



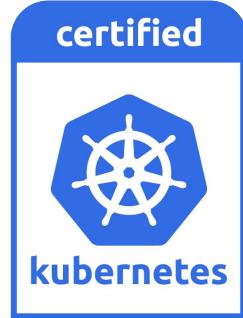
Why using a Hybrid Cloud ?

Alfred Bach

Customer or partner NDA required

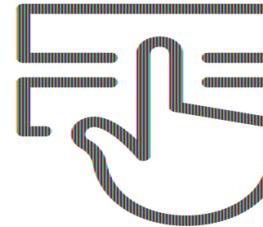
Why OpenShift

CONFIDENTIAL Red Hat associates only



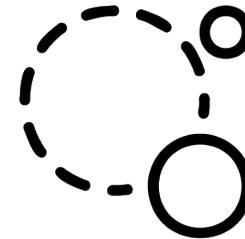
100% Kubernetes

OpenShift is certified as 100% Kubernetes by the CNCF.



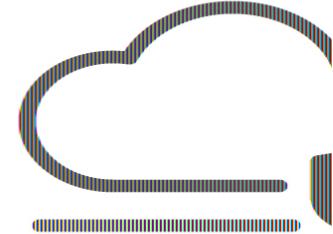
Ecosystem of choice

Red Hat partners offer customers a choice of technologies: Networking, Storage etc without lock-in



Open source

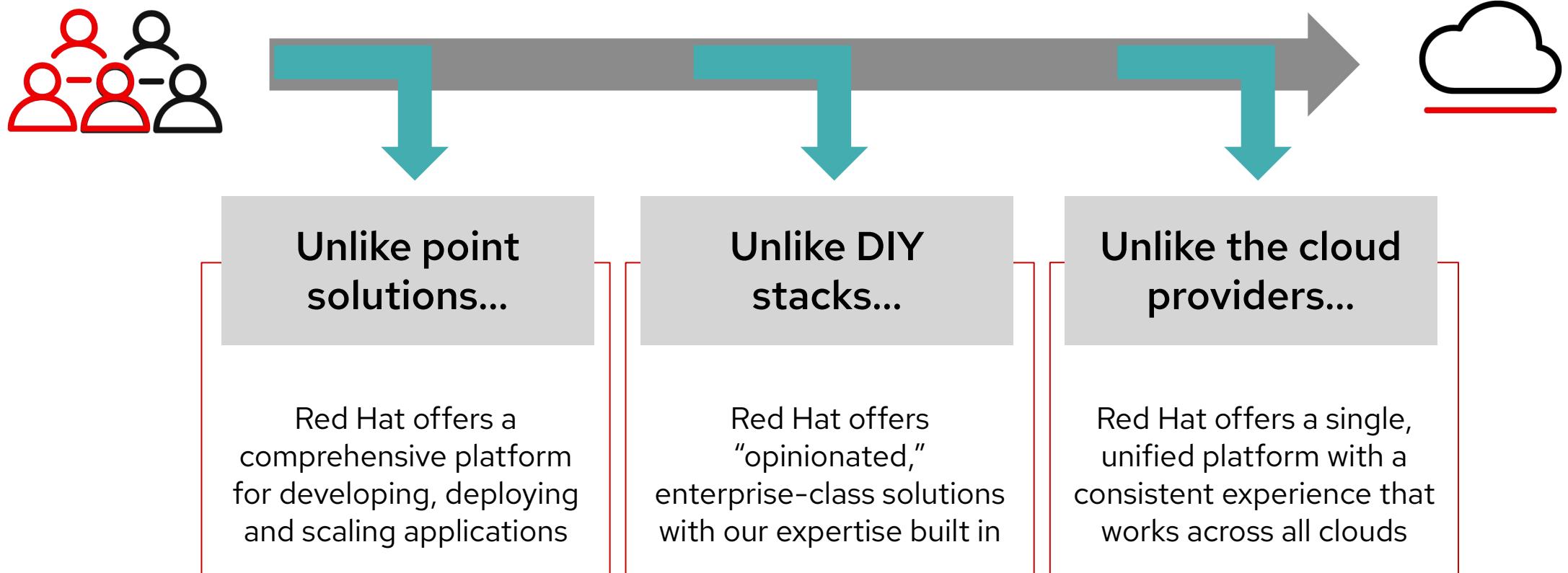
OpenShift platform code is 100% open source, developed and collaborated in the upstream community.



Open Hybrid Cloud

OpenShift provides a consistent operator and developer experience on-prem and in public cloud

Red Hat's unique approach to cloud services

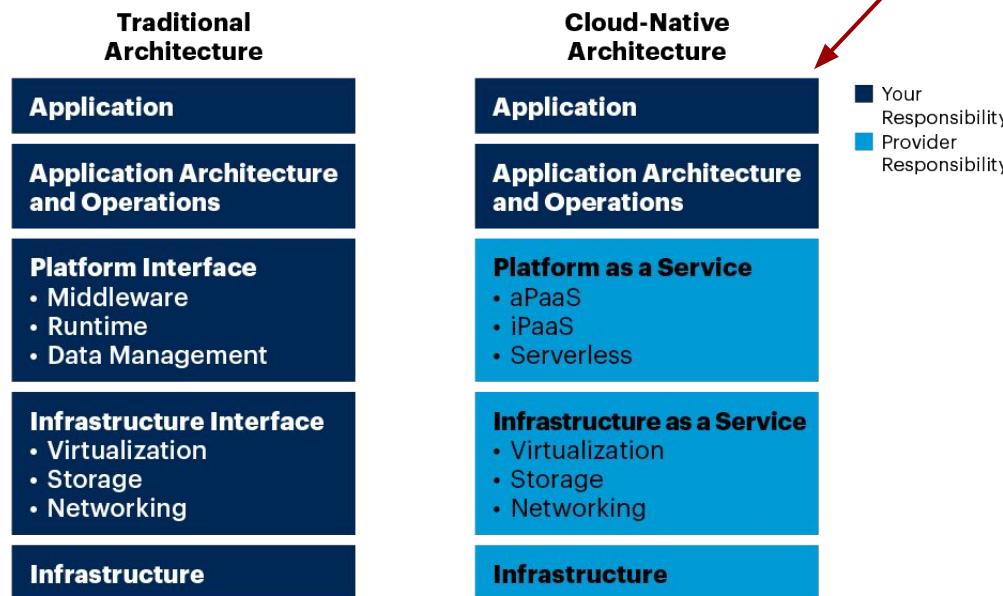


Gartner recommends that you focus on cloud native application

- In a tight market for technical talent, focus on hiring to build revenue generating applications.
- Red Hat provides a 99.95% uptime SLA and 24x7 support for the application development platform on AWS, Azure, Google or IBM clouds.

Gartner recommends that you focus on cloud native application development.

