



# OpenShift on Microsoft Azure Workshop

Eric Webb, Cardinal Solutions

# AGENDA

- 8:30 - 9:00** Breakfast
- 9:00 - 9:15** Introductions
- 9:15 - 9:30** Business Value of DevOps
- 9:30 - 10:00** OpenShift Overview and Architecture Review
- 10:00 - 10:15** Break
- 10:15 - 10:45** OpenShift on Azure Test Drive and Quick Start Overview
- 10:45 - 12:00** Start the Hands on OpenShift on Azure Labs
- 12:00 - 12:45** Lunch
- 12:45 - 3:45** Continue Hands on OpenShift on Azure Labs
- 3:45 - 4:00** Wrap-up and Q&A



# BUSINESS VALUE OF DEVOPS

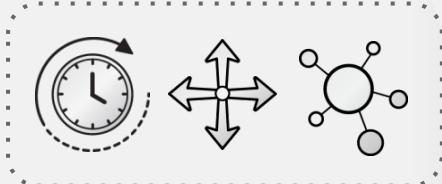
# THE PROBLEM

Applications require complicated installation and integration every time they are deployed leading to

- Slow service delivery
- Reduced service quality
- Frequent down times



# THE PROBLEM



DEVELOPERS



I.T. OPERATIONS

# THE SOLUTION

Adopting a container strategy will allow applications to be easily shared and deployed

- Consistent env and tools
- Predictable building blocks
- Faster deployment



# WHAT ARE CONTAINERS?

It Depends Who You Ask

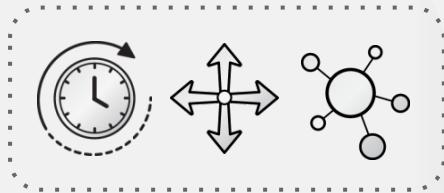
INFRASTRUCTURE

APPLICATIONS

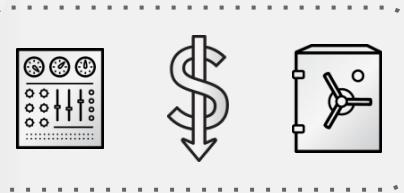


- Sandboxed application processes on a shared Linux OS kernel
- Simpler, lighter, and denser than virtual machines
- Portable across different environments
- Package my application and all of its dependencies
- Deploy to any environment in seconds and enable CI/CD
- Easily access and share containerized components

