OEPW-Virtualization Presales

Executive Partner Workshop

Created by EPW Core Team

Red Hat
Learning

Welcome

20 Minutes

Red Hat Learning

EPW-Virt-Presales
Workshop Facilitators

- Red Hat Ecosystem - Kevin Tunks
- Add...
- Add...

What will you cover in these two days?

Broadly, this ->

- **Positioning** the customer journey with virtualization
  (ASA/SSP/Technical Leader)
- **Handling** competitive situations
  (All)
- **Communicating** technical value in the Virtualization Roadshow
  (SSA/Architect)
- **Performing** an upfront technical risk assessment
  (SSA/Architect)

EPW-Virt-Presales Agenda (Day 1)

Time	Agenda Day 1
8:30 am - 8:45 am	Welcome - introduction, workshop logistics, what you'll do over these two days
8:45 am - 9:15 am	Red Hat State of the Union / 2025 Strategy
9:15 am - 9:30 am	Red Hat Ecosystem Overview and Discussion
9:30 am - 10:00 am	Virt Customer Journey - the VMA, the VMF, and beyond
10:00 am - 10:15 am	Ask Me Anything Part 1
10:15 am - 10:30 am	**Break**
10:30 am - 11:30 am	Positioning the customer journey - establishing credibility and positioning a workshop
11:30 am - 12:00 pm	Positioning the VMA and VMF (part 1) *With Industry / Customer Examples*
12:00 pm - 1:00 pm	**Lunch**
1:00 pm - 2:00 pm	Positioning the VMA and VMF (part 2) *With Industry / Customer Examples*
2:00 pm - 3:30 pm	Conducting Technical Risk Assessments *Understanding The Customer's Ecosystem*
3:30 pm - 4:30 pm	The Road to Customer Business Value through Virtualization
4:30 pm - 5:00 pm	Ask Me Anything Part 2 and Discussion - Day 1
5:00 pm - 6:00 pm	**Break**
6 pm - Whenever	**Dinner**

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EPW-Virt-Presales Agenda (Day 2)

Time	Agenda Day 2
8:30 am - 8:45 am	Welcome Back - Day 1 review, Day 2 overview
8:45 am - 9:45 am	Competitive Landscape / Objections Discussion Primary competitors, key messaging, typical objections - what are you seeing in your accounts
9:45 am - 10:45 am	Competitive/Objection Handling Activity
10:45 - 11:00 am	**Break**
11:00am - 11:45am	Make it Real - Customer Opportunity Hot Seat
11:45 am - 12:00 pm	Ask Me Anything and Discussion - Day 2 & Wrap Up
12:00pm - 1:00pm	**Lunch**

State of the Union / 2025 Strategy

Presenter: Platform, BU

30 Minutes

Red Hat Learning

We had a great 2024

$11MM
ACV Closed

Q1-24

Market Disruption
Broadcom disruption takes shape with license and partner changes now in effect

$9MM
ACV Closed

Q2-24

RH Response
Red Hat develops and launches VMW takeout solution led by the VMA

$20MM
ACV Closed

Q3-24

Execution Begins
Engagements grounded in VMW takeout solution. Continued integration with Partners to improve total solution.

$111MM
ACV Closed

Q4-24

Execution Ramps
Customer demand increases. VMA instilling confidence in Red Hat's migration approach.

$400MM+
ACV Pipeline

2025

Execution Scales
OVE launched in Jan to simplify offering. Virt SSAs established and top customer targets identified.

Red Hat Learning

We had a great 2024

$151MM

ACV Closed in CY2024

We had a great 2024

192%

YoY growth of running VMs

123%

YoY growth of clusters with VMs

216%

YoY growth of accounts with VMs

Introduction

Virtualization is Winning Big!

Visa

GECICA

Nvidia

Ford

General Motors

US Army DCGS-A

Siemens AG

Johnson Controls

530K VMs assessed via VMAs

[OpenShift Virtualization Customer References deck]

Randy Drisgill

Sr. Portfolio Manager, Services Portfolio

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Red Hat Virtualization Ask Me Anything

Red Hat

As of end of Q1 2025

Customers are Gaining Momentum & Achieving Success!!

>500k

VMs Assessed & Migrated

Customers across industries include:

Financial, Telco, Government/Military, Healthcare, Automotive, High Tech, Manufacturing,

95%

VMs Rated Suitable to migrate

5%

Use an Alternative Strategy

1% Deploy Large Apps to Physical Infra

4% Represent customer application Technical Debt - Outdated Operating Systems

In flight customers are migrating between 80-150 VMs per customer / per day

CY25 Red Hat Portfolio

Red Hat Advanced Developer (Advanced features that enhance the developer experience and improve security for applications)

	RHEL	Automation	Virtualization	Container Management	App Platform	Adopt & Scale AI
Platforms						
Customer Technology Decision Points	Server/Cloud Operating System	Mission Critical Automation	Virtualization	Container Management	Application Platform	AI Platform
	Edge & Cloud Offerings					
Customer Pain	"Complexity in our infrastructure makes it difficult to manage and costly to maintain. It becomes difficult to automate existing processes and deployments across multiple operating systems, platforms and footprints. This impacts our agility, and makes it difficult for us to maintain systems in critical areas, such as security vulnerabilities and performance."	"Managing my IT environment is more complex than ever and I don't have enough skills or budget to bring on more resources. I need automated, resilient infrastructure that frees time to innovate by maximizing existing investments and integrating AI tools into operations."	"My VMware costs are going through the roof and I want to reduce my dependency on VMware."	"I need consistent, portable and scalable infrastructure for my containerized workloads and applications across any environment."	My developers spend too much time being distracted by infrastructure and security issues, and not focused on building applications. I need a platform that provides on-demand services, abstracts away operational considerations, speeds time to production, and makes my developers more productive.	"It's difficult to get started with and scale up AI to meet the needs of my business. There are too many models to choose from and it is very expensive to train and build them into applications. There are also a number of data and security considerations that we are not equipped to handle."
Red Hat Products	RHEL, Satellite	Ansible	OpenShift Virtualization OpenShift Virtualization Engine, OpenShift Kubernetes Engine, Ansible, ACM, Partner Products	OpenShift Kubernetes Engine, OpenShift Container Platform, ACM, ACS	OpenShift Cloud Services, OpenShift Platform Plus Developer Productivity, Runtimes & Integration	RHEL AI, OpenShift AI

Red Hat Learning

The consistent fabric of the hybrid cloud datacenter

Red Hat Application Foundations

Red Hat Advanced Developer Suite

Red Hat OpenShift AI

Self-Managed Platforms

- **Red Hat** OpenShift Platform Plus
- **Red Hat** OpenShift Container Platform
- **Red Hat** OpenShift Kubernetes Engine

Advanced Management & Security

Multicluster Management | Cluster Security Global Registry | Cluster Data Management

Integrated DevOps Services

Service Mesh | Serverless | Builds | Pipelines | GitOps | Tracing | Log Management | Cost Management | Migration Tools

Kubernetes & Cluster Services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | VMs | Operators | Helm

Red Hat Enterprise Linux — Linux (container host operating system) — **Red Hat** Enterprise Linux CoreOS

Physical — Virtual — Private cloud — Public cloud — Edge

Managed Cloud Services

- aws — Red Hat OpenShift Service on AWS
- Azure — Azure Red Hat OpenShift
- Google Cloud — OpenShift Dedicated
- IBM — Red Hat OpenShift on IBM Cloud

"Once you're running OpenShift, just light up more features"

Red Hat Learning

Red Hat's AI portfolio strategy

TRUST | **CHOICE** | **CONSISTENCY**

GenAI models

Red Hat Enterprise Linux AI

Foundation Models | SDG | Alignment Tuning | Methodology | Stack Optimization & Acceleration

AI platform

Red Hat OpenShift AI

Development | Serving | Monitoring & Lifecycle | MLOps | Resource Management

AI enabled portfolio

Lightspeed portfolio

Usability & Adoption | Guidance | Virtual Assistant | Code Generation

AI workload support

Optimize AI workloads

Deployment & Run | Compliance | Certification | Models | Open Source Ecosystem

Open Hybrid Cloud Platforms

Red Hat Enterprise Linux | Red Hat OpenShift | Red Hat Ansible Platform

Acceleration | Performance | Scale | Automation | Observability | Security | Developer Productivity | App Connectivity | Secure Supply Chain

Partner Ecosystem

Hardware | Accelerators | Delivery

Red Hat OpenShift

The platform for all your workloads

Trusted

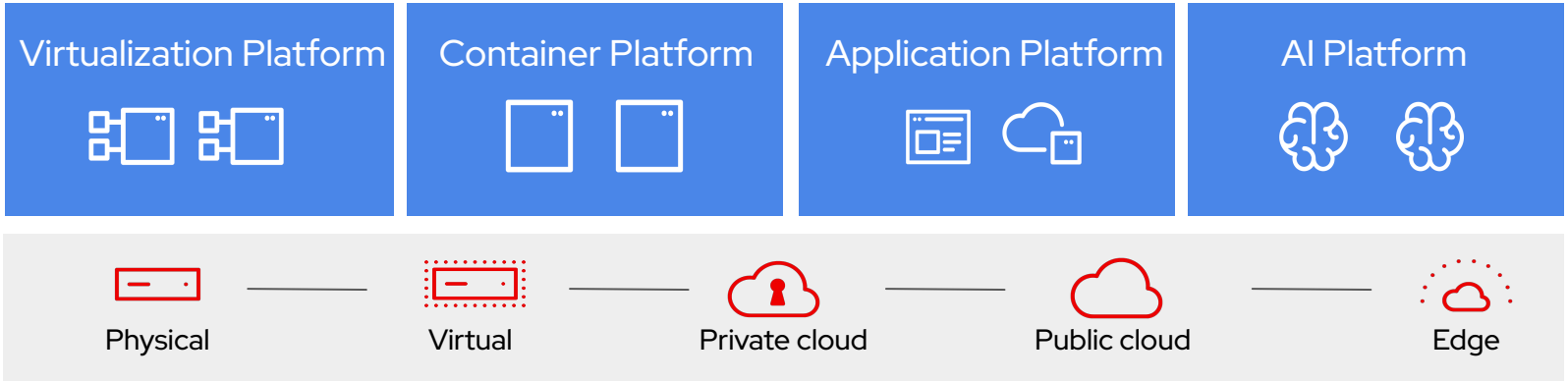
to reduce risk

Comprehensive

to improve productivity

Consistent

to increase flexibility



Red Hat Provides Customers with Options

Paths to Virtualization, Containerization & Application Modernization

Example Client Mix of OpenShift Environments

~70%	~15%	~15%
$	$$	$$$
"Get me off this platform"	*"Get me to a better platform"*	*"I'm ready to do it all"*
Migrate	**Migrate to Modernize**	**Modernize**
VM → VM	VM → VM + Containers	VM → App platform

OpenShift Virtualization Engine (OVE)	OpenShift Kubernetes Engine (OKE)	Openshift Platform Plus (OPP)
Only	*Mixed*	*Cloud Native Build/Modernize*
Virtualization	*Container & VMs Management*	*Application Platform*

NOTE: Many Customers will simply want to rehost / migrate their existing VMs to a new trusted platform. For this use case, OVE + ACM-V + Ansible is the low cost approach. However, for customers that have already invested in containerized applications they can run a portion of their environment using OKE + ACM supporting a mixture of VMs and Containerized customer applications. Finally, customers who have a portion of their environment undergoing new development or that wish to modernize their existing legacy applications; then modernization with Red Hat using OpenShift Platform Plus is the ultimate in cloud-native application platforming option. This mix provides customers with choice to run the right openshift entitlement; for the right workloads; in the right location - Data Center, Cloud or Edge.