Cloud-Native Architecture Versus Traditional Architecture



Source: Gartner

718692_C

Customer or partner NDA required

<https://www.gartner.com/document/3981988?ref=qfeed>

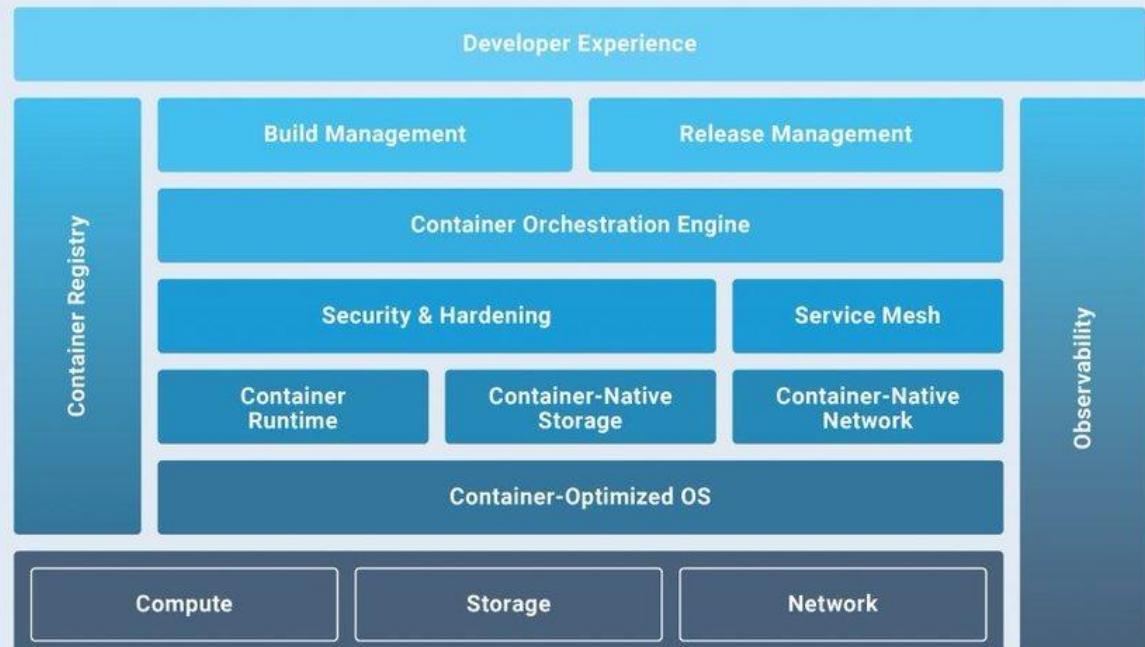
Gartner



Or use OpenShift, a modern cloud native stack

CONFIDENTIAL Designator

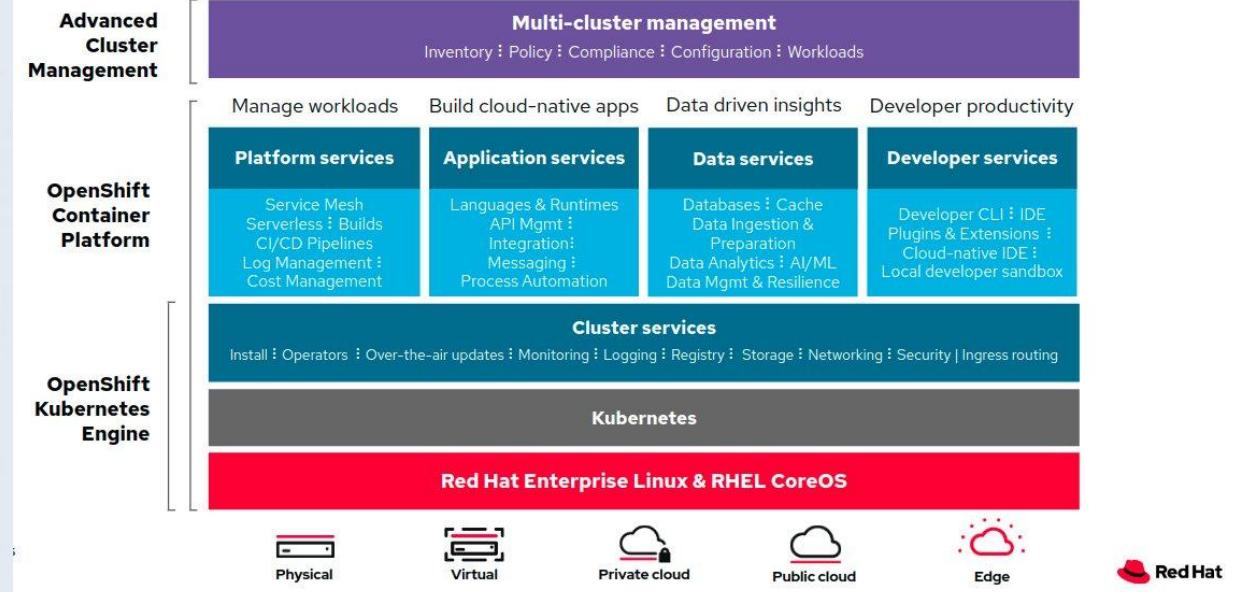
The Cloud Native Stack



Source: Janakiram MSV

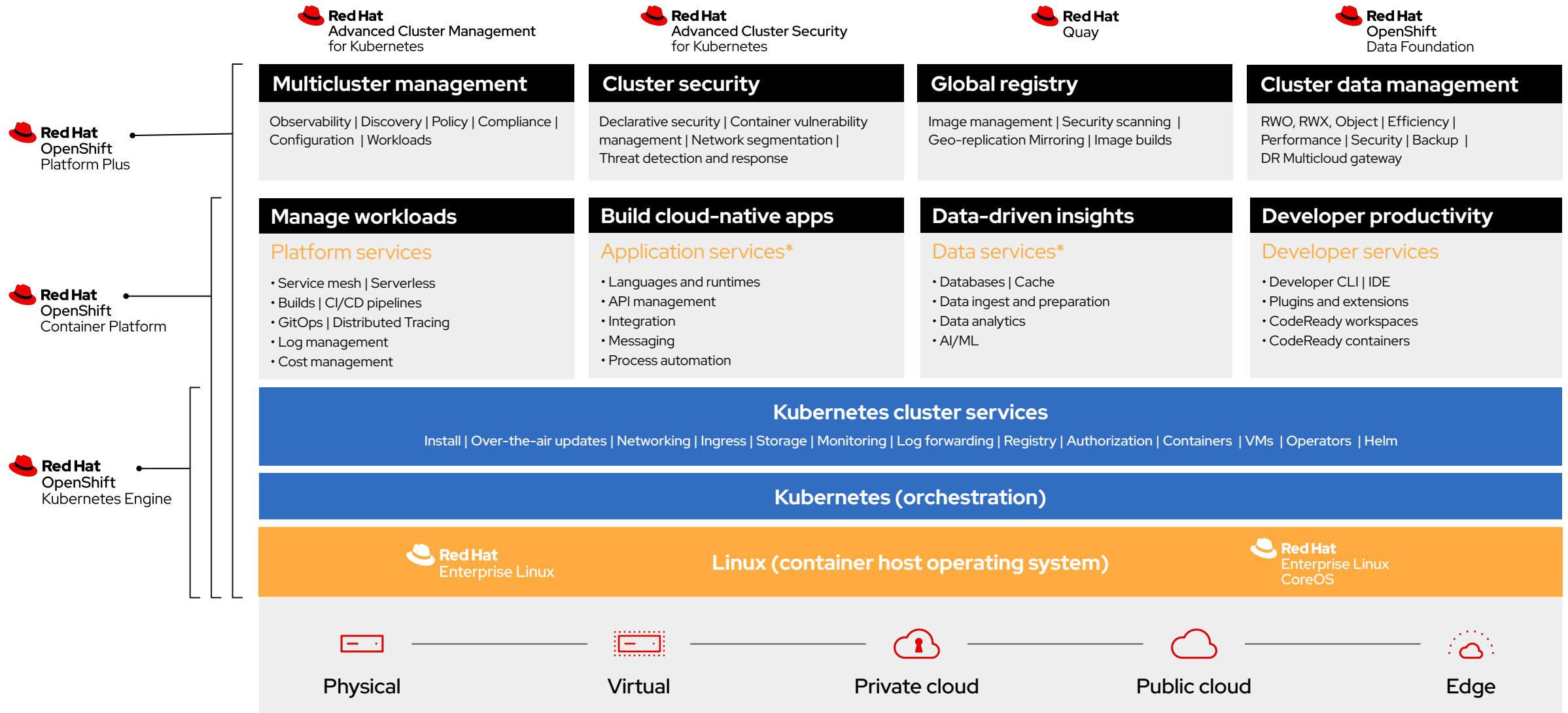
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OpenShift Container Platform