# THE SOLUTION

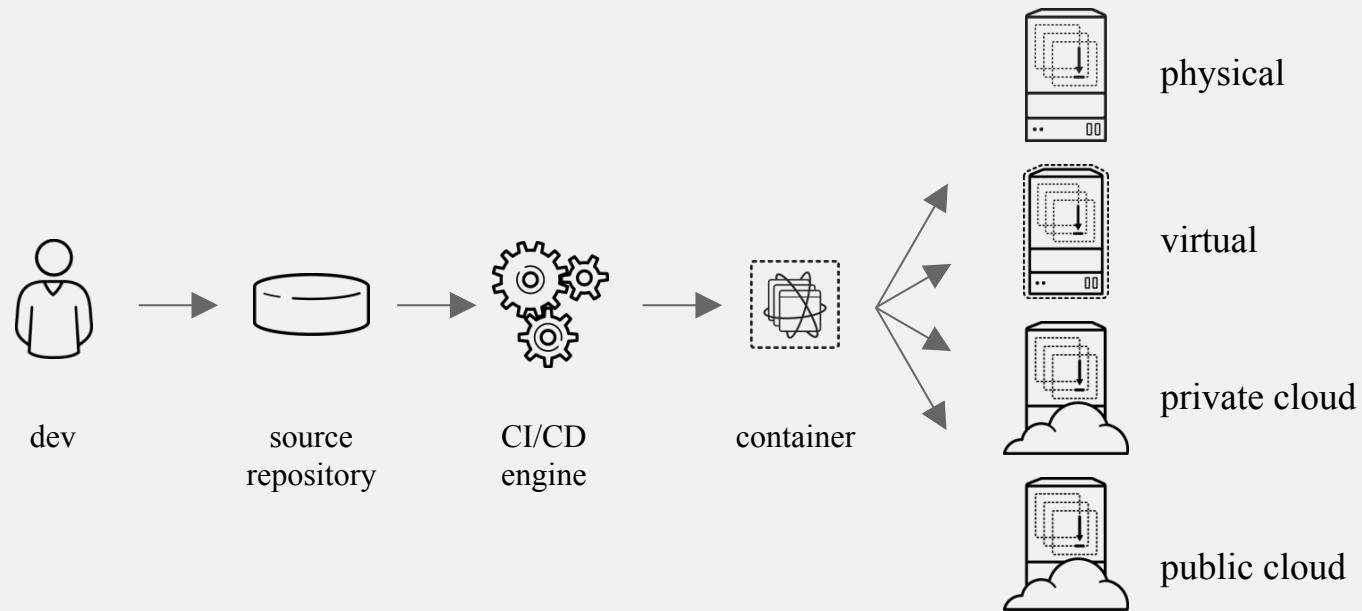


DEVELOPERS



I.T. OPERATIONS

# DEVOPS WITH CONTAINERS





## Containerized Apps on Docker Hub

**900K**

## Image Pulls on Docker Hub

**12B**

Source: DockerCon 2017 Keynote



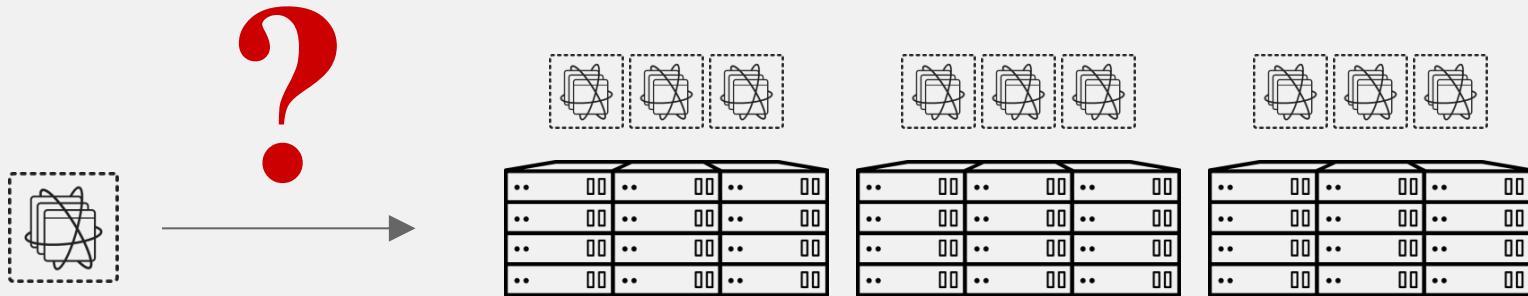
# Container Adoption Rate in Production

35%

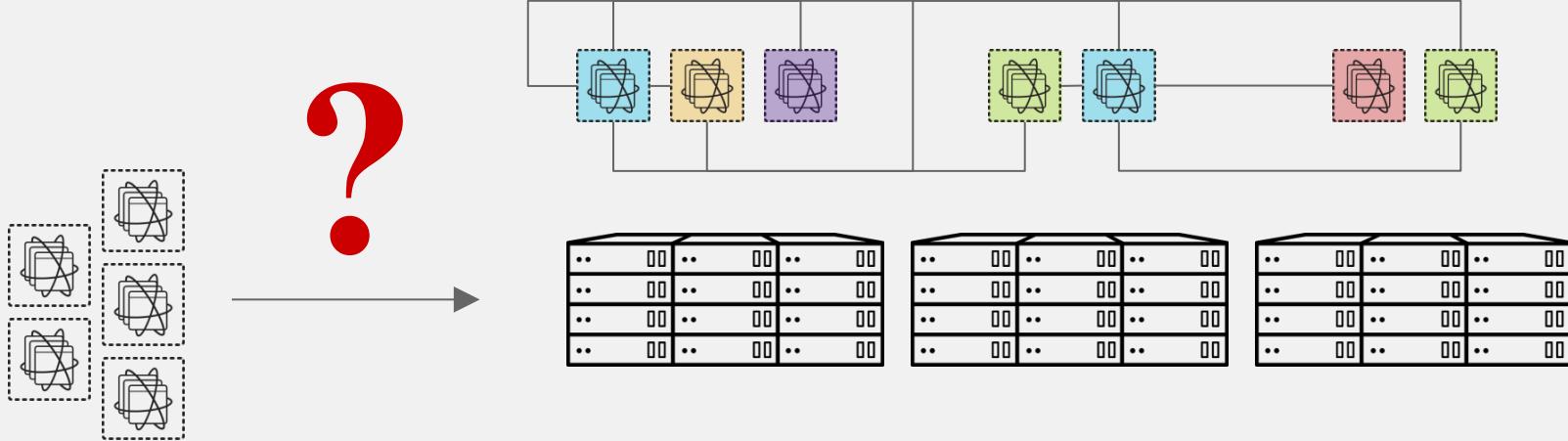
Source: RightScale 2017 State of the Cloud Report

# Why the Difference?

# DEVOPS WITH CONTAINERS



# DEVOPS WITH CONTAINERS



# WE NEED MORE THAN JUST CONTAINERS

## Scheduling

Decide where to deploy containers

## Lifecycle and health

Keep containers running despite failures

## Discovery

Find other containers on the network

## Monitoring

Visibility into running containers

## Security

Control who can do what

## Scaling

Scale containers up and down

## Persistence

Survive data beyond container lifecycle

## Aggregation

Compose apps from multiple containers

# CONTAINER SOLUTIONS

## HOST

Enterprise grade lean operating system for running containers

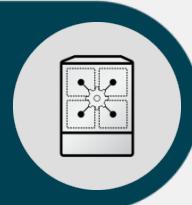


## MANAGEMENT

Operational management of containers and infrastructure at scale

## PLATFORM

Automation of building, distributing, running and managing containers across hybrid infra



## STORAGE

Persistent storage for stateful containerized applications



# RED HAT CONTAINER SOLUTIONS

HOST

**RED HAT®  
ENTERPRISE LINUX®  
ATOMIC HOST**

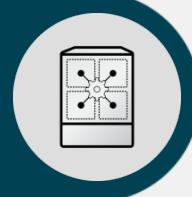


MANAGEMENT

**RED HAT®  
CLOUDFORMS**

PLATFORM

 **RED HAT®  
OPENSIFT**



STORAGE

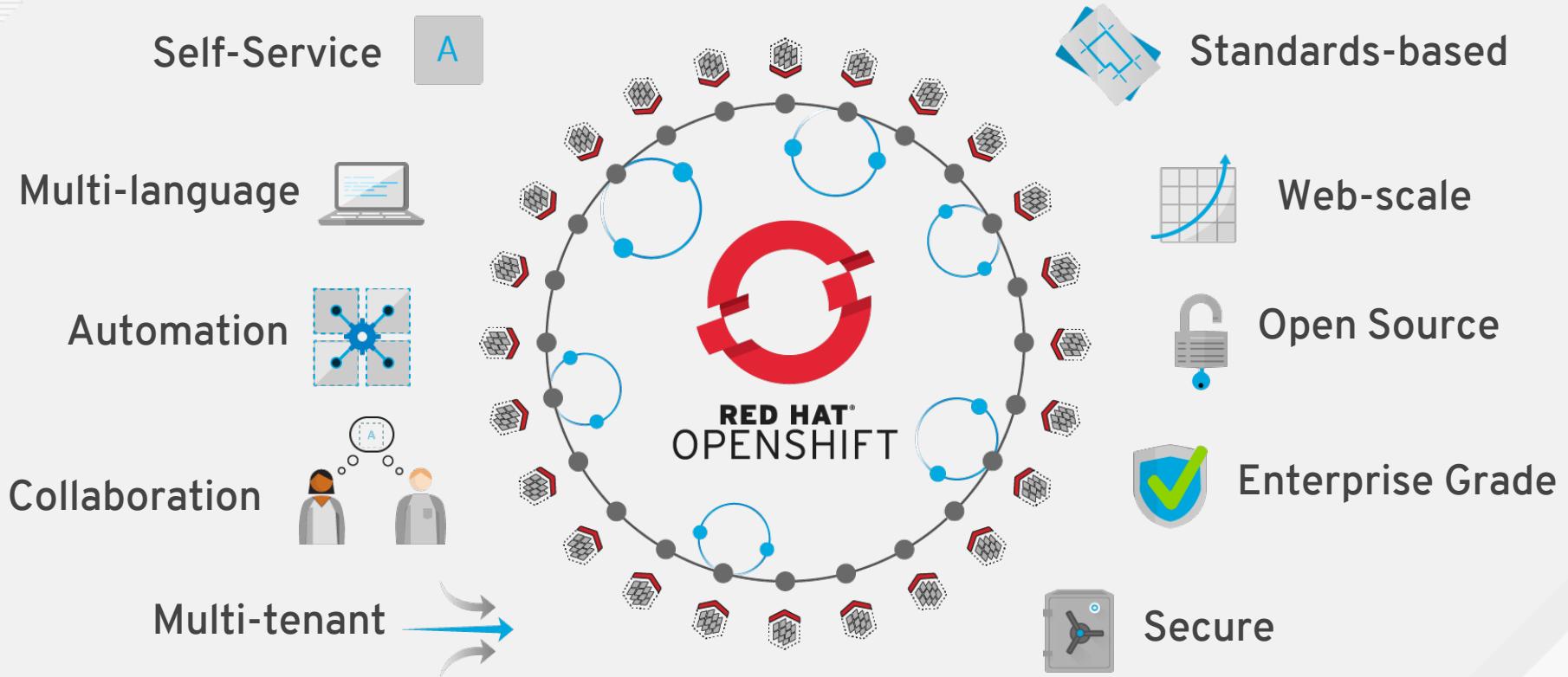
**RED HAT®  
STORAGE**



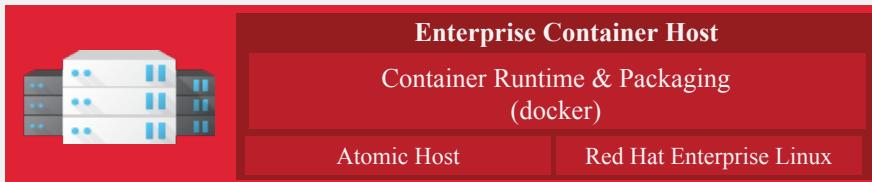
# OPENSHIFT OVERVIEW AND ARCHITECTURE REVIEW

Container application platform  
based on Docker and  
Kubernetes for building,  
distributing and running  
containers at scale