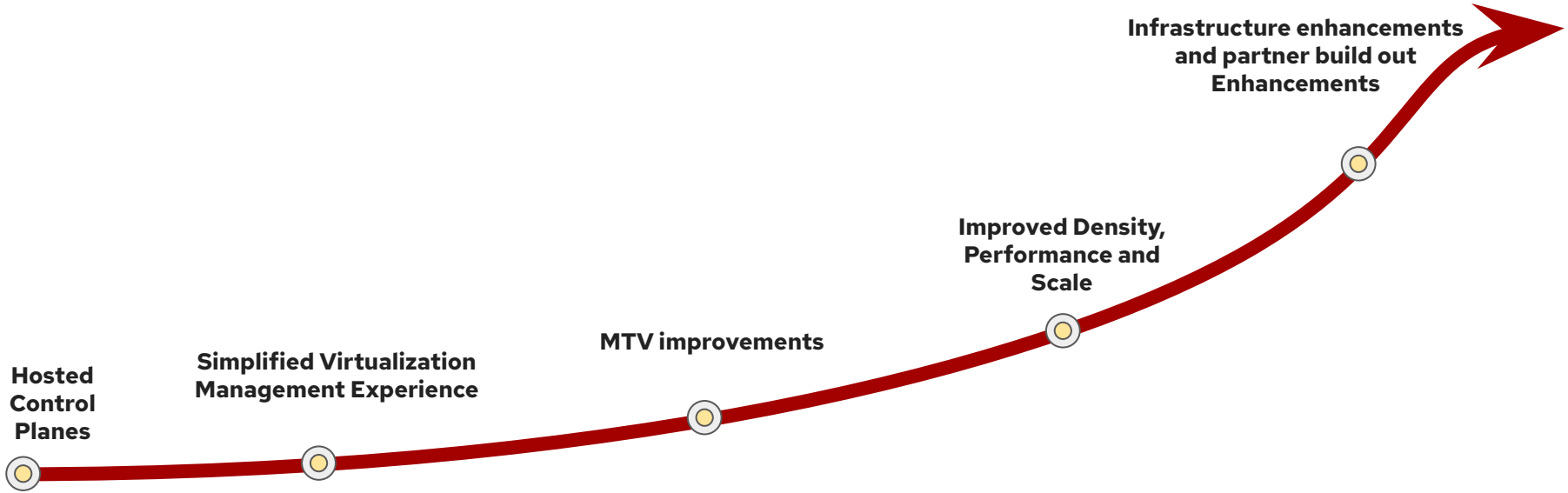
Red Hat

Red Hat

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Enterprise Secured Kubernetes	✓	✓	✓	✓
Hosted control planes	✓	✓	✓	✓
Operator Lifecycle Manager	✓	✓	✓	✓
Compliance & File Integrity Operators	✓	✓	✓	✓
Virtual machine-based workload hosting	✓	✓	✓	✓
Container-based infra workload hosting	✓	✓	✓	✓
User Workload Monitoring	✓*	✓*	✓	✓
Platform Logging	✓*	✓*	✓	✓
OpenShift GitOps	✓*	✓*	✓	✓
Metering and Cost Management SaaS Service	✓	✓	✓	✓
Container-based user application hosting		✓	✓	✓
RHEL guest and hosted virtual OpenShift subscriptions included		✓	✓	✓
Runtimes, Build Tools, and IDE			✓	✓
CI/CD Pipelines			✓	✓
Serverless			✓	✓
Service Mesh			✓	✓
Tracing			✓	✓
Multi-cluster complete management with Red Hat Advanced Cluster Management				✓
Kubernetes-native security with Red Hat Advanced Cluster Security				✓
Scalable, central registry with Red Hat Quay				✓
Persistent software-defined storage & essential data services with OpenShift Data Foundation Essentials				✓

*VMs only. Learn more.

Rapid Product Advancement in 2024



Red Hat Learning

Rapid product advancement in 2024 (Details)

Simplified Virtualization Management Experience

- A 3-click public cloud experience for VM creation using Instance Types (4.15)
- Keep critical workloads segregated through live migration affinity (4.16)
- Virtualization admin focused view (4.17)
- Multicluster Virtual Machine Observability with RHACM (4.17)
- Expanded OS catalog - SUSE, Ubuntu, CentOS, Fedora along with RHEL and Windows (4.17)

Hosted Control Planes

- OpenShift on OpenShift VMs through Hosted Control Planes (4.15)
- Hosted Control Planes in ROSA support for OpenShift Virtualization (4.16)

Improved Density, Performance and Scale

- Microsegmentation through OVN-Kubernetes and ipBlock filtering policies on secondary networks (4.15)
- Realtime VM workloads (4.16)
- Bridged and SRIOV NIC hotplug (4.15), CPU hotplug (4.16), memory hotplug (4.17)
- Memory overcommit (4.17)
- Automatic VM workload balancing with descheduler (4.17)
- Live migration optimizations for busy workloads (4.17)

MTV improvements

- Maintain drive letters for Windows migrations
- Preserve IP setting for Windows and Linux migrations
- Warm migration hardening and performance improvements
- Verify migration of Ubuntu 18, U22, CentOS 7, and Rocky 8 to OpenShift Virtualization

Infrastructure enhancements and partner build out Enhancements

- VM storage live migration between storage classes (Tech Preview) (4.17)
- Disaster Recovery with OpenShift Data Foundation - Metro-DR for all VM configurations (4.16), Regional-DR support recovery of declarative GitOps VMs (Tech Preview) (4.17)
- Delivered integration with Veritas,, Infinidat, F5, Cisco UCS and Flexpod Validated Design. Partner team launched a separate external catalog for OpenShift Virtualization
- Several vendors on track for 1H 2025 delivery - Citrix, GCP, Cohesity, Rubrik, Commvault and strategic discussions on supporting Azure

Customers with OpenShift Virtualization breakouts

NASA

Ford

Navantia

SIEMENS

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Morgan Stanley

finanz informatik

EINSTEIN
Albert Einstein College of Medicine

verizon

Emirates NBD

AT&T

ally

CAE

sopra steria

OpenShift Customers @ Summit

ABB
Adobe
Advent One
Albert Einstein College of Medicine
Ally
Amadeus
AT&T Mexico
Audi AG
Banco Bradesco
BBVA
Bell Canada
BlueCross BlueShield of SC
CAE
Collins Aerospace

CSX
Delta Air Lines
Department of Agriculture (Ireland)
DNEG
DXC Technology
Elisa
Evernorth
FIDO Alliance
Finanz Informatik GmbH
Ford Motor Company
GoDaddy
HKEX
Hyundai America Technical Center
Morgan Stanley

NASA Jet Propulsion Laboratory
National Energy System Operator
Natwest Group
Navantia
Nokia
Saudi Aramco
Siemens AG
Telefónica de España
TIERIV
TIVIT
Tsys
Verizon
Visa
VodafoneZiggo

CY24 Retrospective (from Feb BU/Sales) Interlock

Highlights:

- **$151M ACV+ booked in CY24** for Virtualization (based on sales tactic tagging)
- **192% YoY growth** of VMs, **123% YoY growth** of clusters, and **216% YoY growth** of active accounts
- OVE SKU well received by field and customers (selling the roadmap)
- Services partnership in Virt space especially around POVs and POCs healthy and fruitful
- Large references out of North America, solidified sales closure in other geos
- VMA a great vehicle to qualify customers that are really serious

Lowlights:

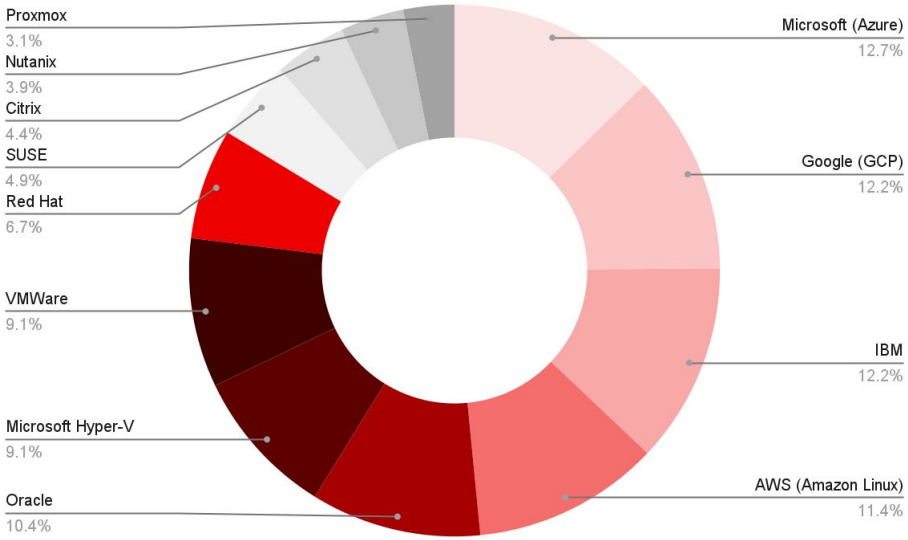
- Storage compatibility is not clear even with the Eco Catalog of certified storage partners
- Deals can be complex with long sales cycle. More than contracts, technical components of swap outs are complex
- Lack of hard bundle still creates friction to the sale
- VMware offers a 7 year support lifecycle, OVE/RH offers 3 years. Mismatch creating apprehension and doubt in customers minds affecting progression of deals. Customers asking for 7 years to progress

Going into 2025

Red Hat

Virtualization Mindshare – Q1 '25

How often Red Hat comes to mind when purchasers are beginning their buying process



Red Hat is among the second tier of mindshare when it comes to Virtualization.

30% of Developers associate Virtualization with Red Hat, while 26% of ITDMs and 15% of Sys Admins associate Red Hat with Virtualization.

Red Hat's association with Virtualization also significantly increased since the previous quarter. However, so has VMware, Citrix and Nutanix.

It is important to note that we have added a handful of new options respondents could select from in this question of the tracker.

CY24 Sales Plays and Sales Tactics

Sales Plays

Sales Tactics

OpenShift Sales Play

BV Framework

Application Platform

- OCP to OPP Upsell
- Cloud Services
- EAP & App Services
- Developer Services
- OpenShift AI

Cloud Native Infrastructure

- OpenShift Virt
- Dell APEX Appliance
- Container Mgmt
- Edge

RHEL Sales Play

BV Framework

Server Operating System

- CentOS to RHEL
- RHEL in the Cloud
- RHEL 7 EOM
- RHEL Renewals
- SAP on RHEL
- SQL on RHEL

Ansible Sales Play

BV Framework

Mission Critical IT Automation

- Free to Enterprise
- Event Driven Ansible
- Accelerate AAP w/Lightspeed
- Infrastructure
- Network & Edge
- Cloud
- Security
- Disti-led Sales Plays
- RHEL cross-sell; OpenShift for Automation Developers

Red Hat Learning

CY25 Sales Plays and Sales Tactics

	RHEL	Virtualization	Container Management*	App Platform	Automation	Adopt & Scale AI
Customer Pain	"Complexity in our infrastructure makes it difficult to manage and costly to maintain. It becomes difficult to automate existing processes and deployments across multiple operating systems, platforms and footprints. This impacts our agility, and makes it difficult for us to maintain systems in critical areas, such as security vulnerabilities and performance."	"My VMware costs are going through the roof and I want to reduce my dependency on VMware."	"I need consistent, portable and scalable infrastructure for my containerized workloads and applications across any environment."	My developers spend too much time being distracted by infrastructure and security issues, and not focused on building applications. I need a platform that provides on-demand services, abstracts away operational considerations, speeds time to production, and makes my developers more productive.	"Managing my IT environment is more complex than ever and I don't have enough skills or budget to bring on more resources. I need automated, resilient infrastructure that frees time to innovate by maximizing existing investments and integrating AI tools into operations."	"It's difficult to get started with and scale up AI to meet the needs of my business. There are too many models to choose from and it is very expensive to train and build them into applications. There are also a number of data and security considerations that we are not equipped to handle."
Marketing Campaigns	RHEL	Virtualization	Container Management*	App Platform	Automation	Adopt & Scale AI
Sales Play/ TDP	Server/Cloud Operating System	Virtualization	Container Management	Application Platform	Mission Critical Automation	AI Platform
	Edge & Cloud Offerings					
Sales Tactics-	1. Adopt a standardized operating environment 2. Optimize and secure my operating system 3. Innovate across the hybrid cloud with RHEL 4. Maximize portability in the Cloud	1. VM Migration 2. VM Modernization	1. Kubernetes for general containerized application workloads (non-AI) 2. Kubernetes for third party AI workloads 3. Multicluster management and security at scale for Kubernetes.	1. Modernize legacy apps & develop net-new cloud-native apps 2. Increase developer productivity for kubernetes and hybrid cloud 3. Secure the software supply chain and platform operation	1. Enterprise-wide automation (expanding AAP in the enterprise) 2. Standardize on AAP (converting free to enterprise) 3. Maximize technology investments (AAP + AI/RHEL/Virt/ISV) 4. Network automation	1. Private AI 2. Operationalize AI 3. Multi-architecture AI Deployment
Products	RHEL, Satellite	**OpenShift Virtualization** OpenShift Virtualization Engine, OpenShift Kubernetes Engine, Ansible, ACM, Partner Products	OpenShift Kubernetes Engine, OpenShift Container Platform, ACM, ACS	OpenShift Cloud Services, OpenShift Platform Plus Developer Productivity, Runtimes & Integration	Ansible	RHEL AI, OpenShift AI

Choosing the right tactic is becoming more nuanced

We are hearing from two types of customers

"I want to modernize"