From a newstack article defining a cloud native stack, OpenShift container platform neatly fits the definition. [What Is the Modern Cloud Native Stack? – The New Stack](#)

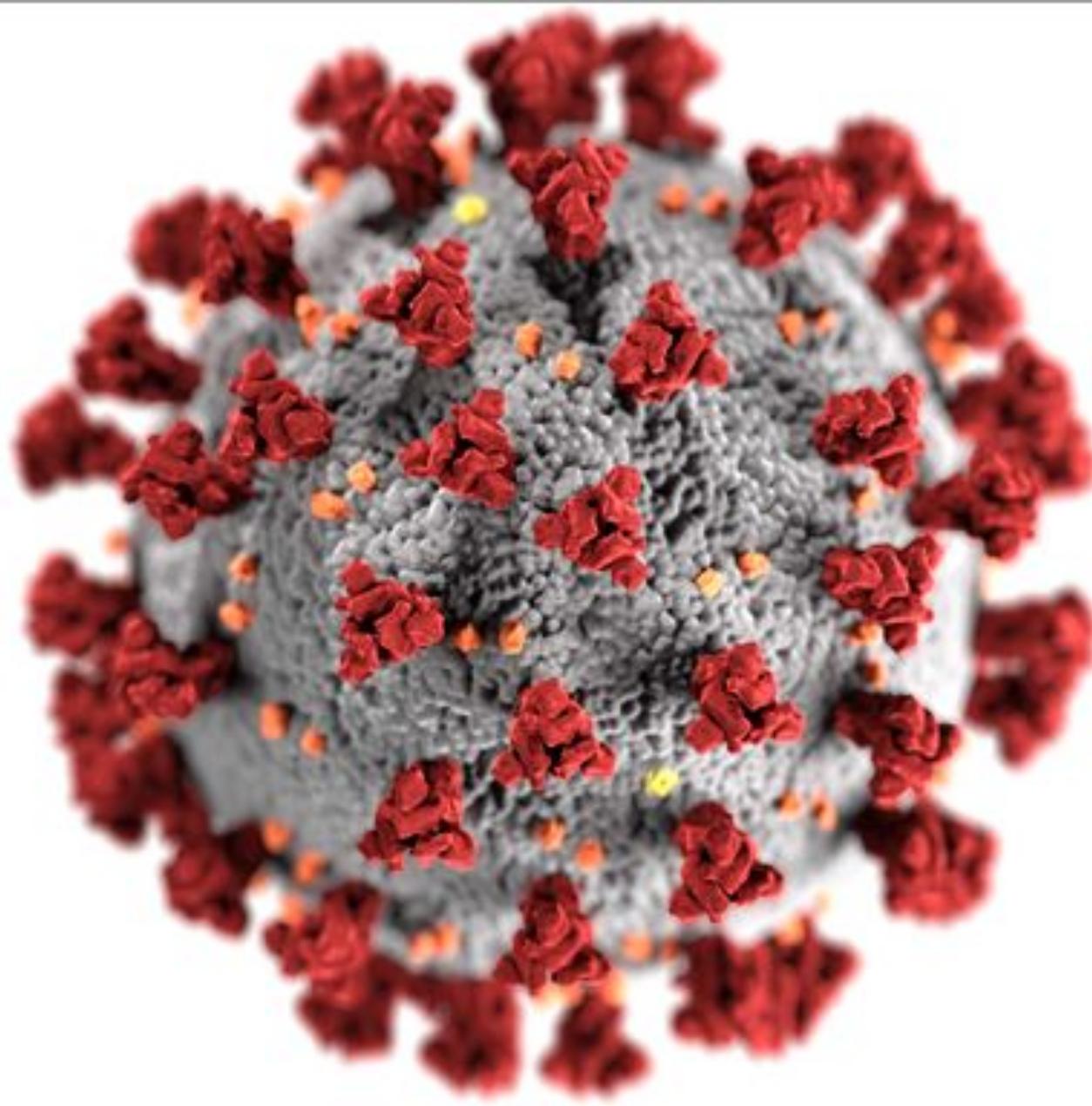
Red Hat open hybrid cloud platform



* Red Hat OpenShift® includes supported runtimes for popular languages/frameworks/databases. Additional capabilities listed are from the Red Hat Application Services and Red Hat Data Services portfolios.

** Disaster recovery, volume and multicloud encryption, key management service, and support for enterprise-class data protection are included in OpenShift Data Foundation Advanced.