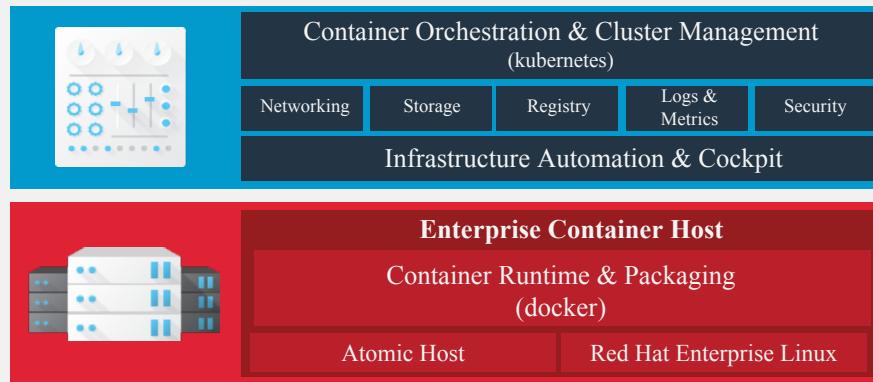


# OPENShift CONTAINER PLATFORM



Trusted by Fortune Global 500 companies

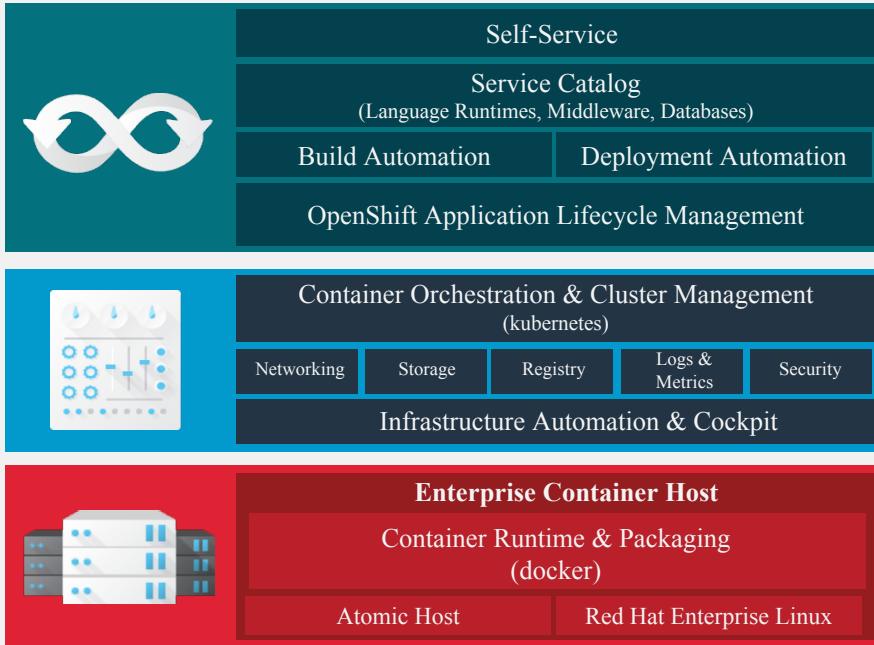
# OPENSHIFT CONTAINER PLATFORM



**Enterprise Kubernetes++  
container orchestration**

**Trusted by Fortune Global 500  
companies**

# OPENSHIFT CONTAINER PLATFORM

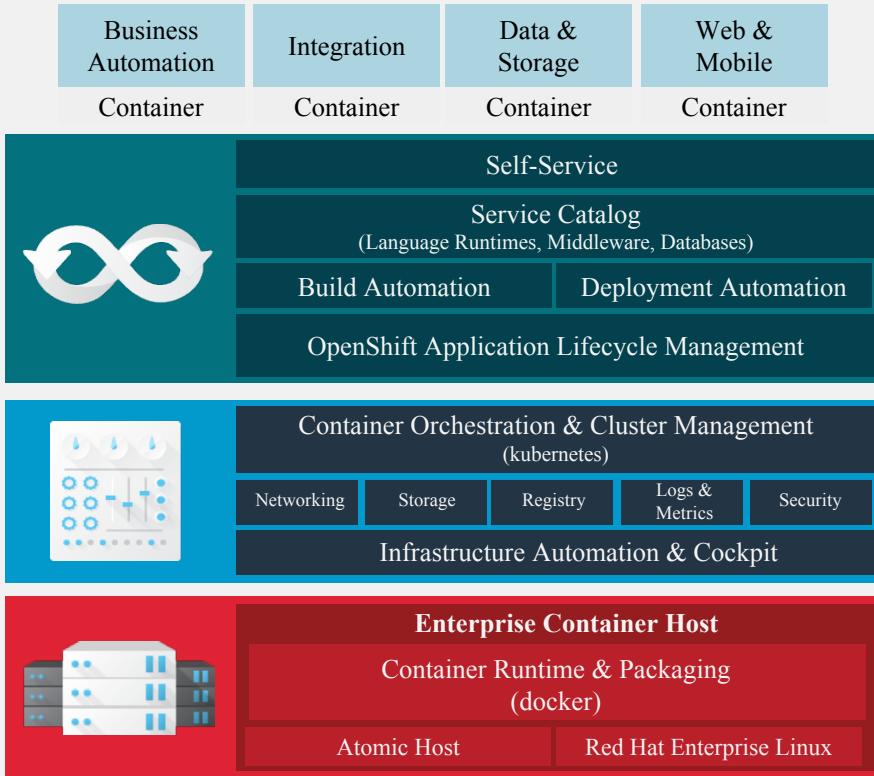


Developer Experience

Enterprise Kubernetes++  
container orchestration

Trusted by Fortune Global 500  
companies

# OPENSHIFT CONTAINER PLATFORM



Traditional, stateful, and cloud-native apps

Developer Experience

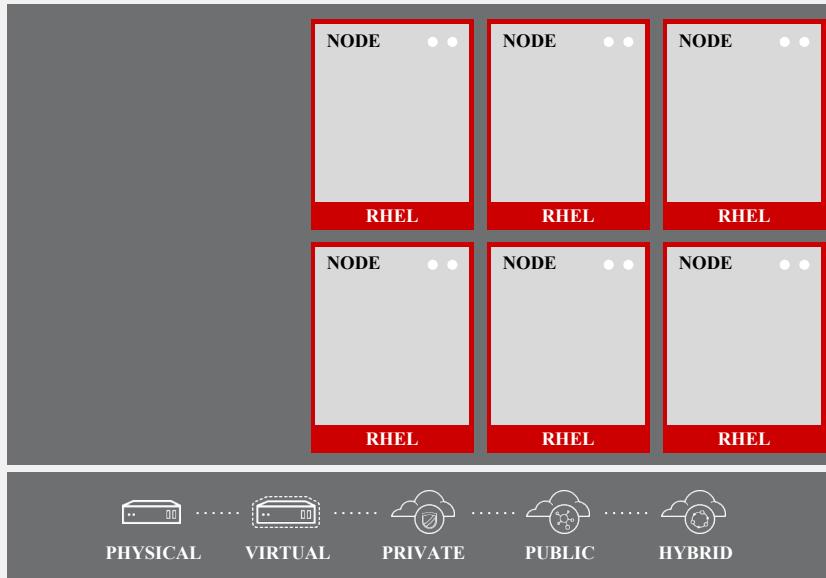
Enterprise Kubernetes++  
container orchestration