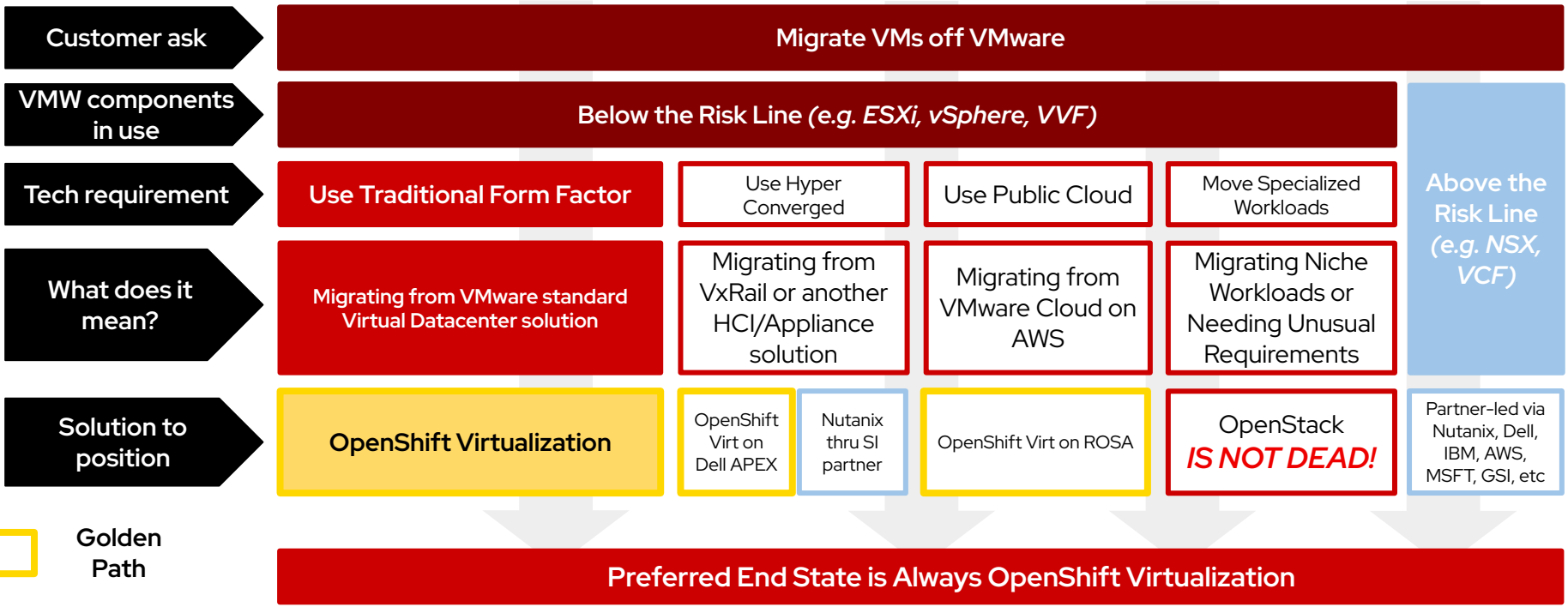
- **Wants to modernize** to containers, but also **run VMs in a more modern way**
- Stand up a secondary virtualization platform, select LOBs will deploy new workloads to or migrate to OpenShift Virt
- VMWare and OpenShift Virt will co-exist, with potential to exit VMWare long term

"I need to migrate ASAP"

- **Turn off the tap or Migrate off VMWare completely**
- **Modernization is subordinate to migration**; containers, Kubernetes, and even OpenShift are implementation details
- Willing to take some calculated risk with their production workloads

Both are turning into Container Management and Application Platforming Modernization Discussions

Paths of Red Hat's Open Virtualization Infrastructure



Full Decision Tree

Red Hat Learning

Know How to Position OpenShift

	Virtualization	Container Management	Application Platform
Core OpenShift Product	OVE	OKE	OPP/Cloud Svcs
Competing Products	vSphere, Hyper-v, Nutanix AHV, Rancher Harvester	VMware VVF/TKG, Nutanix NKP, SUSE/Rancher RKE, Spectro Cloud, Canonical, Mirantis, FOSS (DIY upstream), EKS, AKS, GKE	VMware Tanzu Platform, Heroku, AWS AppRunner, Azure AS, Google App Engine

2025 strategic roadmap

- **Simplify the user experience for VM admins**
  - Dedicated views
  - Integrate with OpenShift Lightspeed
- **Multi-cluster VM management for large scale implementations**
  - Observability
  - Lifecycle operations
- **Workload mobility across infrastructure**
  - Enhanced metrics for VM resource balancing across nodes
  - VMs and storage moved across clusters without disruption to workload availability
- **Broaden Platform and Cloud support**
  - Support for additional public clouds with bare metal installation
  - Support for ARM and s390 platforms
- **Multi-tenant networks for VMs**
  - Overlay tenant networks, with overlapping subnets, LB ingress, microsegmentation, IPAM, and static IPs and additional improvements, e.g localnet and self-service overlay networks
- **Migration Tooling**
  - Expand 3rd party guest OS migration list

Virtualization Networking, Mobility and Storage Enhancements

4.18	4.19	4.20+
Multi-tenant Networks		
Primary UDN with layer 2 overlay	BGP and EVPN - OCP feature Secondary UDN with localnet IPv6 [Tech Preview] Improved UI for host network configuration PVLAN vNIC state configuration [TP]	Secondary UDN localnet: IPAM, MAC spoof, promisc control, trunk, Secondary UDN with layer 2 overlay topology
Mobility and Storage Enhancements		
Storage migration additional enhancements (TP)	Load aware balancing (TP) Live (hot) cross cluster migration (Demo/POC) Legacy SAN CSI (TP) Storage migration (GA)	Live (hot) cross cluster migration (TP) Assisted migration

Published Jan 2025

Hybrid Cloud and Simplified Experience for Virtualization

4.18 time frame	4.19	4.20+
Simplified Virtualization Management Experience		
VM grouping and VM Navigation in a tree view (TP) Enhanced per VM utilization dashboard covering CPU, Memory, Storage and Network Enhanced NNS Topology view covering NICs, bridges, bonds, connectivity and search functionality HCP - kubevirt-csi ephemeral volume support HCP - kubevirt-csi volume expansion support	VM navigation using a Tree View (GA) Advanced search for VMs Reduce alert noise using alert aggregation	Support and default to OpenShift SWAP Openshift Lightspeed integration for VMs
Cloud, Platforms and Operating System Support		
VM-friendly networks on AWS and ROSA (bare metal) OpenShift Virtualization on Oracle cloud (OCI) Bare-Metal nodes (TP) OpenShift Virtualization on GCP bare metal (TP) Windows vTPM Block device support IBM Z and s390x support (TP)	OpenShift Virtualization on GCP bare metal (GA) OpenShift Virtualization on Oracle cloud (OCI) Bare-Metal nodes (GA) IBM Z and s390x support (GA) Support OpenShift Virtualization on AARCH64 (ARM) Windows vTPM GA	Additional Cloud integrations

Ecosystem Overview and Discussion

Presenter: Ecosystem or Platform/BU

15 Minutes

Red Hat Learning

Red Hat OpenShift

The platform for all your workloads

Trusted

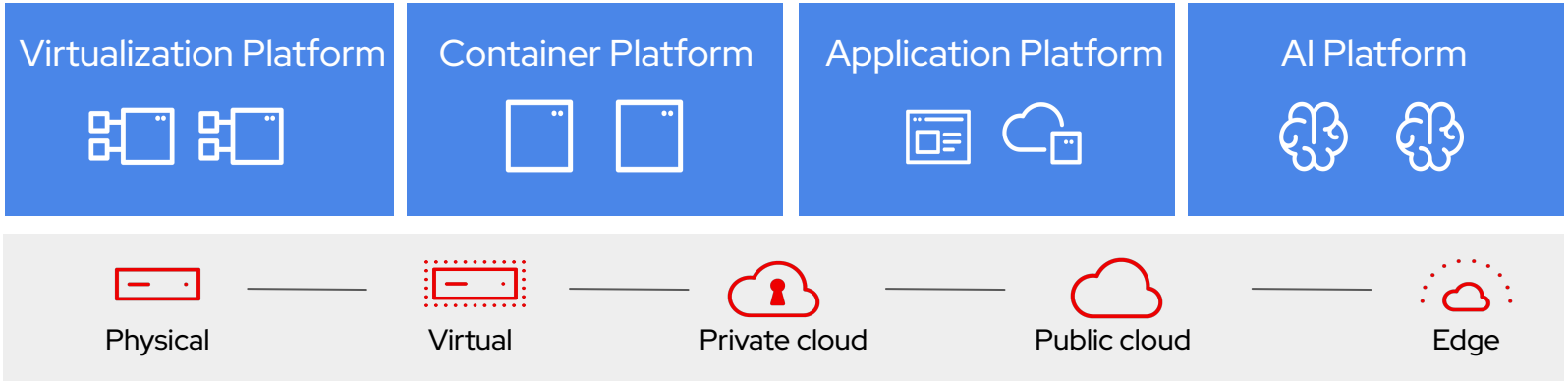
to reduce risk

Comprehensive

to improve productivity

Consistent

to increase flexibility



The 2025 Ecosystem Focus

Principles that simplify customer transition to Red Hat

Minimize the disruption to existing customer investments in Hardware, Software and Professional Services that surround VMware data centers, cloud and edge and use of vmware.

Offer a flexible set of upgrade options HW, SW, and Pro Services provided by 3rd parties

Leverage the massive number of 3rd party ISV applications that are certified to run on RHEL