Open Hybrid Cloud



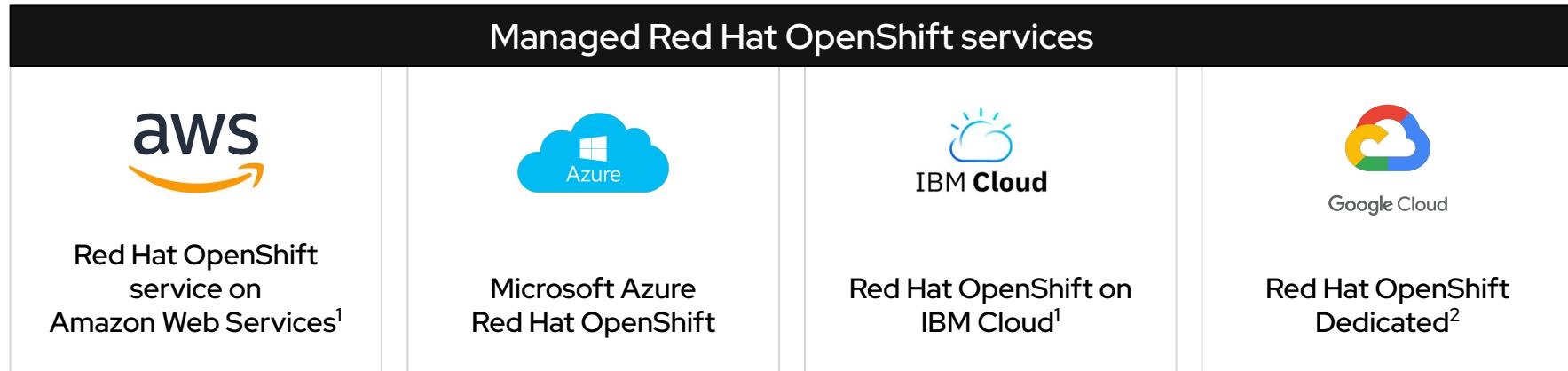
Red Hat OpenShift

CONFIDENTIAL designator

Available as self-managed platform or fully managed cloud service

Start quickly, we
manage it for you

Cloud managed



You manage it, for
control and flexibility

Customer managed



Manage OpenShift Anywhere

- OCP Cluster Lifecycle Management:
 - Provision new OCP 4.4.x - 4.6.x
 - Manage existing OCP 3.11, 4.4.x - 4.6.x
- Public cloud managed kubernetes: EKS, AKS, GKE, IKS, ROKS
 - Search, find and modify kubernetes resources.
 - Deploy applications, across clusters
 - Define security policy, compliance and violations
- Provision OCP to **Bare Metal** and **vSphere**
 - More opportunity to mix clouds (public / private)

The screenshot shows the 'Create a cluster' screen of the Red Hat Advanced Cluster Management for Kubernetes web interface. At the top, there's a navigation bar with the Red Hat logo and the title 'Advanced Cluster Management for Kubernetes'. Below it, a header says 'Clusters / Create a cluster' with a 'YAML: On' toggle. The main area has two sections: 'Configuration' (with a 'Cluster name*' field) and 'Distribution' (with a dropdown set to 'Red Hat OpenShift'). Below these are infrastructure provider options: AWS, Google Cloud, Microsoft Azure, VMware vSphere, and Bare Metal. To the right, a large code editor displays the YAML configuration for a 'ClusterDeployment' object:

```
apiVersion: hive.openshift.io/v1
kind: ClusterDeployment
metadata:
  name: 
  namespace: 
  labels: 
  cloud: ''
  vendor: 'OpenShift'
spec:
  baseDomain: 
  clusterName: 
  controlPlaneConfig: 
    servingCertificates: {}
  installed: false
  platform: 
    provisioning:
      installConfigSecretRef:
        name: -install-config
      sshPrivateKeySecretRef:
        name: -ssh-private-key
      pullSecretRef:
        name: -pull-secret
  ...
  apiVersion: cluster.open-cluster-management.io/v1
  kind: ManagedCluster
  metadata:
    labels:
      name: 
      vendor: OpenShift
    name: 
  spec:
    hubAcceptsClient: true
  ...
  apiVersion: v1
  kind: Secret
  metadata:
    name: -install-config
    namespace: 
  type:Opaque
```

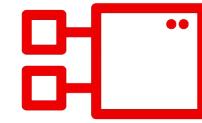
Open hybrid cloud: The platform for big ideas