Trusted by Fortune Global 500  
companies

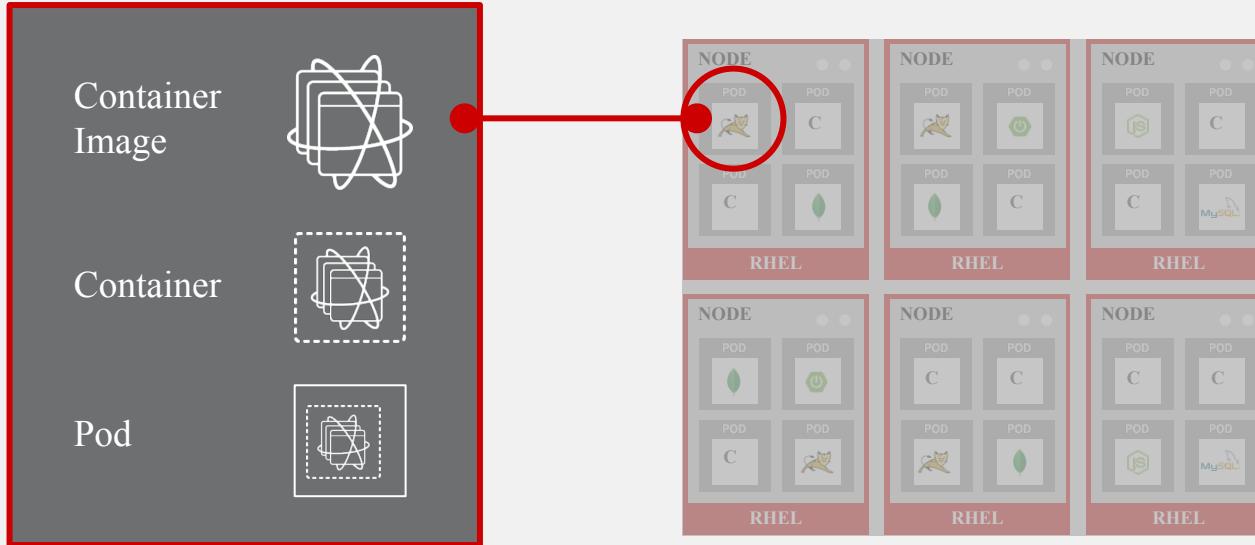
# YOUR CHOICE OF INFRASTRUCTURE



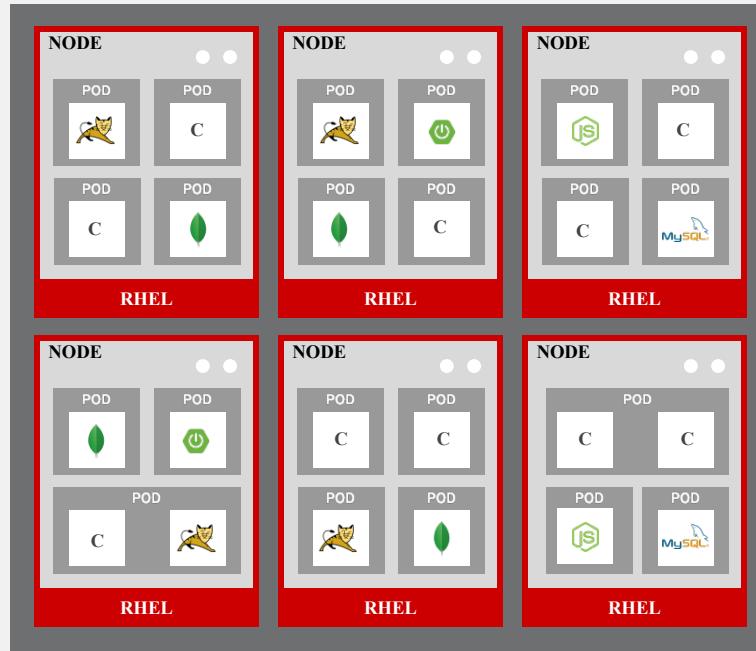
# NODES RHEL INSTANCES WHERE APPS RUN



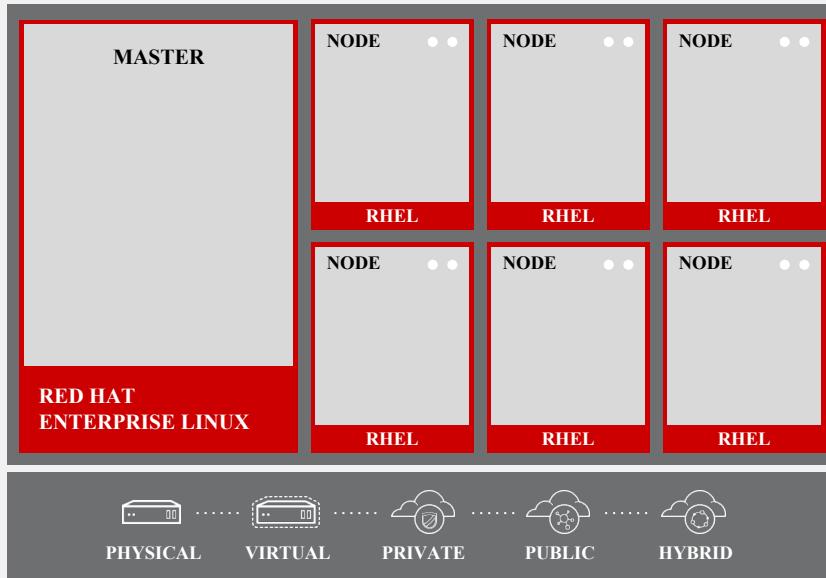
# APPS RUN IN CONTAINERS



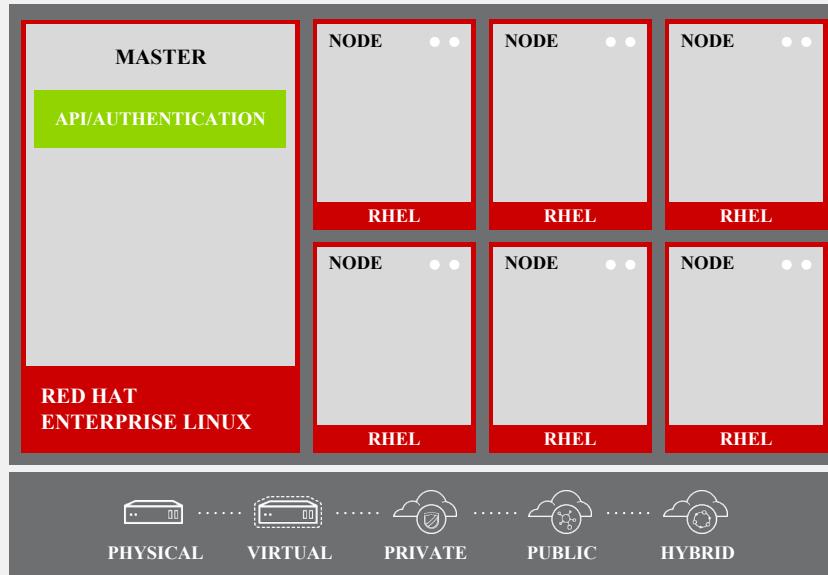