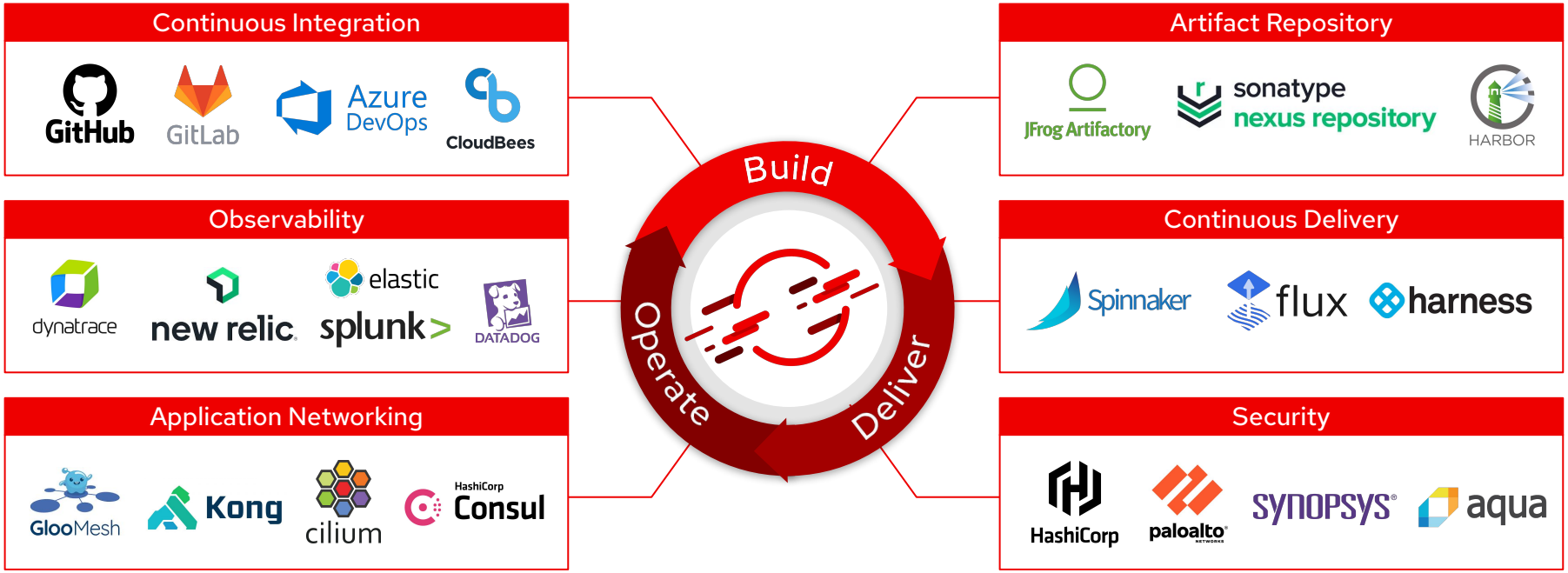
Unlock Future potential with Red Hat AI

OpenShift Virtualization Customer References

Red Hat

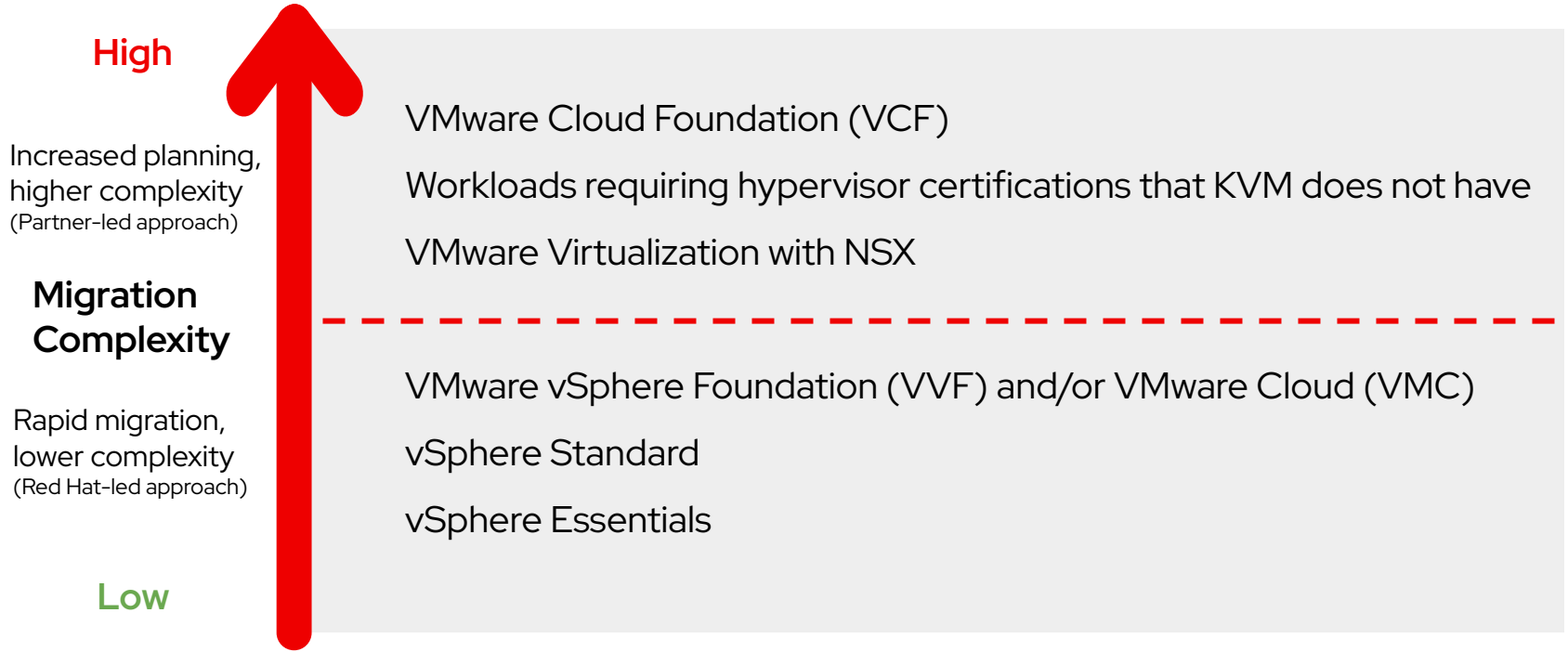
OpenShift integrates with existing tools and workflows

Enhance application delivery workflows with comprehensive capabilities



Red Hat

Customers have varying levels of investment in VMware



Partners of all types are critical to migration success

Technology

Independent software vendors (ISVs)

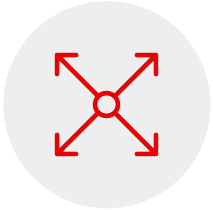
Hardware

Cloud providers

People process

Advisory/SI

Managed service providers



Channel

Red Hat

Complete the platform with your existing technology partners

Storage

Products for OpenShift Virt using CSI (container storage interface)

- HITACHI Inspire the Next
- portworx by Pure Storage
- DELL Technologies
- Red Hat OpenShift Data Foundation
- Hewlett Packard Enterprise
- NetApp
- IBM

Backup / DR

Products for OpenShift

- storware BACKUP AND RECOVERY
- veeam
- portworx by Pure Storage
- TRILIOVAULT
- IBM
- VERITAS
- rubrik
- NetApp
- COHESITY

Networking

Products for OpenShift Virt using CNI (container networking interface)

- ISOVALENT
- TIGERA
- CISCO
- f5

Cloud Services

Current public cloud providers offering OpenShift virtualization

- aws
- ORACLE CLOUD Infrastructure *Tech Preview
- Google Cloud *Tech Preview

Compute

Products for OpenShift

- IBM
- Hewlett Packard Enterprise
- DELL Technologies
- Lenovo
- CISCO

Red Hat

* This is not an exhaustive list of ISV partners, with new partners being added all the time.

Summit 2025: Red Hat Partners enhancing OpenShift Virtualization

Disaster recovery for virtual machines using Red Hat OpenShift Virtualization with NetApp

Protecting VMs in Red Hat OpenShift Virtualization with Trilio: A hands-on lab

Security-focused virtualization and AI with Red Hat OpenShift and Cisco UCS, Nexus, and Isovalent

The resilience blueprint: Protecting containerized virtual machines with Rubrik

Zero-touch site recovery for OpenShift Virtualization with Accenture, Trilio, and Dynatrace

Securely migrate to Red Hat OpenShift Virtualization with F5

OpenShift Virtualization VMs paired with ONTAP storage and Trident: A match made in heaven

Demonstration of disaster recovery using Trident Protect for a virtual machine on Red Hat OpenShift Virtualization

Disaster recovery for Red Hat OpenShift containers and VMs with Trident protect

Complete the platform with your existing technology partners

Storage

Products for OpenShift Virt using CSI (container storage interface)

- HITACHI Inspire the Next
- portworx by Pure Storage
- DELL Technologies
- Red Hat OpenShift Data Foundation
- Hewlett Packard Enterprise
- NetApp
- IBM

Backup / DR

Products for OpenShift

- storware BACKUP AND RECOVERY
- veeam
- portworx by Pure Storage
- TRILIOVAULT
- IBM
- VERITAS
- rubrik
- NetApp

Networking

Products for OpenShift Virt using CNI (container networking interface)

- ISOVALENT
- TIGERA
- cisco
- f5

Cloud Services

Current public cloud providers offering OpenShift virtualization

- aws

Compute

Products for OpenShift

- IBM
- Hewlett Packard Enterprise
- DELL Technologies
- Lenovo
- cisco
- Red Hat

* This is not an exhaustive list of ISV partners, with new partners being added all the time.

Recent Virtualization Partnership Expansion

Deeper collaborations with storage, data protection, network, and security partners

rubrik

Security Cloud now GA with OpenShift Virtualization and published to RH Catalog. For more information see Rubrik's Landing Page - Secure your OpenShift journey

COHESITY

Blog on how Data Cloud now protects OpenShift Virtualization workloads coming in Q1

Agent-based solution available today

Hewlett Packard Enterprise

HPE Container Storage Interface (CSI) Operator for Kubernetes added to catalog with support for OpenShift Virtualization

INFINIDAT

Infinidat released a Solution Brief with White Paper in progress reporting on results of Storage Benchmarking

DELL Technologies

Dell updated their Container Storage Module (CSM) with OpenShift Virtualization support.
Dell also released a demo of PowerStore support of VMs in OpenShift Virtualization

---

Workload Validations

Outreach initiative to drive vendor validation on OpenShift Virtualization in support of customer demand.

Storage Validation

Deepening our partnership and engineering collaboration with storage partners

Technical Validation Lab for Partners

OpenShift Partner Lab

Red Hat

Interested in learning more…

Red Hat Content Center: https://www.redhat.com/en/resources/openshift-virtualization-partner-ecosystem-ebook

NetApp
TRILIOVAULT
portworx by Pure Storage
f5
veeam
TIGERA
COHESITY
VERITAS
rubrik
IBM Spectrum Fusion

NetApp
- Joint assessments

citrix
- VDI, June GTA

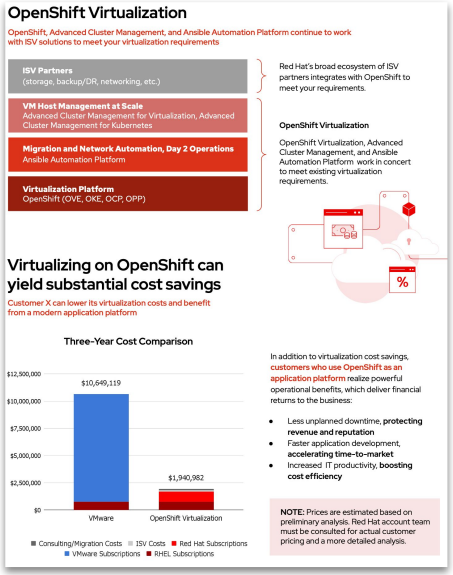
isv-na@redhat.com

Red Hat

Red Hat OpenShift Virtualization vs VMware TCO Estimator

This TCO estimator is an easy-to-use tool to give account teams high-level guidance about positioning OpenShift Virt. with their customers.

- Available to all Red Hatters and select partners at launch
  - Contact Ben Cohen and Josh Monks to request additional partners to be added
- Partner view does not include ability to see/change discounts
- Outputs are delivered via email
  - Red Hatters receive PDF, editable slides, spreadsheet
  - Partners receive PDF



Red Hat

OpenShift Virtualization Roadshow Topics

Topic	Description
Virtual Machine Management	Basics of creating and managing VMs in OpenShift Virtualization. Basic customizations and live migration
Migrating Existing Virtual Machines	Migration Toolkit for Virtualization (MTV) to import virtual machines from VMware vSphere to OpenShift
Storage Management	Persistent Volume Claims (PVCs), which are used to request storage from the provider and store a VM disk
Backup and Recovery for Virtual Machines	Data protection for backup and recovery for VMs. OADP Operator, backup and restore
Template and Instance Type Management	Review preconfigured templates for creating VMs, VM cloning and customization
Working with Virtual Machines and Applications	Common day 2 operations, exposing applications

Success from the Customer Perspective

Understanding that **THERE IS** a viable alternative to VMW

Become familiar with Red Hat OpenShift Virtualization

Understand that your journey to infrastructure modernization starts here

How Red Hat OpenShift provides an effective destination for VMs today, but also provides an application platform for the future

"I didn't realize how mature the OpenShift Virtualization product was." - Customer

"I really liked the UI and how easy it was to use." - Customer

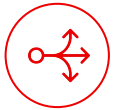
"It was invaluable for them to hear your perspective/roadmap on this technology, as well as getting hands-on with the product." - Account team

"These sorts of high-touch, product management/development engagements are essential to building trust and comfort with our products and between our companies." - Account team

Red Hat Learning

Success from Red Hat Perspective

Show the capabilities of OpenShift Virt are a viable alternative to VMware



Create and help close sales opportunities, *getting them to the VMA!*

"The workshop solidified our decision to remove VMware and repla with OpenShift Virt." - Attendee at Customer Event

Discussion

- What are the most common credibility challenges you expect to see in your opportunities?
- What proof points could you use? What proof points are missing?
- Are there specific techniques that have worked in the past for resolving credibility challenges?

10 Minutes

Walkthrough of Sample VMA

Sample Masked VMA Output

Red Hat Learning

Lunch

Time we will get started:

1:00 PM

Have you checked in already? If not, check in now (Red Hatters only)

*Real time retro

Red Hat Learning

Virtualization Customer Journey

Virtualization Migration Assessment, Virtualization Migration Factory, and beyond

Presenter: TBD

30 Minutes

Red Hat Learning

WIP Slide

Customer Virtualization Journey

Red Hat Value Added Resellers & System Integration (SI) Partner Approach

Red Hat Calls These Activities Pre-Sales

Red Hat Calls These Activities Delivery

Partner Only	Inform & Position Methodology, Approach & Past Performance	PreSales Discovery	Propose Estimate of Time and Cost	Pre-Migration Assessment and Detailed Planning	Migration Factory Foundation	Migration Factory Waves Plan ∞ Execute	**Future Positioning**
Advisory Exploration of Virt Alternatives							Modernization Factory
GOAL: Down Select Option	**GOAL:** Differentiation of Products, & Migration Services Value	**GOAL:** Clarify Customer Ambitions & ID Customer Env ISV Services & De-Risk Approach	**GOAL:** Confirm Teaming/Partner, Budget & Timeline	**GOAL:** De-Risk Final Implementation	**GOAL:** Establish Factory Tooling & Connect to all necessary services & environments	**GOAL:** Identify, Prepare, Test Migrate, Adjust, Migrate, Operate	**GOAL:** Identify, Prepare, Modernize, Operate

Red Hat's Ecosystem Goals "Customer First - Partner Always"

- #1 - Increase End Customer Satisfaction by Providing Partners with Tools & Best Practices to Safely Migrate Customers to Red Hat OpenShift & OpenShift Virtualization
- #2 - Increase Partners' Independence and speed to Achieve Goal #1 & Generate Revenue & Profit Growth for Partners
- #3 - Build Customer Trust and Loyalty to Red Hat Partners & Red Hat Products, Services, Support and Learning

