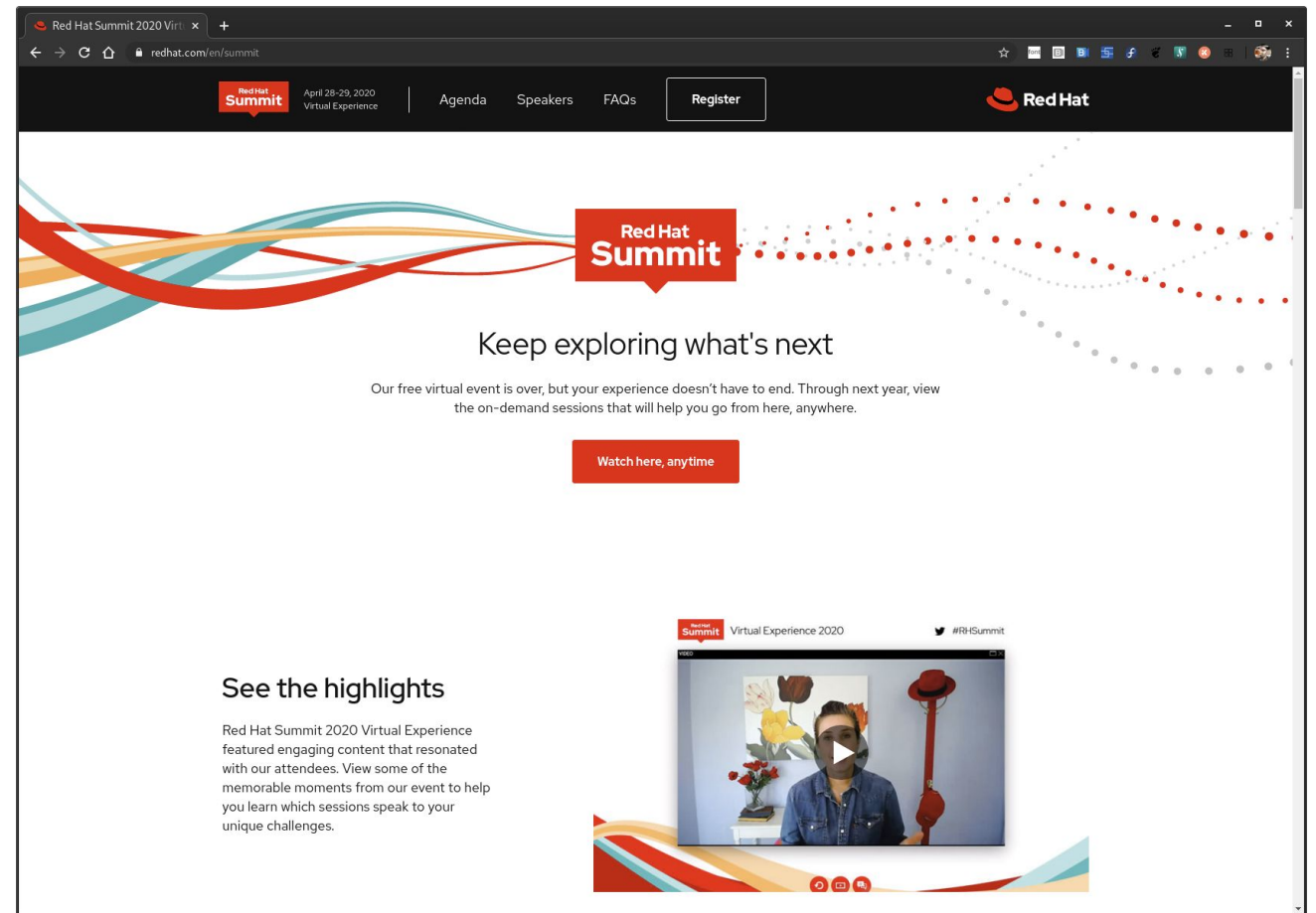
## Realize Kubernetes-native benefits in virtual machines

- Schedule, connect, and consume VM resources as container-native
- Seamlessly scale and automate deployments and updates on-prem or in the cloud
- Integrate with container orchestrators and resources

In Case You Missed It...

# Watch all of the Virtual Experience Content Now!

- All Red Hat Summit 2020 Virtual Experience sessions will remain available for 12 months
- If you didn't register, you can still access sessions! Just register and login to view all of the great content!
- It's still FREE!