The same developer experience



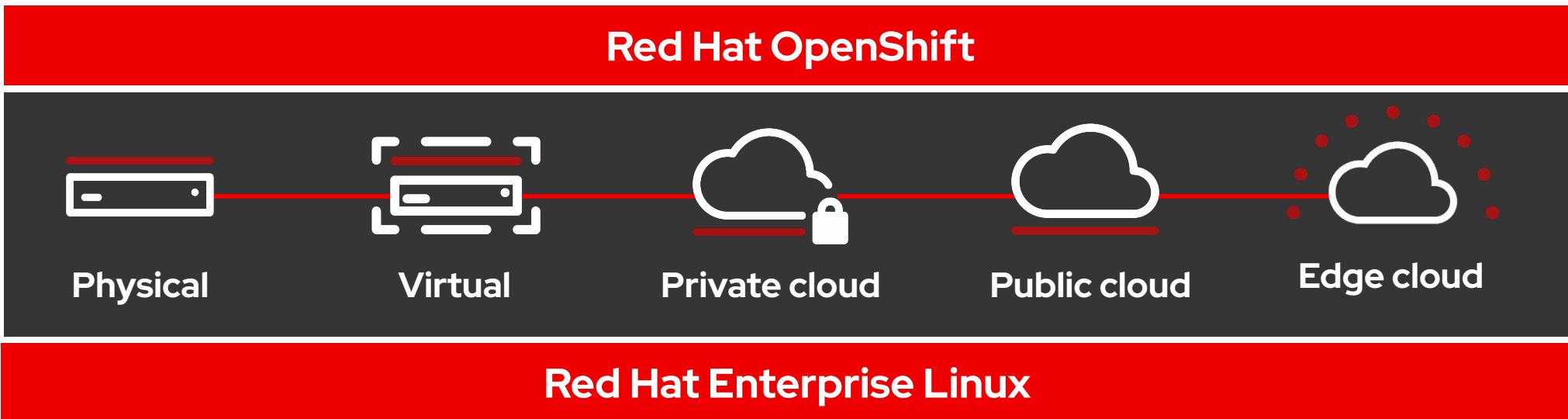
Modernize apps



App migration

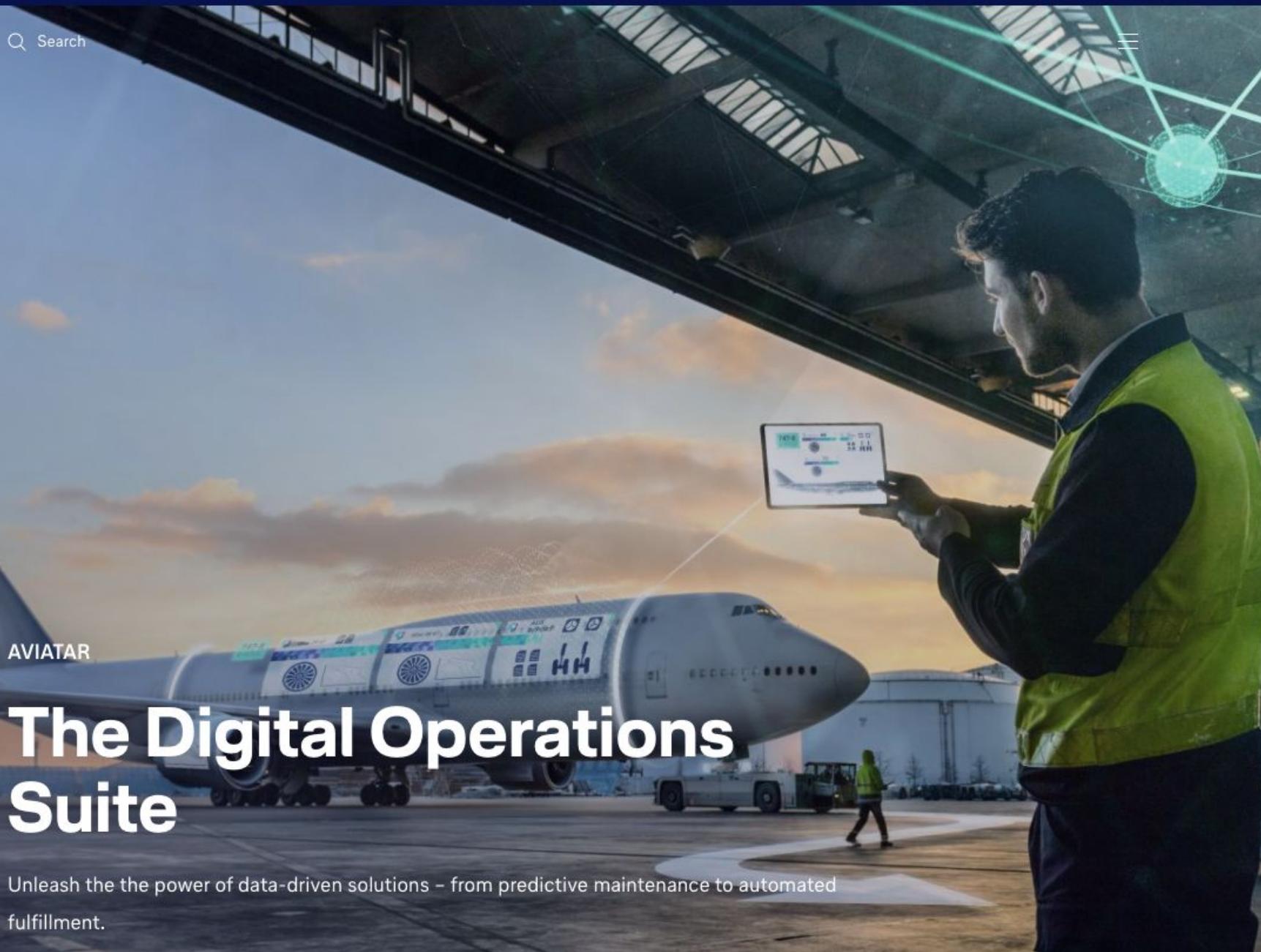


Secure



Some Storys

Search



The Digital Operations Suite

Unleash the power of data-driven solutions – from predictive maintenance to automated fulfillment.

Customers seeing value of Managed Services, Lufthansa

- Lufthansa Technik set up a hybrid cloud environment using both **Azure and on-premise infrastructure** to run AVIATAR's application services.
- Enables the company to more quickly deploy new components and provide a public cloud option for AVIATAR users.
- Red Hat **OpenShift Container Platform**, running on Azure, designed to support the AVIATAR's agile, **DevOps** approach of continuous improvement.
- Red Hat OpenShift Container Platform also helps Lufthansa Technik to build, deploy, run and integrate the components of the new infrastructure, including cloud-native applications and microservices.

Johannes Hansen, senior director application development & user experience, Digital Fleet Solutions, Lufthansa Technik AG

"With Red Hat OpenShift Container Platform on Microsoft Azure, for example, we can start implementing a new application immediately, without waiting for any infrastructure, allowing us to produce results in just a few days and have a minimum viable product after just several weeks."

Customers seeing value of Managed Services, Vodafone, N.Z.

- Vodafone New Zealand navigated transformation and migrating from a legacy integration platform to a container-based, open source, integration solution using Red Hat Integration and Red Hat OpenShift Container Platform.
- Red Hat Fuse, Red Hat AMQ, and 3scale by Red Hat were employed to provide an integration platform to complement their new cloud-native OSS/BSS stack.
- Multicloud Red Hat OpenShift platform comprising of **Microsoft Azure Red Hat OpenShift**, on-premise **OpenShift on AzureStack**, and in the future, managed OpenShift on another public cloud.
- Quay will be providing an enterprise-grade registry for all of the OpenShift platforms.



Our network

Our commitment

For families

Go super-fast on NZ's largest 5G network

5G is live in parts of select NZ cities (see below for more detail). Requires a 5G device and 5G plan. Achievable speeds are affected by coverage and device capabilities. *Mobile network results in the Bay of Plenty and Manawatū are based on independent 3rd party audit reports by umlaut in November 2021 and August 2021 respectively.

The best mobile network in the Bay of Plenty and Manawatū*

Managed Services on Microsoft Azure
Hybrid on Azure Stack on-prem



Customers seeing value of Managed Services, Audi, Germany

- At Audi, we have a highly-skilled Kubernetes team who has worked since 2017 with a proprietary Kubernetes control plane, called Kubika 1.0. This single-tenant solution was state of the art, but only suitable for the DevOps team. We wanted to know how we could enable teams **without the necessary staff** to own a stack end to end?
- Introduced a multi tenant solution like **Red Hat OpenShift Dedicated**, which is operated by Red Hat
- With OpenShift Dedicated, we created a cross-brand collaborative ecosystem that, in the future, goes far beyond.