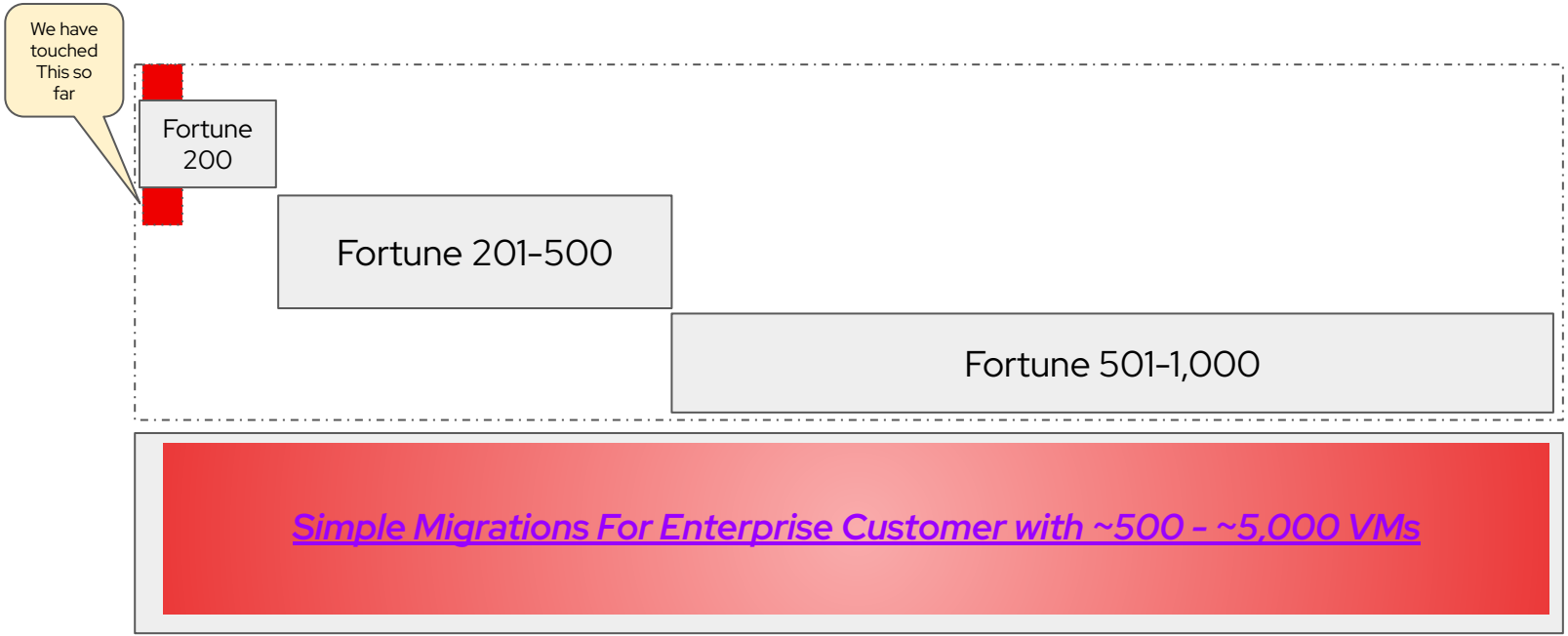
Red Hat Learning

WIP Slide

Market Opportunity

Red Hat Value Added Resellers & System Integration (SI)
Partner Approach

Every Enterprise Company on Earth Wants a New Virtualization Provider!



Discuss Partner's Advisory Activities

Red Hat Value Added Resellers & System Integration (SI) Partner Approach

Question for Attendees:

Do you provide Agnostic Advisory Services Around Virtualization Alternatives to VMware? If So, around what alternatives?

What are the Pros & Cons that you have seen when Advising on Non Red Hat Virt Alternatives?

Red Hat's Approach for Very Large Customers

Virtualization Migration Factory, and beyond

Presenter: TBD

30 Minutes

Red Hat Learning

A Complete Solution for Virtualization

OpenShift Virtualization + ACM Virt + AAP + Red Hat Services

Red Hat Advanced Cluster Management for Virtualization

Multicluster management for virtualization

Red Hat OpenShift Virtualization Engine

Virtual machines in your datacenter on purpose-build virtualization platform

Red Hat Ansible Automation Platform

Automated migration at scale including infrastructure, Day 2 operational management

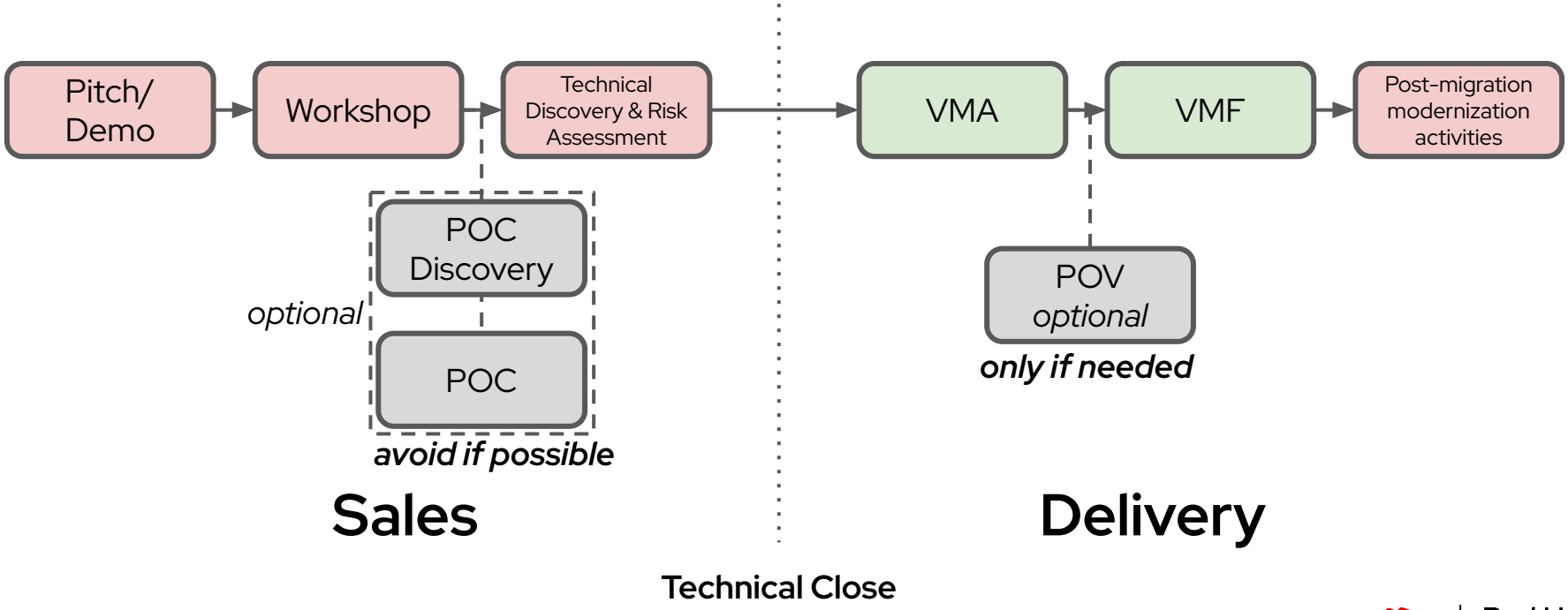
Soft Bundle VMP-BNDL

Red Hat Services

VMA & Migration Consulting
Training for VMware Admins
TAMs for Migration Support

Red Hat Learning

Optimal Virt sales and delivery path



Migration Services Journey

Virtualization Migration Assessment (VMA)

Plan to quickly and safely migrate from legacy virtualization platform

- Capture current VM architecture, analyze workload complexity, propose a high-level design and roadmap

Virtualization Migration Factory (VMF)

Deploy virtualization migration technology. Prepare to operate at scale

- Deploy OpenShift cluster, enable virtualization features, validate integrations, migrate first workloads and prepare for production

Achieve steady state migration - Reduce legacy footprint

- Migrate workloads, validate and automate migration pattern, scale and complete migration

Red Hat Consulting
Virtualization Migration Assessment

Strategize and plan for migration

Strategy | Foundation | Expand | Evolve

- **Analyze current VM architecture**, existing investments and gather requirements for your future state
- **Identify VM workloads** and define integrations such as storage, networking and clustering requirements
- **Understand day-2 operations** including automation, configure management., monitoring, backups, etc
- **Propose a high-level solution design** for your custom OpenShift Virtualization based on your business needs
- **Generate a roadmap** for adoption of OpenShift Virtualization and determine next steps

Datasheet: Red Hat Consulting: Virtualization Migration Assessment

Red Hat Learning

Virtualization Migration Assessment

Prep Session
1.5 hours

Assessment Workshops
1-2 weeks

Executive Presentation
1 hour

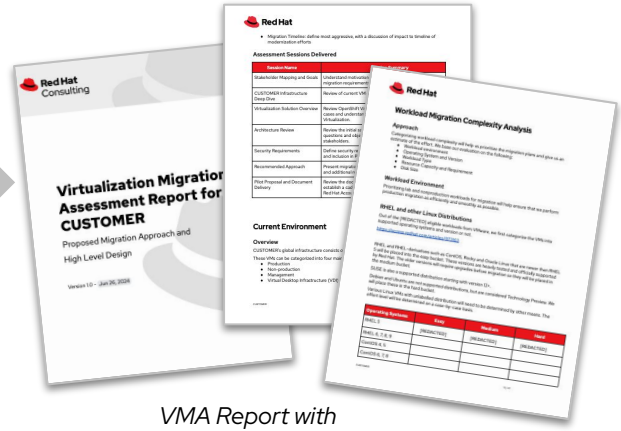
Optional PoV & Migration Factory

What We Cover

- OpenShift Virtualization features
- Virtual environment deep dive: networking, storage, security, backup, and disaster recovery
- High level solution design
- Workload migration analysis and recommended migration approach
- Cost and duration estimates for full migration with Red Hat Services

Customer Outcomes

- Understand the **solution, the path to adoption, the timeline, and the cost**
- Understand **workload and migration complexity**
- Leverage **OpenShift, Ansible, and ACM product capabilities** to meet requirements
- Achieve faster time-to-value with **Red Hat Consulting, Training, and TAM**



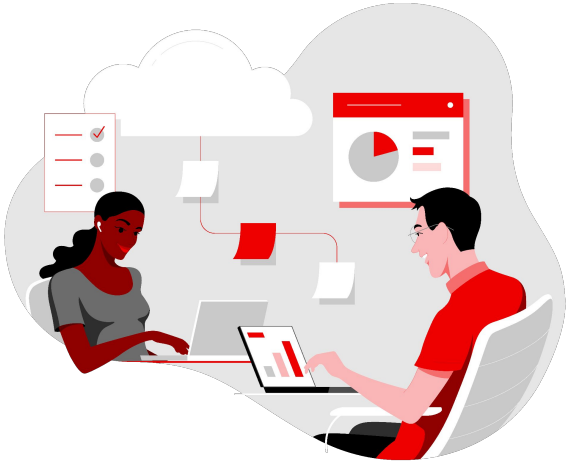
VMA Report with proposed solution design and approach

Red Hat Learning

Virtualization Migration Factory

Migrate virtual machines at scale

Strategy | Foundation | **Expand** | Evolve



- **Evaluate** your workload portfolio, **plan and prioritize** to **migrate and modernize at scale**
- **Create** iterative migration of batches of workloads
- **Reduce** IT management effort to increase productivity
- **Prepare teams** for scaled app operations and production readiness

Red Hat Learning

Sample Migration Schedule

Size: 50,000 VMs

Strategy | **Foundation** | **Expand**

MONTH 0 | MONTH 1 | MONTH 2 | MONTH 3 | MONTH 4 | MONTH 5 | MONTHS 6 - 20

Virtualization Migration Assessment
2 weeks

Virtualization Migration Proof of Value
12 weeks

Virtualization Migration Factory Build
8 weeks

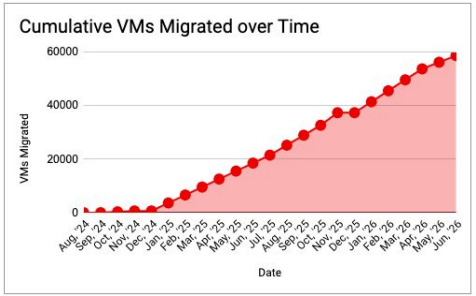
Migration Waves
Squad Model
~12 months

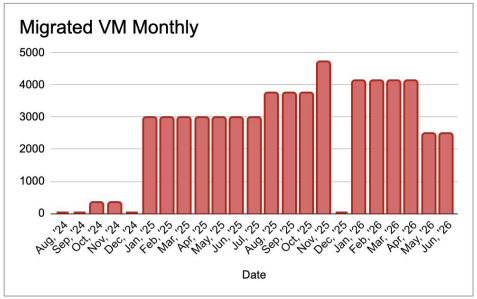
Red Hat Software Engineering and Customer Experience Engineering resource investment
Ongoing dedicated experts from Red Hat's PGE and CEE organizations

Red Hat Consulting Migration Program Management,
Red Hat Technical Account Management