# PODS ARE THE UNIT OF ORCHESTRATION



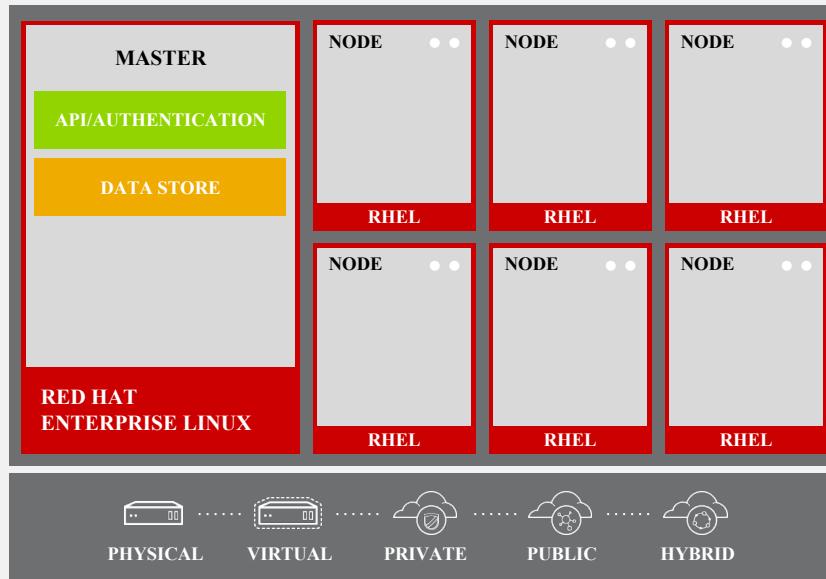
# MASTERS ARE THE CONTROL PLANE



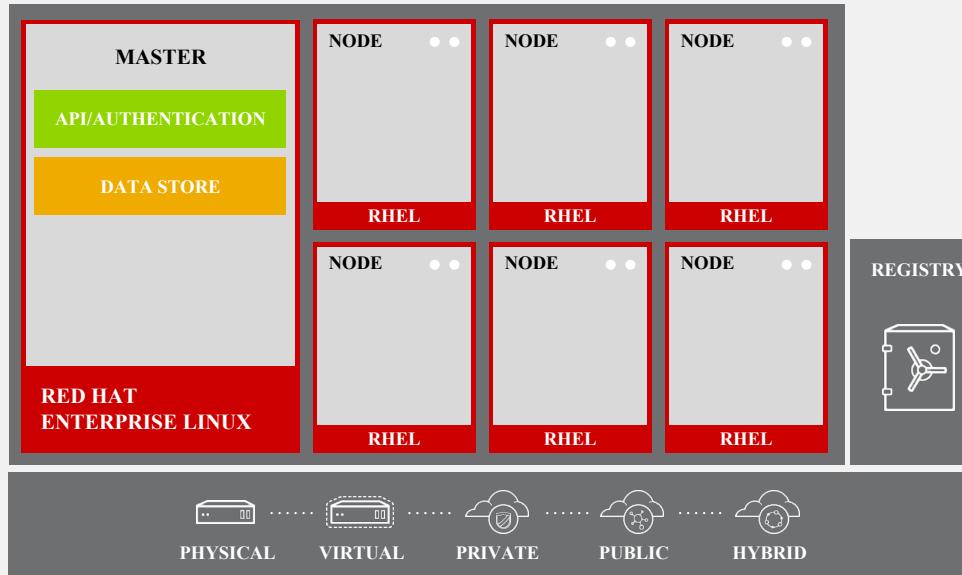
# API AND AUTHENTICATION



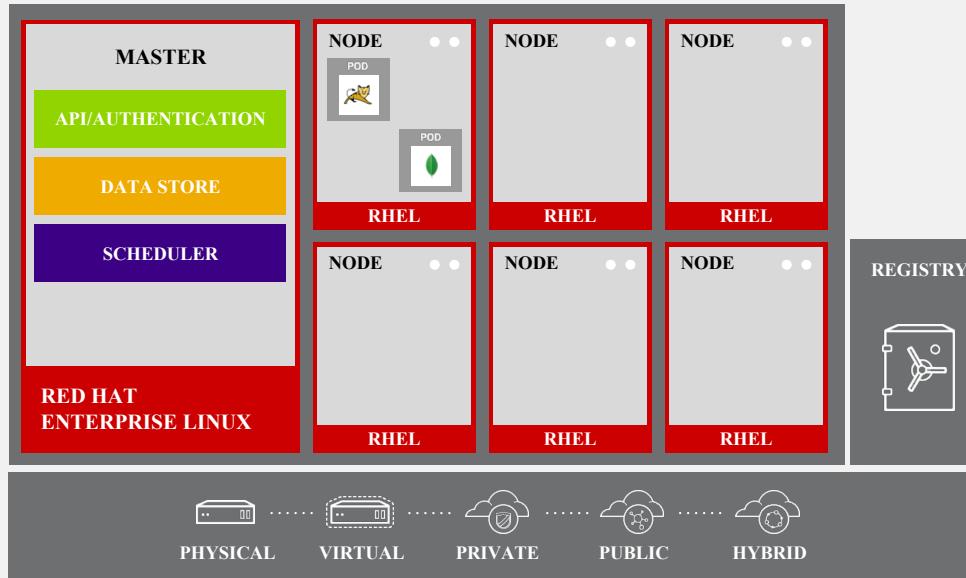
# DESIRED AND CURRENT STATE



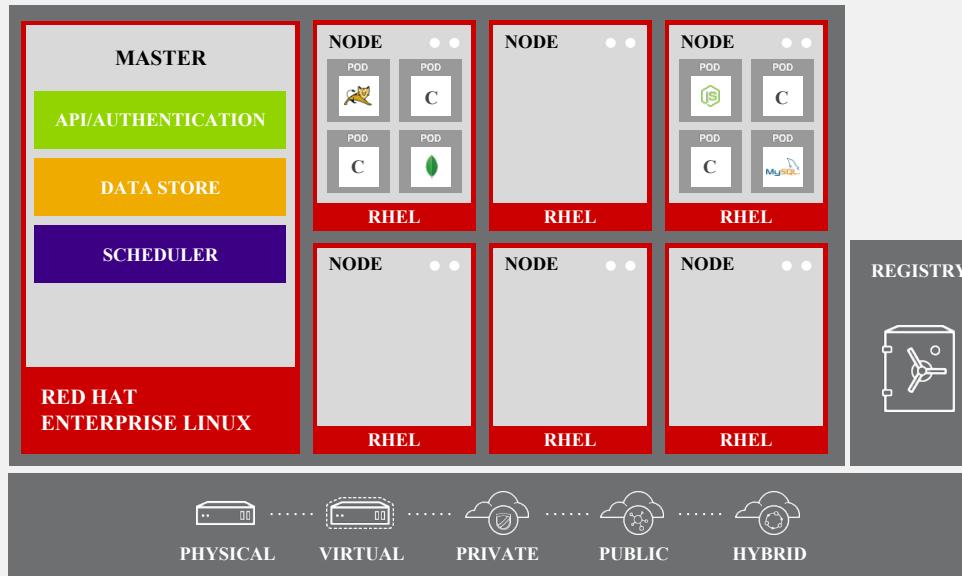
# INTEGRATED CONTAINER REGISTRY



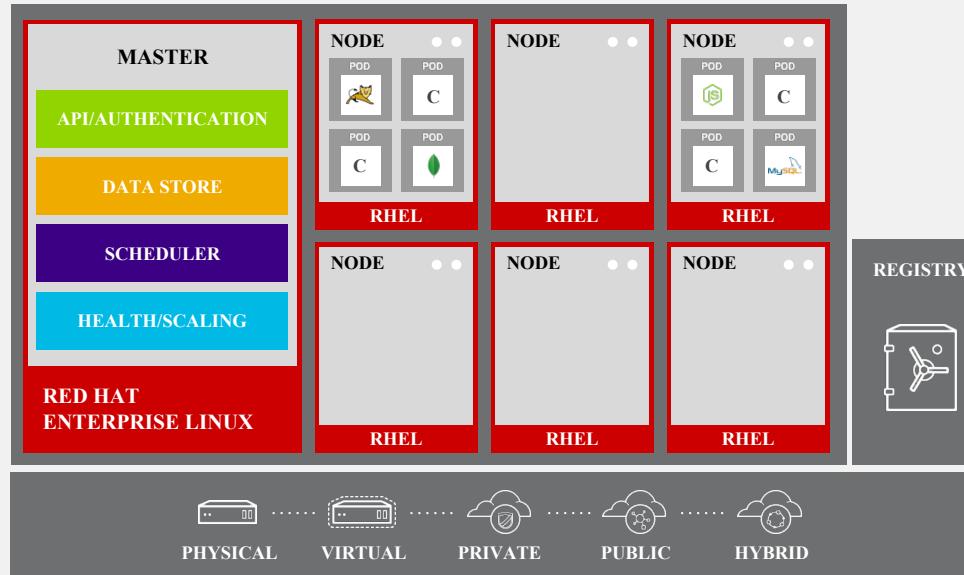