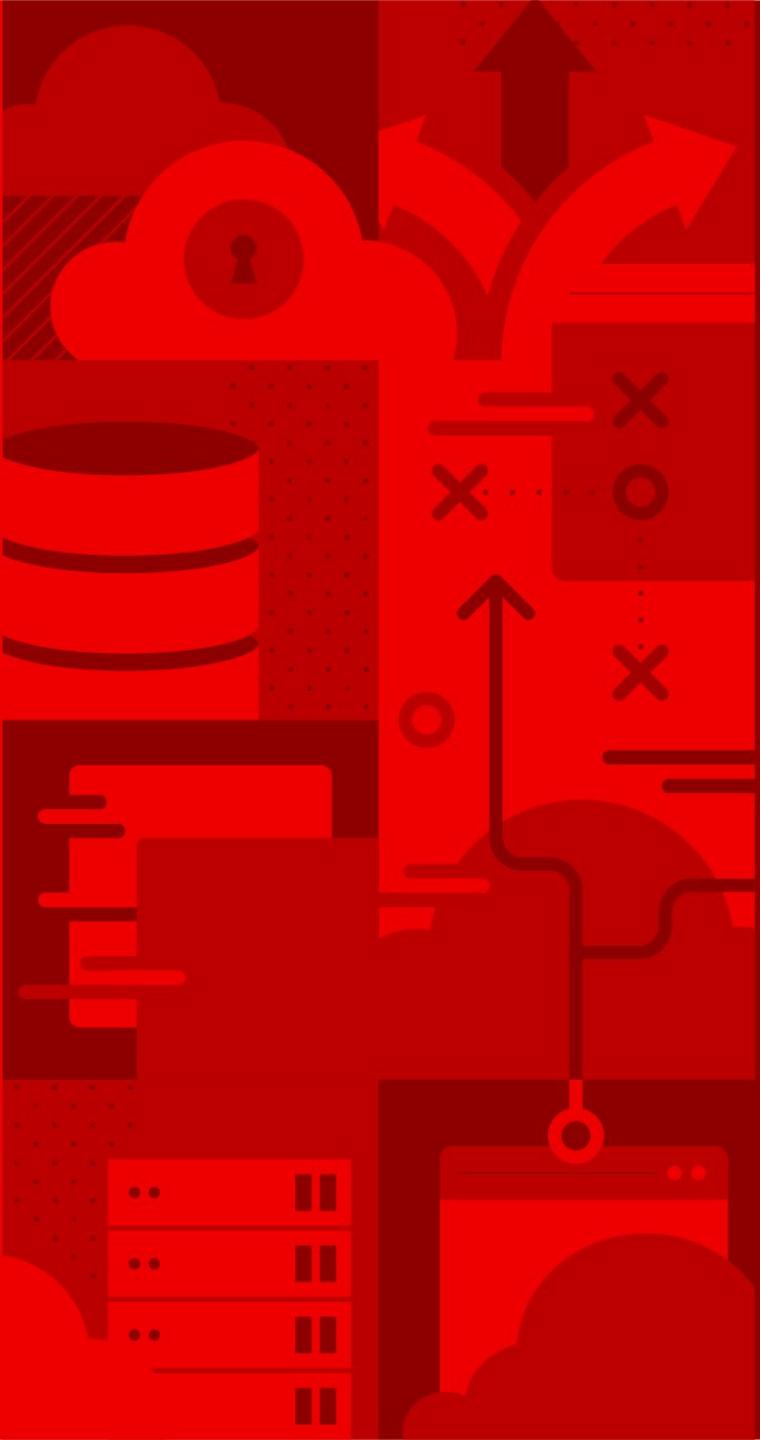
Chose Managed Services to alleviate staffing concerns



Customers seeing value of Managed Services, Snam, Italy

- Snam oversees one of the world's largest natural gas transportation networks, 2 LNG terminals and the largest European natural gas storage capacity.
- Red Hat OpenShift, to run and scale applications across its current on-premises data centers extending out to the edge and OpenShift Data Foundation, which provides software-defined storage for containerized applications.
- Snam can now deploy applications, automated, in as little as 30 minutes, improving by more than 10x the time to delivery of its new software products.
- Red Hat OpenShift has been deployed **on-premises** and on the **edge** of the network, with Snam also taking advantage of the public cloud, using **Microsoft Azure Red Hat OpenShift**





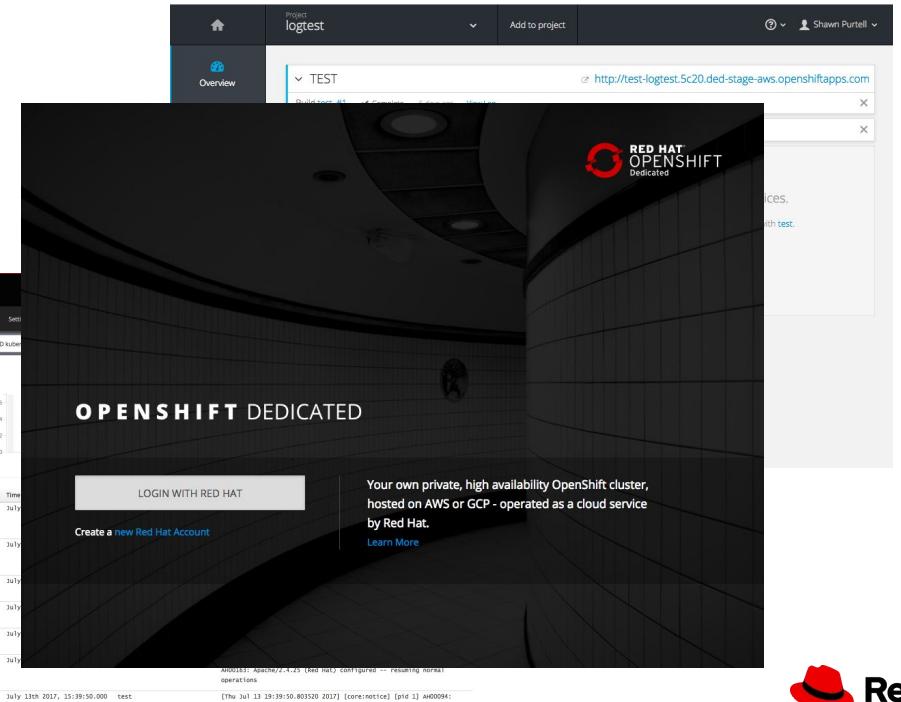
Red Hat OpenShift Managed Services Portfolio

Red Hat OpenShift Dedicated

A fully managed OpenShift service

Red Hat OpenShift Dedicated offers one or more standardized OpenShift clusters, hosted in AWS or GCP and operated as a cloud service by Red Hat

- Installed and maintained by Red Hat
- Option of Red Hat or customer owned AWS or GCP account
- Choice of region, node size, AZ distribution
- Integrated logging, metrics and authentication
- OpenShift Cluster Manager for creating, viewing clusters
- Managed upgrades and patching
- VPN and VPC peering
- Premium Red Hat support with a 99.95% uptime SLA
- OpenShift API management - up to 100k calls/day



Deploying a new OpenShift Dedicated (OSD) Cluster using OpenShift Cluster Manager

CONFIDENTIAL Customer facing

The screenshot shows the Red Hat OpenShift Cluster Manager web interface. The left sidebar has a dark theme with the Red Hat logo at the top. The 'Clusters' option is selected, highlighted in blue. The main content area is titled 'Create a Cluster to Get Started'. It contains two large cards: one for 'Red Hat OpenShift Container Platform' and one for 'Red Hat OpenShift Dedicated'. Both cards feature the Red Hat logo and a brief description of how to create a cluster.