Customer

Application Testing of Migrated VMs
Customer led / Red Hat support





Red Hat Learning

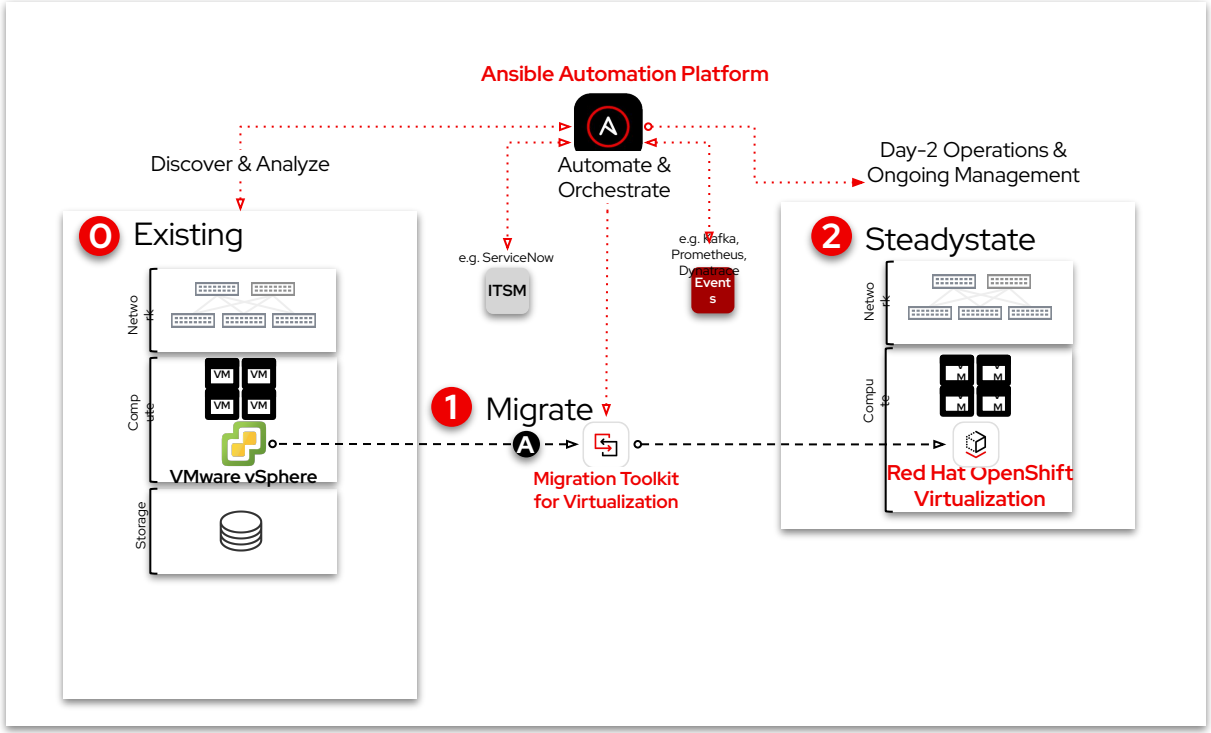
Accelerating Migrations at Scale with AAP

A Migration factory from Day-0 to Day-2 with Ansible automation

0 Evaluate and scope
Evaluate the existing data center setup

1 Migrate
Use MTV to migrate virtual machines to Openshift VIrtualization. Ansible helps automate orchestrate as needed.

Red Hat Steadystate
2 VMs are now hosted on OpenShift Virtualization alongside container workloads. Ansible Automation Platform handle day two operations.

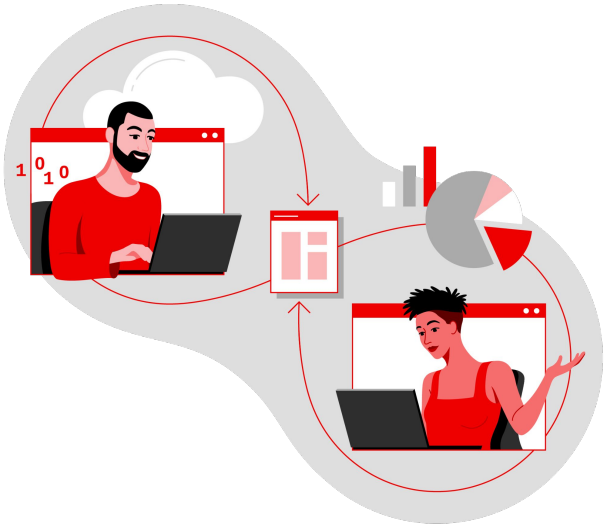


Red Hat Learning

(Optional) Virtualization Migration Proof of Value

Establish your virtualization platform foundation

Strategy | **Foundation** | Expand | Evolve



Proof of Value

- **Deploy your OpenShift cluster** within your **non-production** environment
- **Operationalize** platform virtualization features
- **Validate** real virtualized workloads on OpenShift in your environment

Production Readiness

- **Operationalize** platform storage and networking integrations
- **Complete production readiness,** performance testing / tuning, and migrate your first VMs

Red Hat Learning

PoC vs PoV

Proof of Concept (PoC)

- **Free, Pre-Sales activity performed by tiger teams, at no cost to the customer**
- **Disposable lab environment** that's likely destroyed after the POC
- **Shorter duration,** typically **2 Weeks**
- **Hands on experience** during demos and workshops
- **Standard, pre-canned environment** with few integrations
- **Use case validation** demonstrates OpenShift Virtualization is a feasible customer solution that meets scoped requirements

Proof of Value (PoV)

- **Billable Services** running the project with a scope, objectives, and production-level PS support
- **Persistent environment** that expands and evolves with the customer's needs
- **Longer duration,** typically **6 - 12 Weeks**
- **Hands on experience** during platform deployment and production readiness
- **Customized environment** to meet customer needs
- **Infrastructure and software validation** proves that OpenShift Virtualization can meet the requirements and provides the business value

Red Hat Learning

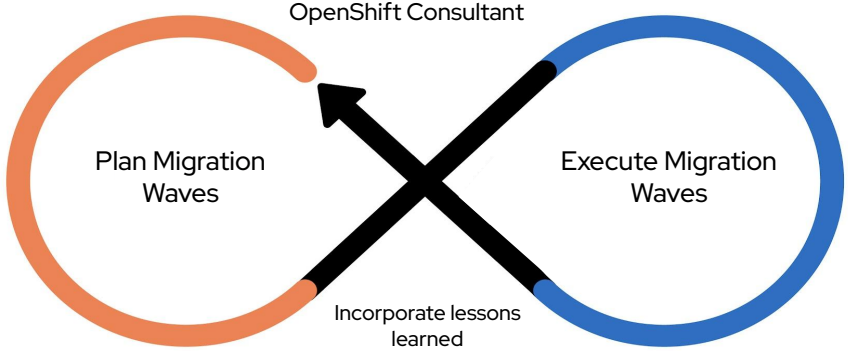
Squad Model

Red Hat Consulting, Training, and TAM
Advise on patterns, architecture, and enablement

- Design reference architectures
- Enable teams with OpenShift Virtualization
- Deploy automation
- Evolve process

Migration Squad

VM Batch Customer Stakeholders + OpenShift Consultant



Customer Infrastructure teams and VM owners
Advise on requirements, processes, and challenges

- Define requirements
- Support migration wave
- Navigate internal processes
- Validate migration

Build the knowledge base
Minimize downtime and failover

Evolve a repeatable approach to migration waves

Accelerate migration rate
Complete migration

Core Migration Team

Customer Infrastructure Lead +
TAM, Architect, and Automation Consultant

Red Hat Learning

A tailored learning path for your VM migration

Build the skills, processes and culture needed to optimize and modernize your IT infrastructure with Red Hat Training and Certification.

Essentials

- Red Hat OpenShift Virtualization Technical Overview | DO016
- Containers, Kubernetes and Red Hat OpenShift Technical Overview | DO080
- Ansible Basics: Automation Technical Overview | DO080

Prerequisites for Day 1

- Red Hat OpenShift Administration I: Operating a Production Cluster | DO180
- Red Hat OpenShift Administration II: Configuring a Production Cluster | DO280
- Red Hat Certified OpenShift Administrator exam | EX280

Day 1

- Migrating Virtual Machines to Red Hat OpenShift Virtualization with Ansible Automation Platform | DO346
- Managing Virtual Machines with Red Hat OpenShift Virtualization | DO316
- Red Hat Certified Specialist in OpenShift Virtualization | EX316

Day 2

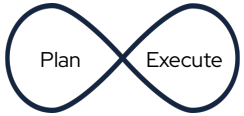
- Automate and Manage Red Hat OpenShift Virtualization with Ansible | DO336 (coming Q2 2025)
- Red Hat Certified Specialist in Automating OpenShift Virtual Machine Migration Exam | EX336 (coming Q2 2025)
- Red Hat Advanced Cluster Management for Kubernetes | DO432 (coming Q3 2025)
- Red Hat Certified Specialist in OpenShift Advanced Cluster Management Exam | EX432 (coming Q3 2025)

Certification

Course

Virt Migration with TAMs

Expert support for customer teams navigating complex migrations



Who are Technical Account Managers?

- TAMs provide **expertise and guidance** to operate a **highly resilient and secure** virtualization environment
- TAMs support **PoV deployments** and the ramp up to steady state migration during the **Migration Factory**

TAM Expertise

- Define and plan for **long-term customer success**
- Navigate complex infrastructures, **avoiding potential issues, and minimize downtime**
- **Build in-house skills** via guidance, tutorials & workshops

How do TAMs support migrations?

- **Implement best practices** and known solutions
- Rapidly **engage support and engineering teams**
- Advocate for customer and **drive support escalations**

Red Hat Learning

Continue your journey with Red Hat Services

Evolve with optional App Modernization & Automation Accelerators

Strategy | Foundation | Expand | **Evolve**

App Modernization Accelerator: Create OpenShift champions with patterns and practices for teams to quickly modernize

Achieve Faster Time to Market with Developer Experience, modernized software delivery etc.

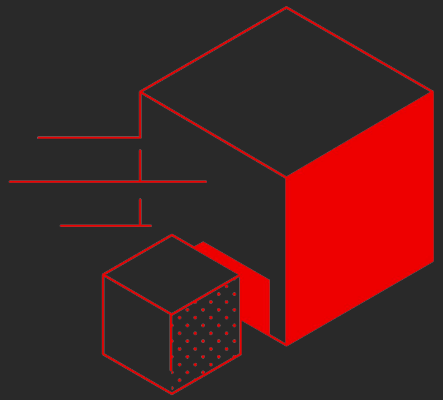
Automate the Enterprise: Meet the scaling demands of your business to bolster reliability and security, and drive efficiencies across teams and departments.

Accelerate building & modernizing intelligent apps: Leverage AI/ML to solve business problems from data science experimentation to production ready models

Red Hat Learning

Key Lessons and Considerations

Guiding Future Virtualization Migrations



Capacity Management
Ensure cluster growth to accept new VMs and avoid resource ceilings. Plan separate staging clusters for parallel operations.

Network & Storage Bandwidth
High concurrency needs robust tooling. Beware of contention during simultaneous migrations.

Business & Change Management
Align cutovers with business needs, minimize downtime, and have rollback strategies. Track and report progress.

Application Dependencies
Map application and DB dependencies to avoid breaking communications.

Team Training & Cross-Skilling
Train Ops and app teams on new tools, RHOSV, and containerization.