# ORCHESTRATION AND SCHEDULING



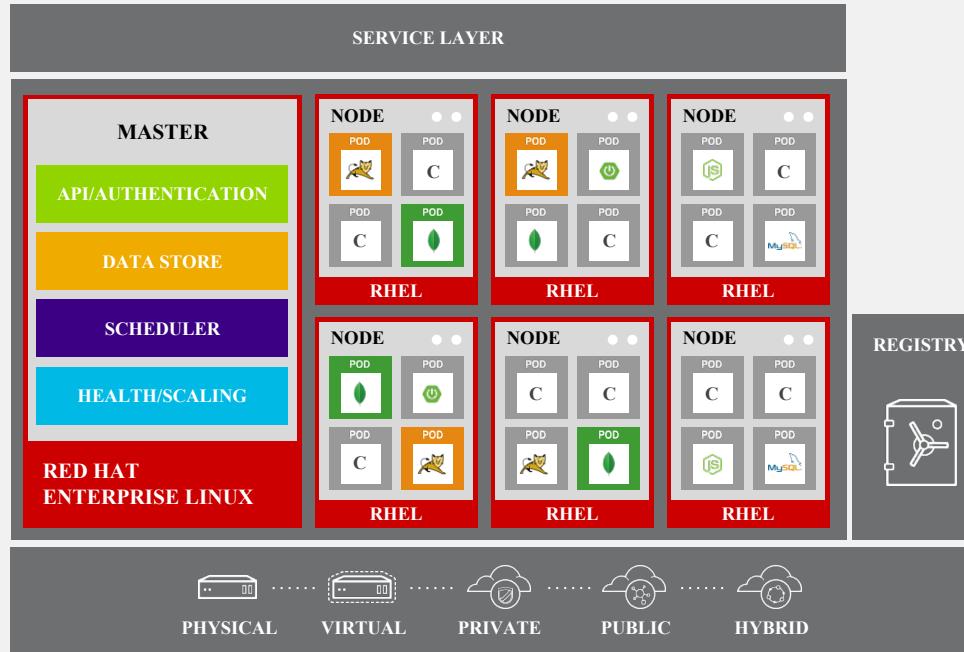
# PLACEMENT BY POLICY



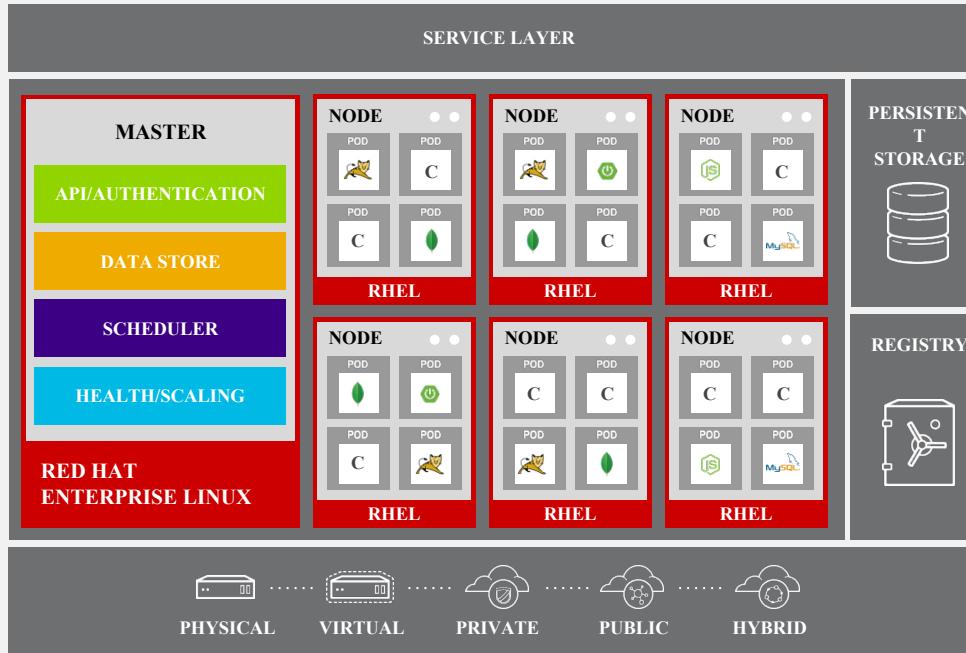
# AUTOSCALING PODS



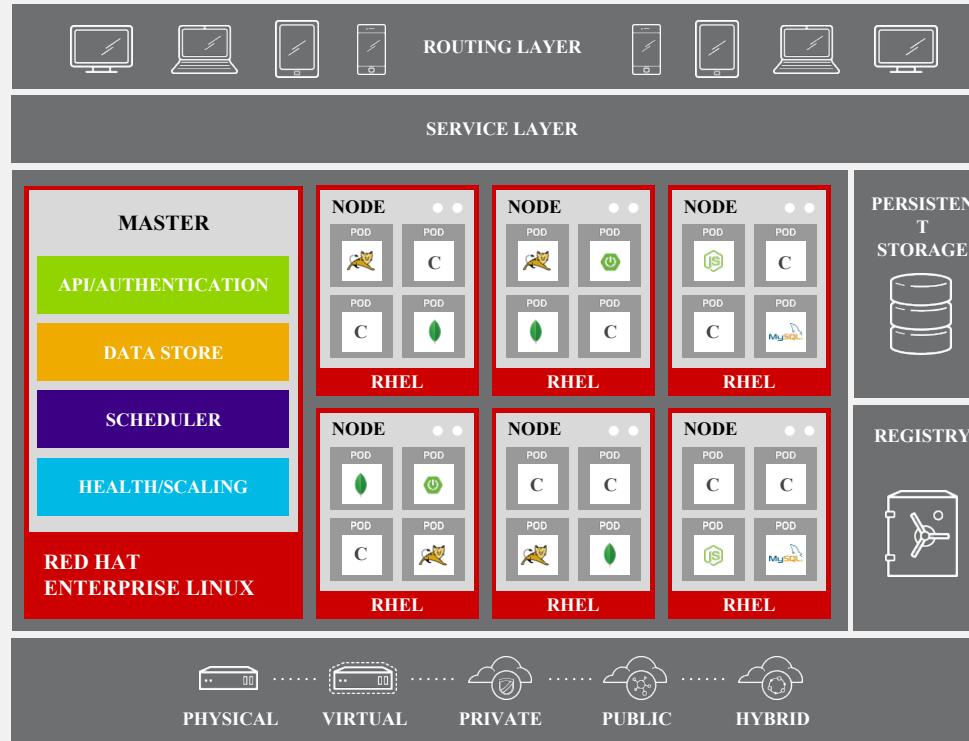
# SERVICE DISCOVERY



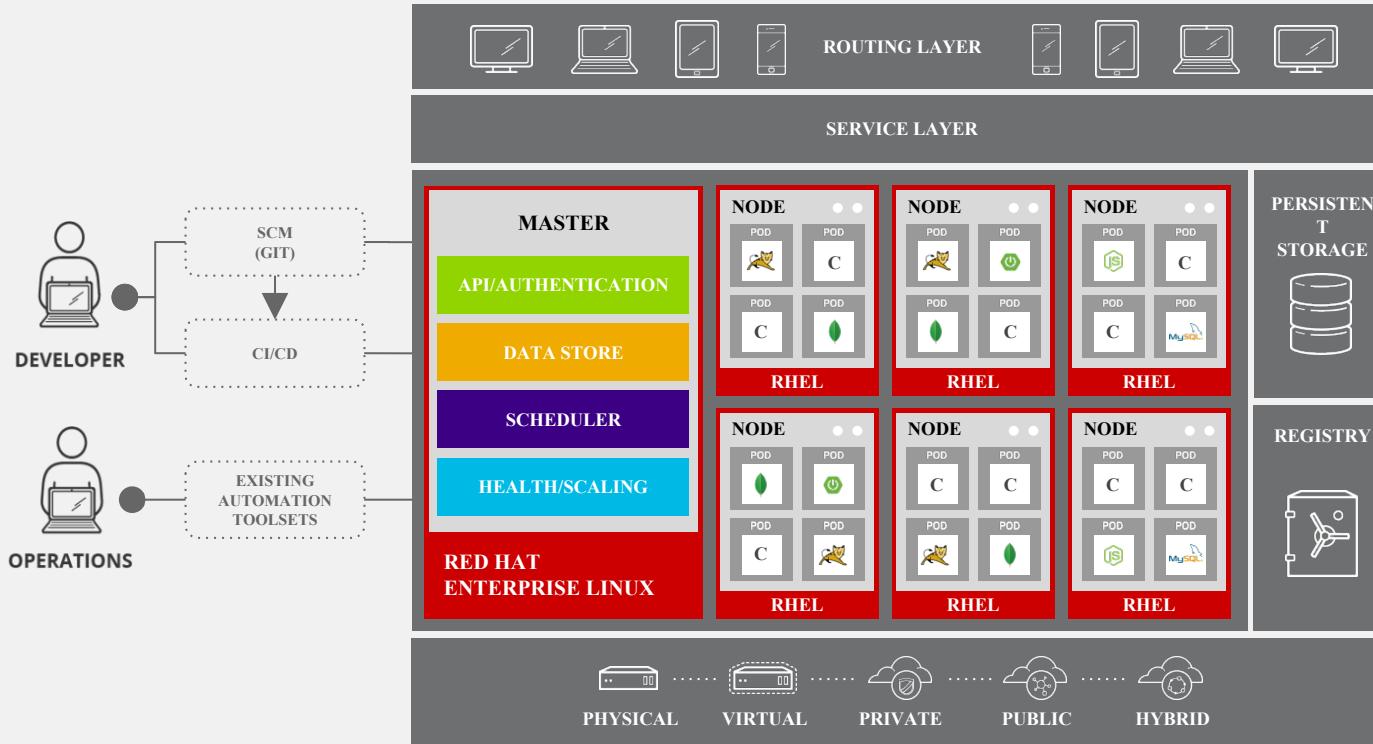
# PERSISTENT DATA IN CONTAINERS



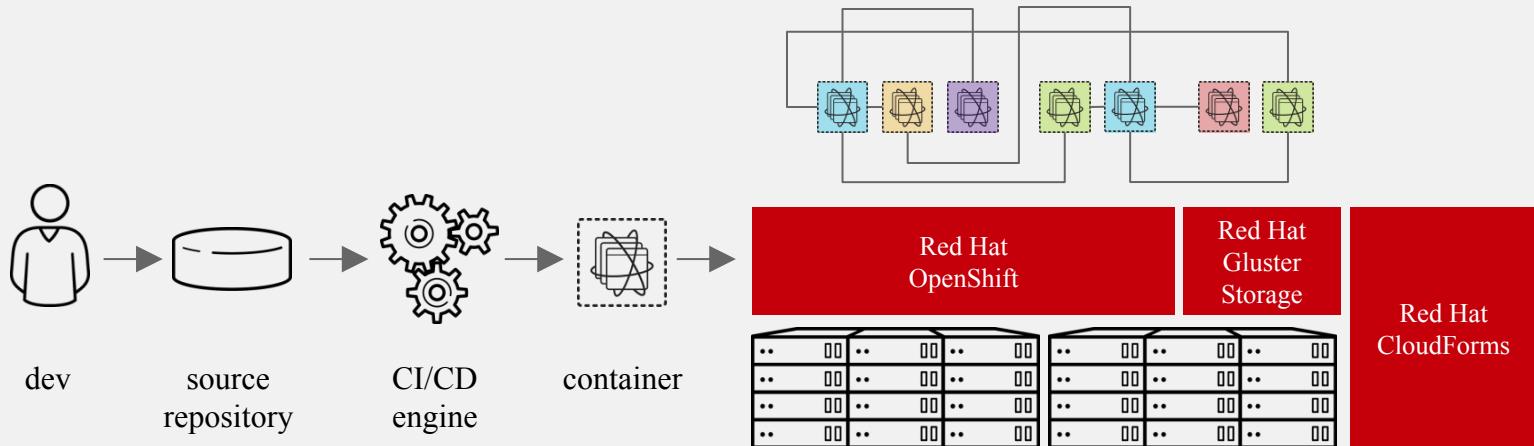