Red Hat OpenShift Container Platform

Create an OCP cluster using the command-line installer. Your cluster will automatically register to the Cluster Manager after installation completes.

Red Hat OpenShift Dedicated

Create a Red Hat-managed cluster (OSD), provisioned on Amazon Web Services.



OpenShift Dedicated Cluster view in OpenShift Cluster Manager

CONFIDENTIAL Customer facing

The screenshot shows the Red Hat OpenShift Cluster Manager web interface. The left sidebar has a dark theme with white text and icons. The main content area is titled "Clusters". At the top right of the content area are several buttons: "Filter by name or ID...", "Filter", "Create cluster", three vertical dots for more options, "1 - 0 of 0", and a tooltip for "Provider (Location)". The main table has columns: Name (sorted by ascending), Status, Type, Created, Version, and Provider (Location). There are ten rows in the table, each represented by a light gray horizontal bar.

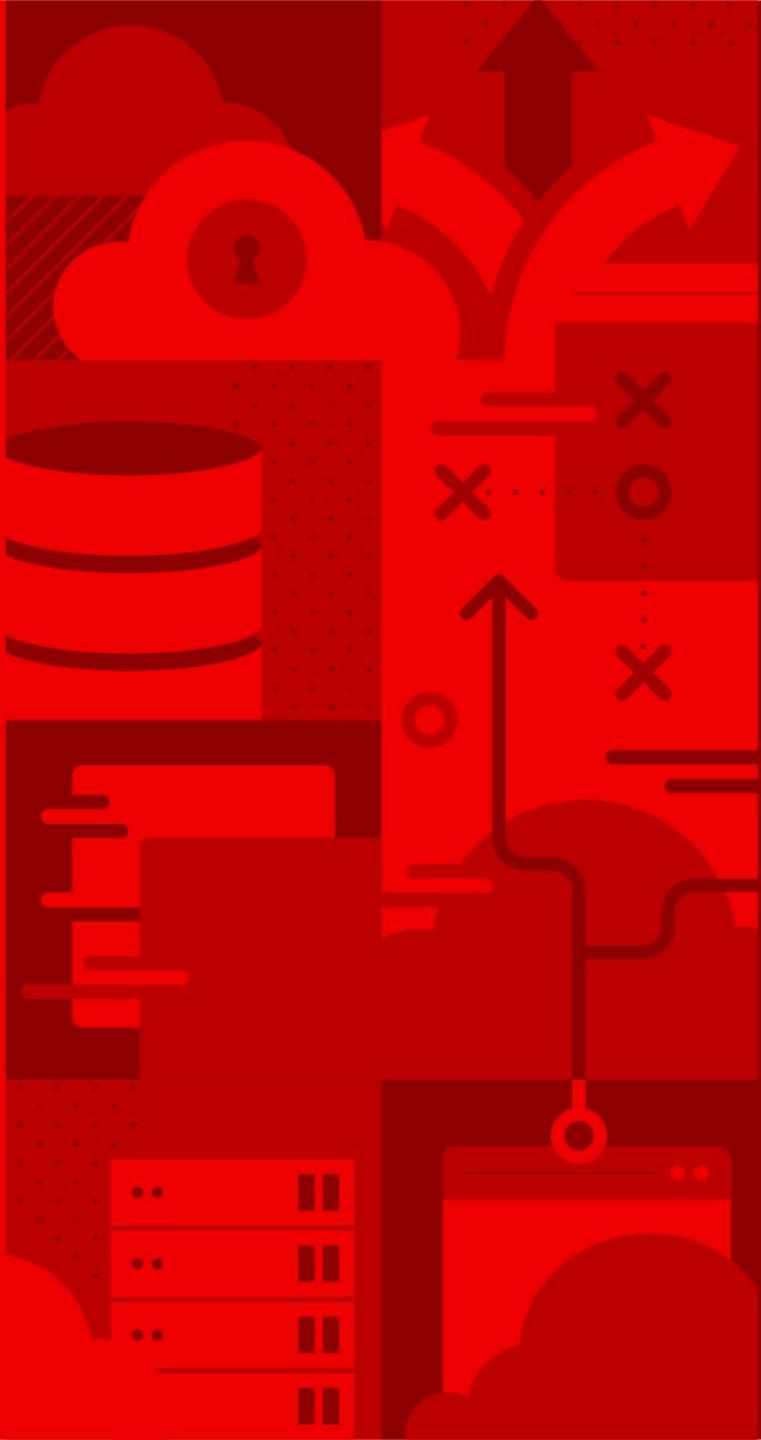
Red Hat OpenShift Cluster Manager

Clusters

Filter by name or ID... Filter Create cluster ... 1 - 0 of 0 Provider (Location)

Name	Status	Type	Created	Version	Provider (Locati...
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Customer or partner ID required



Azure Red Hat OpenShift

Azure Red Hat OpenShift



Jointly engineered,
operated, and
supported by
Microsoft and Red Hat
with an integrated
support experience



Empower developers to innovate

Support for traditional, cloud native & serverless tools
Easily connect to hundreds of Azure services



Scale on-demand. Pay as you go

Scale as your application demand changes
Leverage your Azure monetary commits



Enterprise-grade operations, security, and compliance

SLA: 99.95%, 24*7 premium support
Compliant with PCI DSS, HITRUST, FedRAMP, SOC2 Type 2, ISO 27001, and HIPAA

Highlights - Azure Red Hat OpenShift on OpenShift 4

Enhanced Features, Availability and Control

- **Full cluster admin** - Full cluster admin support for advanced customization
- **Private clusters / Express Route support** - Create fully managed clusters in a custom VNet with no public endpoints
- **Bring your own VNet** - Deploy OpenShift 4 based clusters into your own VNet
- **Cluster Autoscaling** - Automatically adjust the size of your cluster
- **Multi-AZ clusters** - Clusters automatically deploy across three availability zones

Operator Support

- **Operator/CRD support** - Support for Operators and Custom Resource Definitions

Improved Developer Productivity

- **Developer Productivity tools** - Service Mesh, CodeReady Workspaces, serverless etc.
- **Azure Portal Integration** - Easily view OpenShift clusters in the Azure web portal

Regulatory Compliance

- **Compliance Certifications:** PCI DSS, HiTrust, FedRAMP High, SOC 2, ISO 27001 (HIPAA coming soon)



Red Hat OpenShift Service on AWS

Red Hat OpenShift Service on AWS



Fully-managed Red Hat OpenShift service on AWS, jointly supported by both Red Hat and AWS



Clear path to hybrid cloud deployments

Delivers the production-ready Kubernetes that many enterprises already use on-premises today, simplifying the ability to shift workloads to the AWS public cloud as business needs dictate.