Migration Factory Executing at Scale

Migrate thousands of VMs quickly but safely

Build the Factory

White glove process, specialists in VMware and OpenShift, repeatable patterns and migration runbooks

Automate Everything

Comprehensive automation with Ansible and Advanced Cluster Management;

Validation, Conversion, and Verification

Enable Self Service

“You Migrate" option for application teams with migration control. Self-service portal with scheduling, tracking, and rollback capabilities

Scheduled Migrations

Coordinated migration waves based on application dependencies

Sales Journey: Establishing Credibility and Positioning a Workshop

Presenter: Platform

60 Minutes

Red Hat Learning

The negative things we hear

No one is doing virt with Red Hat; I don't want to be first

Red Hat is not a virtualization company

OpenShift is too expensive

Containers and Kubernetes is too complex

Red Hat Virtualization cannot replace VMware

Only RHEL VMs are supported

Red Hat has no experience doing VMs

VMware admins cannot learn Red Hat's platform

Red Hat's Virtualization is proprietary

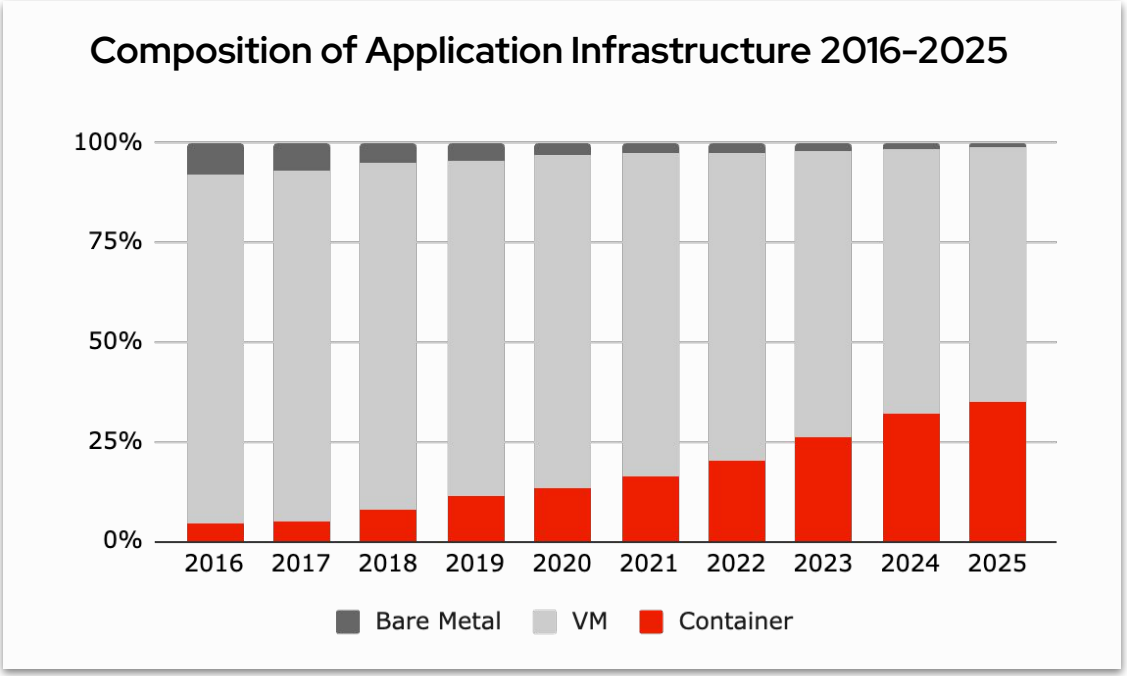
Summing up what we've got to fix

1 Fear, Uncertainty, and Doubt (FUD)

2 Lack of Customer References

Evolution of Virtualized Workloads

Companies need to preserve their existing VM workloads while preparing for the future



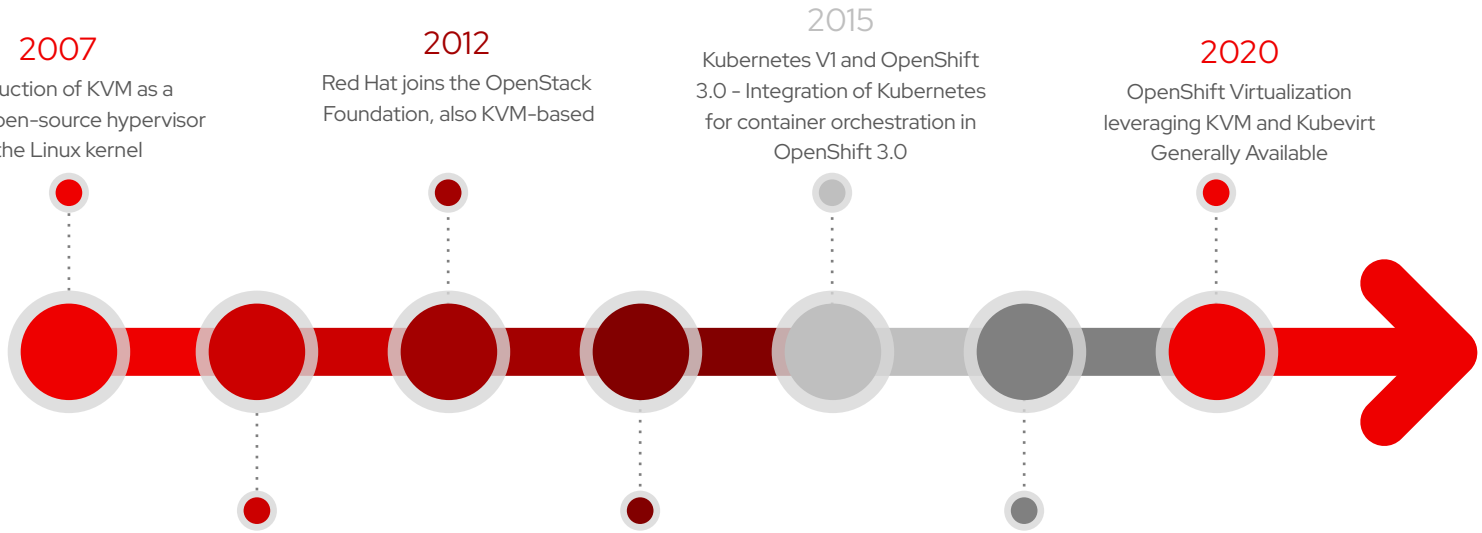
Organizations invested in VMware when most workloads were running on VMs. While VMs are still, and will continue to be, an important part of application infrastructure, the industry is moving towards containerization.

Market developments have created a compelling event for companies to get ahead of this trend and ***adopt a flexible, future-focused solution that also solves their near-term virtualization requirements.***

IDC Container Infrastructure Software Market Assessment: Container Deployment Forecast (IDC #US4867072)

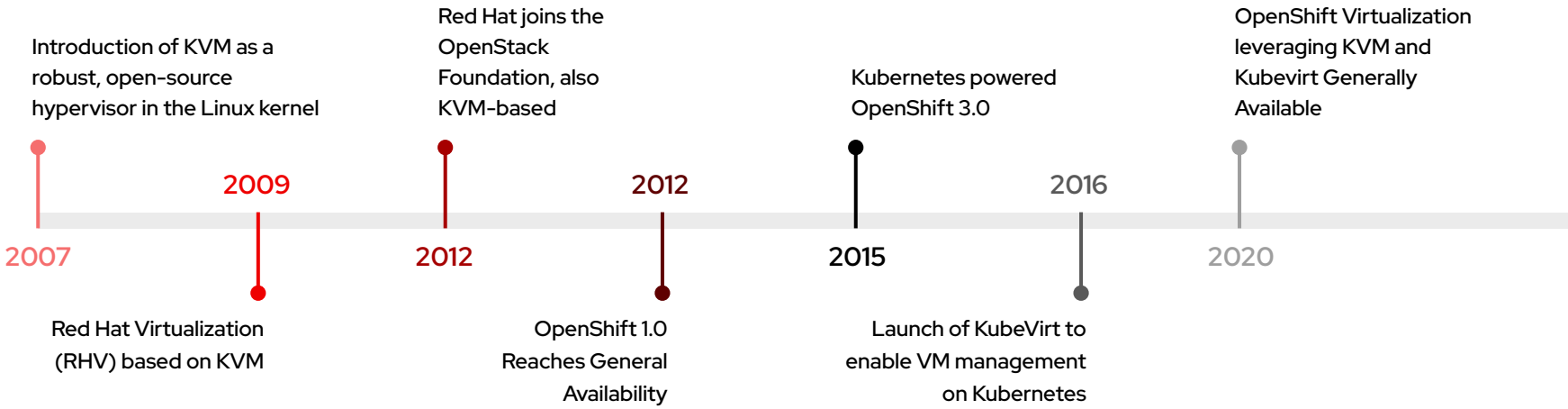
Red Hat

Red Hat has a long history with Virtualization



Red Hat Learning

Red Hat has a long history with Virtualization



We've come a long way since RHV

Category/Feature (versus best-in-class)	RHV		OpenShift Virtualization	
			EOY 2024	Target 2025
vAdmin friendly user interface	90		50	70-80**
VM density	90		90	90
Single cluster virtualization infrastructure management	80		95	95
Mixed VM and container environment	60		100	100
Infrastructure HA	50		95	95
Hotplug (storage, memory, compute)	10		90	90
ISV backup integrations	20		70	80
Disaster recovery integrations	90		55	80
Storage integrations / acceleration	90		85	90
Software defined networking	50		80	90

*Feature comparison summary sheet **For single cluster management this will be higher

Red Hat Learning

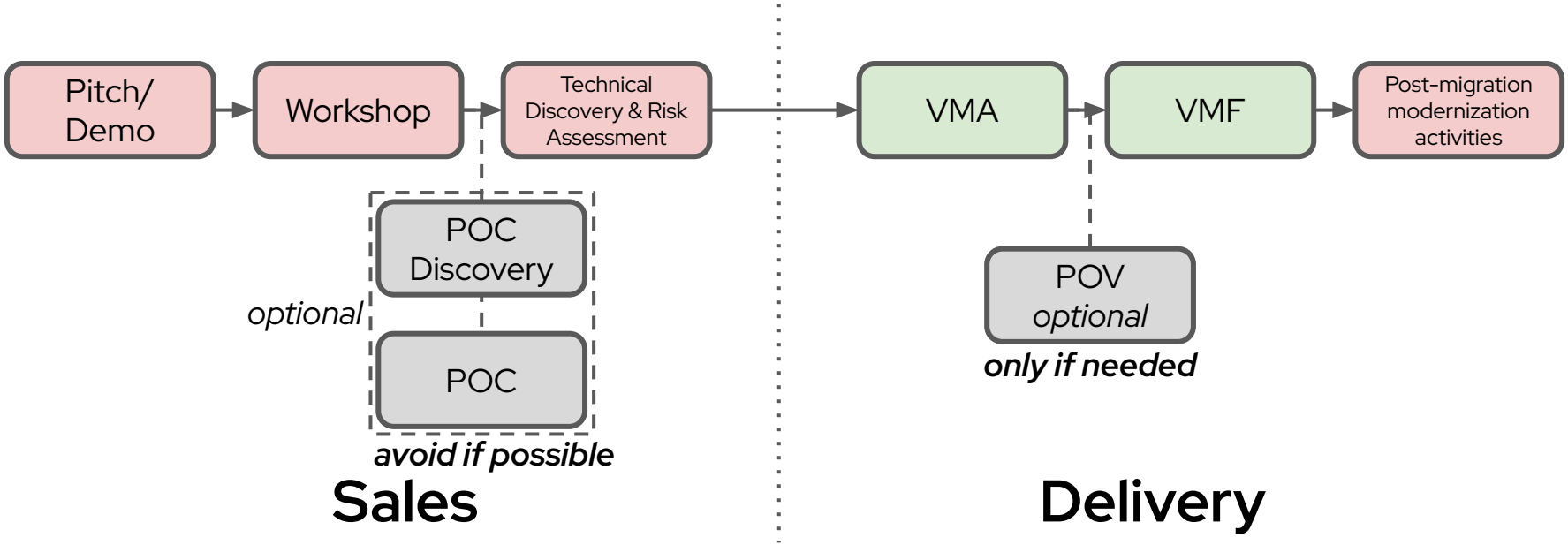
Sometimes we have to go bit for bit

Provided Comments/Assessment - June, 2024					Red Hat Response - Current Updates	
Required Features	**Broadcom VCF**	**IBM OpenShift**	**Additional Details**		**Red Hat Current State (All features GA in OpenShift Virtualization 4.17 and ACM 2.12 unless noted)**	**Red Hat Roadmap (OpenShift Virtualization 4.18+)**
Virtual Machine Management	Yes	Limited (CLI w/ basic UI)	Critical to private cloud management at scale		OpenShift Virtualization provides a robust suite of tools for virtual machine management, including: • VM Lifecycle Management via Web Console, API, and CLI tools (virtctl, SSH, VNC, Desktop Viewer for Windows) • GitOps workflows for VMs using OpenShift GitOps for automated VM deployment and updates • Red Hat Advanced Cluster Management (ACM) for multi-cluster VM management. • Migration Toolkit for Virtualization (MTV) to streamline migrating VMs from VMware and other platforms to OpenShift • Backup & DR with OpenShift OADP Velero, Red Hat ACM, and third party integrations (e.g. Rubrik, Veritas, and others) Note: Additional IBM offerings available separately - Instana (Observability & APM), Apptio (FinOps), Turbonomic (AI-driven Resource Optimization)	• Adding in tree-view navigation, logical grouping of VMs (Technical Preview), and ablilty to perform buik VM actions (GA 4.18) • Open discussion on integration
Distributed Resource Scheduler (DRS)	Yes	No	Most critical VCF feature that, without a comparable offering, would require ~700K additional physical CPU cores to offset oversubscription 2		OpenShift Virtualization delivers dynamic resource balancing like results through a combination of advanced scheduling, workload distribution, and automated scaling features, including: • Scheduler profiles to control how VMs are placed on nodes • Descheduler to trigger Live Migration for workload redistribution • Affinity/Anti-Affinity rules to enforce placement constraints • Resource limits to prevent individual VMs from consuming excessive resources • Kernel Same-Page Merging (KSM) to optimize memory usage through deduplication • CPU and Memory Overcommit to increase workload density • Cluster Autoscaler to dynamically adjust node capacity • Currently Load Aware balancing manual steps available, automating these in the upcoming release • Red Hat ACM for workload distribution and load balancing across clusters Together, these features help optimize VM placement, prevent resource contention, and rebalance workloads dynamically across nodes and clusters Note: Additional offering available separately for vROps like functionality via IBM Turbonomic (AI-driven Resource Optimization)	• Automated Load-aware balancing steps (GA 4.19)
Storage DRS	Yes	No	Highly critical for seamless operation during storage outages and management		Storage DRS capabilities in OpenShift Virtualization • StorageClasses combined Storage Live Migration (Tech Preview 4.17) provides a mechanism for optimal storage placement Note: Deprecation of VMware Storage DRS Load Balancer and Storage I/O Control (SIOC)	• Storage Live Migration to enable VM disk movement between storage classes, improving flexibility and resource utilization (moves to Early adopter program in 4.18)
Guest OS Support	Yes	Limited (Only RHEL and Windows per published docs)	Need support for our full catalog of various Linux distributions & Windows versions		OpenShift Virtualization supports a variety of guest operating systems with different levels of certification and support: • Tested & Certified by Red Hat: Red Hat Enterprise Linux (RHEL), Microsoft Windows (fully validated and supported) • Commercial Vendor Supported: Ubuntu, SUSE (supported by respective vendors, tested for compatibility) • Community Supported: Fedora, CentOS (best-effort support, no formal certification) If an operating system is not listed, then support for that guest operating system will be provided in accordance with Red Hat's Third-Party Software Support Policy.	Red Hat PM will work directly with Adobe for guest OSes requiring commercial vendor and community support not listed today
High Availability (HA)	Yes	No	Crucial service quality feature that migrates VMs in < 60 sec if underlying		High Availability in OpenShift Virtualization • Live Migration (vMotion equivalent) enables non-disruptive movement of running VMs between nodes to prevent downtime during maintenance or load balancing (requires shared storage) • Automated Node Health Checks & Remediation detect failures and ensure workload continuity • Red Hat ACM facilitates VM failover across clusters for disaster recovery and multi-cluster HA	• VM & Storage cluster-to-cluster Live Migration (Tech Preview 4.20)