# ROUTING AND LOAD-BALANCING



# ACCESS VIA WEB, CLI, IDE AND API



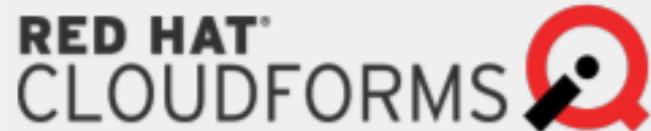
# DEVOPS WITH CONTAINERS



# Let's take a break!

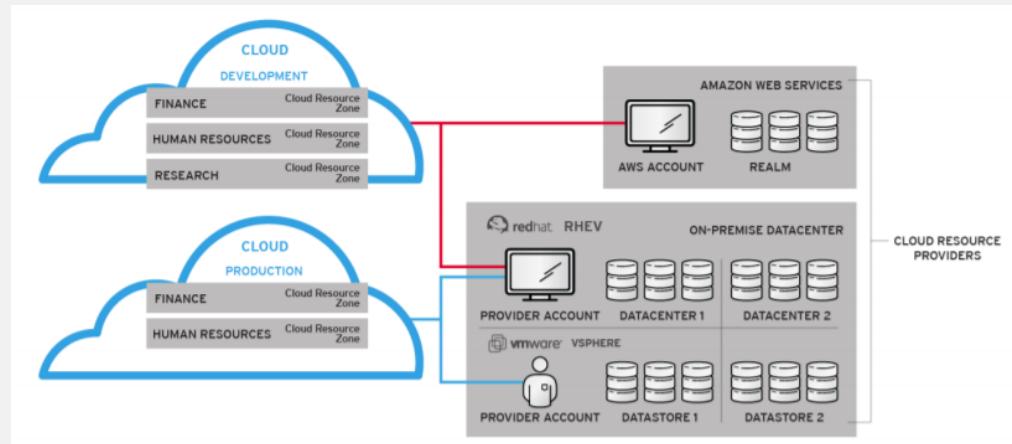
# CONTAINER MANAGEMENT WITH CLOUDFORMS

# Red Hat CloudForms



Delivers the flexibility and agility businesses want with the governance and control that IT requires