Empower developers to innovate

Give your team the focus and tools to accelerate the development process with familiar APIs, [API management](#) and existing Red Hat OpenShift tools for deployment in AWS



Flexible, consumption-based pricing

Scale as per your business needs and pay as you go with flexible pricing with an on-demand hourly or annual billing model.

ROSA Benefits



Native AWS Service

- Access on-demand from the AWS console
- AWS integrated experience for cluster creation and management
- Foundation based on RHEL, providing a stable and secure platform for hybrid deployments



Unified Bill

- Leverage your existing AWS commitment to use OpenShift
- Get a single unified bill from AWS for both OpenShift and AWS consumption



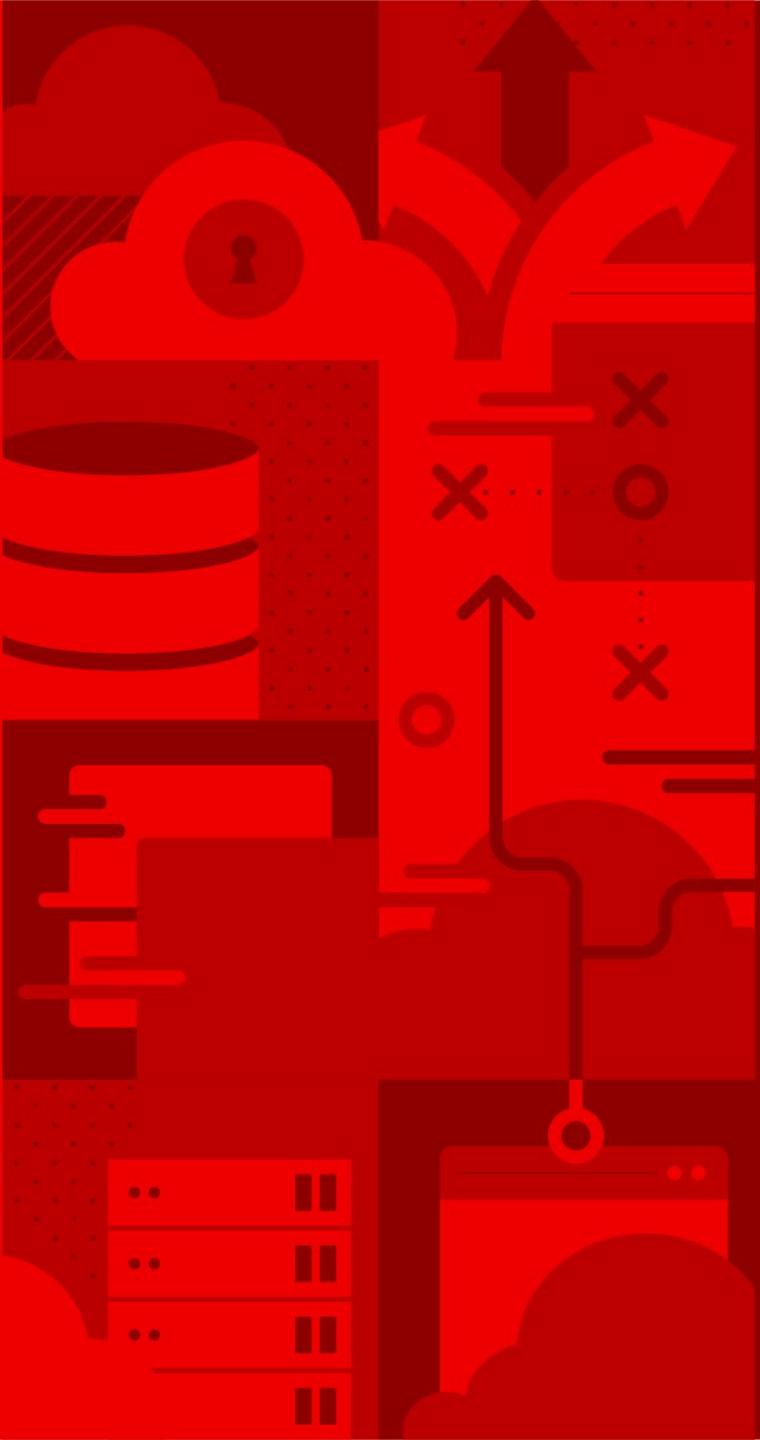
Joint Support

- Integrated support systems
- Contact Red Hat or AWS support
- Built on Red Hat and AWS' decades of enterprise IT knowledge and experience



Integration with AWS Services

- Build containerized applications that integrate natively with the more than 170 AWS cloud-native services



Red Hat OpenShift Kubernetes Service on IBM Cloud

Red Hat OpenShift on IBM Cloud



Highly available, OpenShift clusters as-a-service on IBM Cloud, that leverage the enterprise security of IBM.



Fully Managed

Automated provisioning, installation and configuration of infrastructure, including compute, network and storage as well as automatic upgrades of components and 24x7 global SRE support and a 99.99% SLA



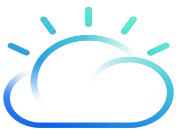
Resilient and Secure

Automatic multi-zone deployments with failure recovery, enterprise isolation including dedicated compute, bare metal servers and private clusters and optimized for compliance



Complete Platform

Easily integrate AI with Watson APIs to extend the power of your apps. Includes built-in services for monitoring, logging, load-balancing, storage and isolation to enable rapid delivery of apps, while leveraging 190+ IBM Cloud services.



Highlights - Red Hat OpenShift on IBM Cloud

- **Automated provisioning** and configuration of Infrastructure (compute, network and storage)
- Automated **installation and configuration of OpenShift**, including HA cross zone configuration
- **Automatic upgrades** of all components (operating system, OpenShift components, and in cluster services)
- **Security patch management** for OS and OpenShift
- Automatic **failure recovery** for OpenShift components and worker nodes
- Automatic **scaling** of OpenShift configuration
- **Automatic backups** of core OpenShift ETCD data
- **Built in integration with cloud platform** - monitoring, logging, KeyProtect, IAM, ActivityTracker, Storage, COS, Security Advisor, Service Catalog, Container Registry and Vulnerability Advisor
- **Built-in Security** including image signing, image deployment enforcement, and hardware trust
- **24/7 global Site Reliability Engineering (SRE)** team to maintain the health of the environment and help with OpenShift
- Global SRE has deep experience and skill in IBM Cloud Infrastructure, Kubernetes and OpenShift, resulting in much faster problem resolution
- **Automatic compliance** for your OpenShift environment (HIPAA, PCI, SOC2, ISO)
- Capacity expansion through a single click
- Automatic **multi-zone deployment** in MZRs, including integration with CIS to do cross zone traffic routing
- Automatic Operating System **performance tuning and security hardening**
- Built in Load Balancer, VPN, Proxy, Network edge nodes, Private Clusters and VPC capabilities



Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

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