## The Highlight Reel

# What edge computing can learn from the moon landings

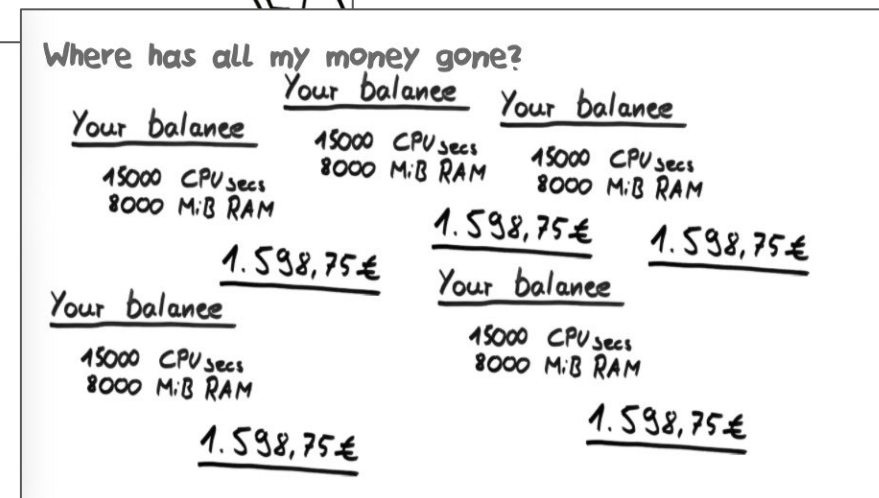
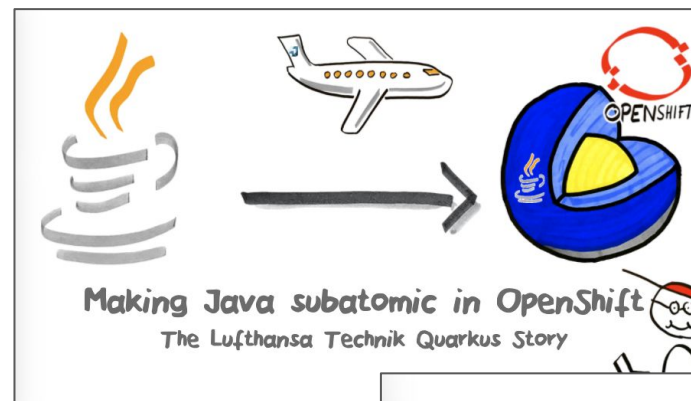
- Frederic Desbiens, Program Manager for the IoT and Edge Computing at the Eclipse Foundation
- A great talk about real (out of this) world edge
- Highlights
  - Learning from our past in how to rethink about processing data at the edge
- Share with Customers:
  - <https://onlinexperiences.com/Launch/Event.htm?ShowKey=85788&DisplayItem=E367905>



# The Highlight Reel

## The Lufthansa Technik Quarkus Story

- Aviator
  - Aircraft Repair
  - Aircraft Privatization
- Stressed Autonomous Teams & MSAs
- Underlying Message and Quote
  - Where has all the money gone?
  - MSA proliferation == \$\$\$\$
- Share with Customers:
  - <https://onlinexperiences.com/Launch/Event.htm?ShowKey=85788&DisplayItem=E367783>



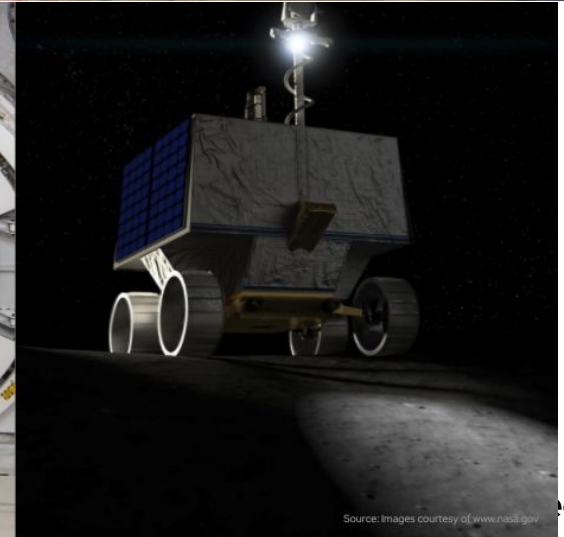


## The Highlight Reel – Open robotics

- Brian Gerkey, Chief Executive Officer, Open Robotics
- Robot OS, though not an OS
- Cars, drones, sensor tests, space
- Underlying Message and Quote
  - Open source lead to exponential innovation and adoption
- Share with Customers:
  - <https://onlinexperiences.com/Launch/Event.htm?ShowKey=85788&DisplayItem=E367110>



SLIDES



Source: Images courtesy of www.nasa.gov

# Recommended Sessions (my choices)

## General Sessions

- **General Session 3: Demo - From the private datacenter to the edge**
- General Session 4: Keynote - Unlocking data to build the future

## DevOps, Hybrid Cloud, and Middleware

- Implementing multi-layer container and Kubernetes security with OpenShift for automated DevSecOps
- OpenShift Virtualization: A simplified, converged management platform for virtual machines and containers
- Event Driven Architecture with Quarkus, Kafka, and OpenShift

## Automation

- Case study: Changing governed IT processes to automation, and reinventing IT Ops as site reliability engineering
- Value of an automation platform—more than just the Ansible you know today

## Platform and Management

- Red Hat Management strategy and roadmap
- **Demo of using Red Hat Insights to proactively keep your Red Hat Enterprise Linux environment stable, secure and compliant**

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Thank you



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