- Hybrid Cloud Management
- Self-Service Provisioning
- Policy-driven Compliance



# Cloud Management Platform

**VISIBILITY,  
EFFICIENCY AND  
OPTIMIZATION**

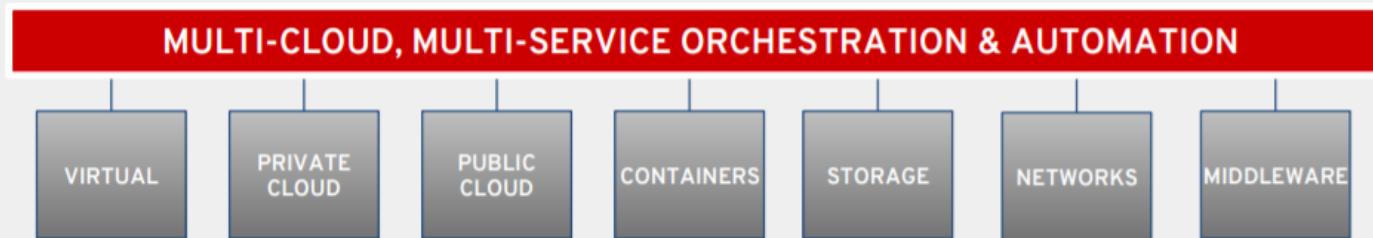
Improve resource utilization and operational efficiency.

**SELF-SERVICE AND SERVICE MANAGEMENT**

Automate and delegate service delivery processes, saving time and money.

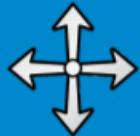
**COMPLIANCE AND GOVERNANCE**

Responsibly enabling users and developers, without being in the way.



# Feature Highlights

AGENTLESS



EASY DEPLOYMENT

VIRTUAL APPLIANCE



CONTINUOUS DISCOVERY



BROWN-FIELD MANAGEMENT,  
INTEROPERATES WITH OTHER MGMT

ANSIBLE AUTOMATION



ANSIBLE

SIMPLE, POWERFUL, AGENTLESS

FEDERATED GLOBAL  
DEPLOYMENTS



HIGHLY SCALABLE, HIGHLY AVAILABLE  
MULTI-REGION DEPLOYMENTS

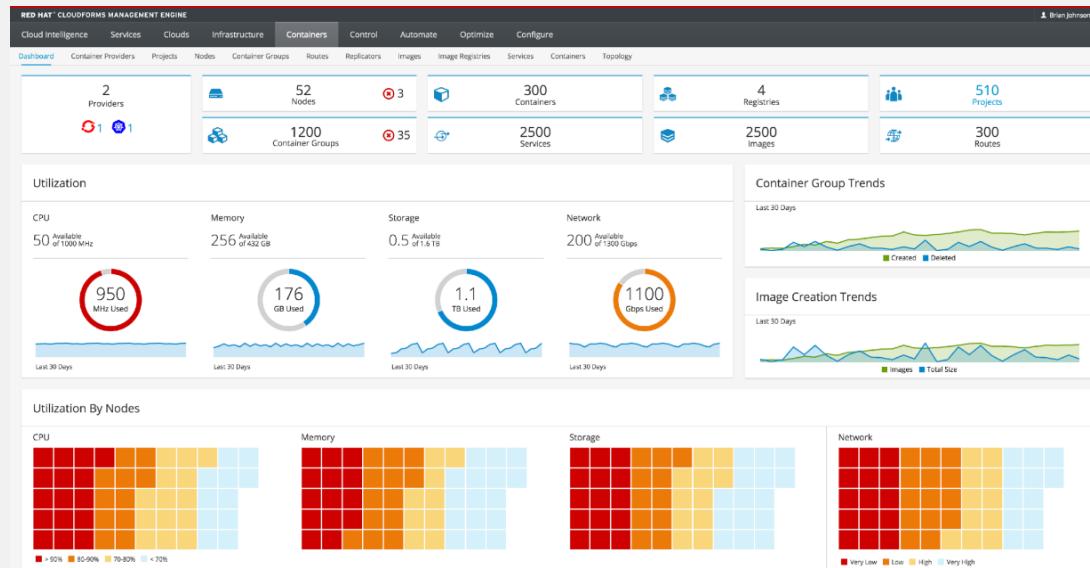
MULTI-TENANCY  
AND RBAC



SEGMENT USER ACCESS,  
FINE GRAINED ACCESS CONTROL

# CONSISTENT INFRASTRUCTURE MANAGEMENT WITH CLOUDFORMS AND OPENSHIFT

- Cloud Forms functionality now included with OpenShift Enterprise to improve control over apps and infrastructure
- Monitor and manage resource consumption of containers running in OpenShift Enterprise
- Docker and Kubernetes aware (containers, pods, services...)

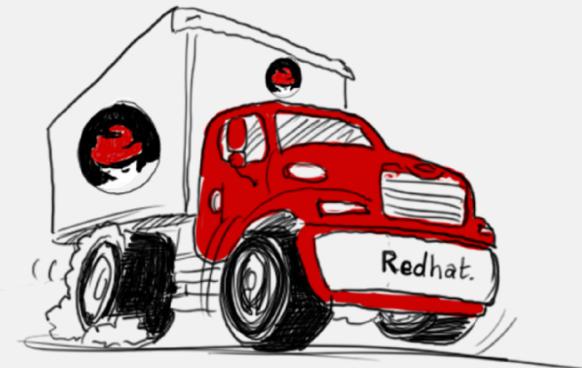




# OPENSHIFT ON AZURE QUICK START AND TEST DRIVE OVERVIEW

# Cloud Access: On Premises to Azure

- Bring your own Red Hat subscription and image to Azure
  - Red Hat Enterprise Linux
  - Red Hat JBoss Middleware portfolio
  - OpenShift Container Platform
  - Red Hat Gluster Storage
  - SQL on RHEL
  - SAP, SAP Hana on RHEL
  - Ansible Tower
- Customers maintain their direct relationship with Red Hat and their subscription benefits move to Azure
- No additional cost for customers to move on premise RHEL VMs to Azure
- Cloud Access [Landing Page](#)



# Deployment Options

- Ansible Tower and OpenShift
  - Test Drive
  - Azure Marketplace
  - Custom Deployment
    - Azure Resource Manager (ARM)
    - Ansible Playbooks
  - OpenShift Dedicated
- .NET Core and SQL Server on Linux
  - RHEL VM
  - OpenShift





# OPENSHIFT LAB



redhat.

# THANK YOU



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