Proving our credibility through getting hands on

Red Hat

Optimal Virt sales and delivery path



Options for proving our solution

Demo

- Demonstrates features
- Takes place on Red Hat hardware, including Red Hat Interactive Experiences (RHIE)
- Pre-canned workflow determined by what the customer wants to see
- Duration is less than an hour
- Executed by SSAs **pre-VMA**

Workshop

- Gets customer hands on with features
- Takes place on Red Hat hardware
- Pre-canned workflow determined by workshop modules
- Duration is hours in length
- Executed by SSAs **pre-VMA**

Proof of Concept (POC)

- Proves the feasibility of our solution
- Takes place on customer hardware in lab environment
- Scope set by well-defined entrance, success, and evaluation criteria
- Duration is days in length
- Executed by SSAs **pre-VMA**

Proof of Value (POV)

- Proves the value of our solution through a production-ready migration
- Takes place on customer hardware
- Scope set by number of production-ready VMs to be migrated
- Duration is weeks in length
- Executed by RH Consulting or partners **post-VMA**

LOW → HIGH

Time & Cost

Red Hat Learning

OpenShift Virtualization Roadshow
*aka **THE workshop***

- The premier hands-on experience for VMW admins and Infrastructure architects to learn about OpenShift Virtualization.
- Start the day with an overview of OpenShift Virtualization and then dive into a 4-hour lab with modules that cover: environment review, VM creation and use, customization, management, live migration, networking, storage, migration tool kit, external load balancer, and backup and restore.
- End the day with a closing presentation that includes OpenShift capabilities and our partner ecosystem.

Red Hat Learning

Experience OpenShift Virtualization Hands-on

Current OpenShift Virtualization Roadshow

- An introduction to OpenShift Virtualization. Aimed at VM admins early in the sales cycle, dive into a hands-on lab with modules that cover: **environment review, VM creation and use, customization, management, live migration, storage, deploying MTV, networking and backup and restore.**
- **Updates are being made for networking module and updates to 4.18 by mid-April.**
- Watch for Train the Trainer update invite.
- Content Kit

NEW: Day 2 Operations and Automation with OpenShift Virtualization Workshop

- This workshop covers essential practices required for ongoing administration and optimization with OpenShift Virtualization and Ansible Automation Platform. Modules covered will include: **automation of VM management, capacity management, performance monitoring, workload scaling, security and compliance and cost management.**
- This workshop is aimed at VMadmins later in the sales cycle who already have experience with OpenShift/OpenShift Virtualization through the current OpenShift Virtualization Roadshow.
- New workshop should be available for pilots at customer locations in mid-late April. Fill out form if interested. Lab will be available after Summit.
- Watch for Train the Trainer update.

*Jump Back to SSA Track

Sales Journey: Positioning the Virtual Migration Assessment (VMA)

Presenter: Services

45 Minutes

Red Hat Learning

If you win the VMA, you win the migration

Red Hat
Learning

Migration Services Journey

Virtualization Migration Assessment (VMA)

Plan to quickly and safely migrate from legacy virtualization platform

- Capture current VM architecture, analyze workload complexity, propose a high-level design and roadmap

Virtualization Migration Factory (VMF)

Deploy virtualization migration technology. Prepare to operate at scale

- Deploy OpenShift cluster, enable virtualization features, validate integrations, migrate first workloads and prepare for production

Achieve steady state migration - Reduce legacy footprint

- Migrate workloads, validate and automate migration pattern, scale and complete migration

Explaining what the VMA is (and isn't)

The VMA is:

- A paid in depth assessment of the customer's current VM estate
- Answers 1) where the customer is going 2) how they're going to get there 3) how long it will take and 4) how much it will cost
- Requires about a week of customer pre-work followed by a week of onsite time with the customer

The VMA unlocks:

- The Virtualization Migration Promotion (VMP) and firm fixed-price (FFP) consulting from Red Hat

The VMA is not:

- A discovery session and must never be positioned as so; discovery takes place prior to the VMA

Virtualization Migration Assessment

Our Approach

Planning Activities

- Identify stakeholders
- Send pre-work including RVTools export needed

Onsite Activities

- Whiteboarding
- Requirements gathering
- Decision making
- Removing blockers

Post Work Activities

- Crunch the RVTools data to build migration estimate
- Complete HLD
- Present Exec Summary and Next Steps

Red Hat

VMA Customer and Red Hat Roles

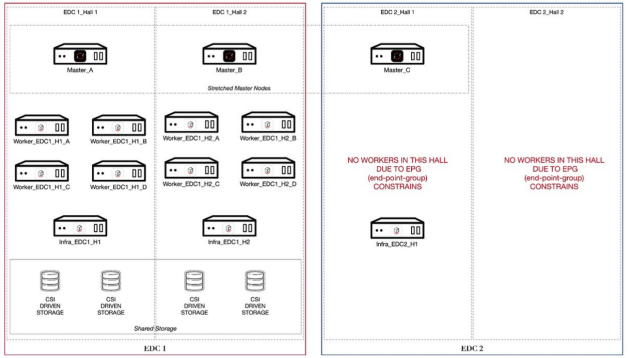
Customer Attendee	Role
Project Sponsor(s)	Responsible for setting goals and determining the measures of success for open-source adoption.
Business and IT decision-makers	Key Decision-makers from Business and IT Operations.
Enterprise Architect	The architect is responsible for data and systems interactions across the organization.
Virtualization Product Owner	The product owner for the current virtualization platform.
Infrastructure Teams representatives	Representatives for the infrastructure team: computing, storage, and network.
Director and/or Manager of Application Development	Oversees Software Development Technologies and Processes
Director and/or Manager of IT Operations	Oversees Infrastructure Platform and Operations
Relevant leads and members of Developer teams	Architects, Leaders, and Managers for internal projects and initiatives
Relevant leads and members of the IT Operations team	Infrastructure, Platform, or Software Owner(s)
Various	Other interested parties within the organization

Red Hat Attendees
Sr. Architect
Engagement Lead
Strategic Account Executive
Sales Specialists
Senior Account Solution Architect
Customer Success Executive

Red Hat Learning

Target Architecture and Infrastructure Considerations

- Ford Motor Company's existing physical server, networking, and storage architecture is an ideal model and landing zone for OpenShift Virtualization, and has been used as the starting point for the infrastructure design. No red flags have been identified with the existing infrastructure
- The architectural layout will consist of four (4) deployment architectures each dedicated to a specific use case:
  1) EDC, 2) "Stretched" EDC, 3) Plant/Distributed, and 4) Standalone. The topology will be laid out to take advantage of multiple failure domains where available.
- The "Stretched" EDC is architecture that is designed specifically for VM workloads that currently use the VMWare NSX feature today. This would be an OpenShift Virtualization cluster where storage (using ODF) is stretched across both data centers.



EDC Architecture

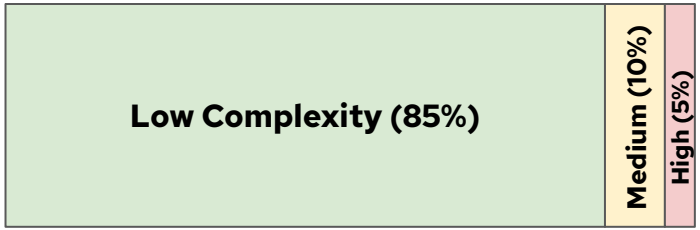
"Stretched" EDC Architecture

Red Hat

VM Workload Breakdown and Planning

Complexity Analysis

- The workload analysis shows a 85/10/5 easy/medium/hard distribution of workloads
  - 97% of VMs are sized as easy to migrate
  - A small number of VMs (1%) are very large and may need to be V2P migrations
  - 2% of VMs are running Ubuntu and non-RHEL distros and will need to be further evaluated during Phase 1
  - During Phase 1, we will build patterns for the appliances and COTS migrations, determining what can be moved to a native container.

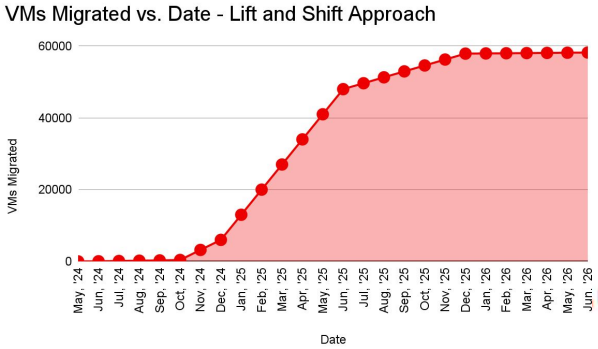


Factor	Easy	Medium	Hard
Storage Size	64087	2167	153
Workload Type	53128	11497	0
Operating System	51336	6736	1237

VISA VM Migration Velocity Projection

1. Visa's global infrastructure consists of more than 71,000 virtual machines (VMs) distributed across data centers in six countries.
2. These VMs can be categorized into four main types:
   - Production: 26,000 VMs
   - Non-production: 33,000 VMs
   - Management: 7,000 VMs
   - Virtual Desktop Infrastructure (VDI): 5,000 VMs
3. The VDI VMs are based on Citrix/Hyper-V technology, while the other three categories (production, non-production, and management) are VMware-based. This means that out of 71,000 VMs, 66,000 are potentially migratable to a new platform.
4. Approximately 17,000 VMs are under the responsibility of the Operations and Infrastructure (O&I) team while the remaining VMs are owned by various product teams within the Visa organization.

Date	VMs Migrated (V2V)	VMs Retired (V2C, V2P, Decomm)	vSphere VMs Remaining
PHASE 1 BEGINS			
June 2024	0	0	66,000
October 2024	400	100	65,500
PHASE 1 ENDS / MIGRATION FACTORY BEGINS			
December 2024	6,000	500	59,500
June 2025	48,000	2,500	18,500
December 2025	57,900	6,600	1,500
MIGRATION FACTORY ENDS / ONGOING SUPPORT BEGINS			
June 2026	58,200	7,800	0



** Velocity is based on optimal rate, without resource or process constraints.*
*** Assumes production workloads can be migrated on weekdays*
**** Assumes migration windows of 4 hours per day, 5 days per week*
***** Full assumptions in Appendix*

Virtualization Migration Assessment

Example Migration Schedule: 50,000 VMs

Strategy | **Foundation** | **Expand**

MONTH 0 | MONTH 1 | MONTH 2 | MONTH 3 | MONTH 4 | MONTH 5 | MONTHS 6 - 20

Virt. Migration Assessment
2 weeks

Virtualization Phase 1
12 weeks

Prod. Readiness & Migration Factory Build
8 weeks

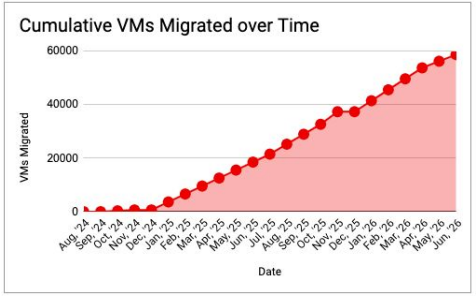
Migration Waves
Squad Model
~12 months

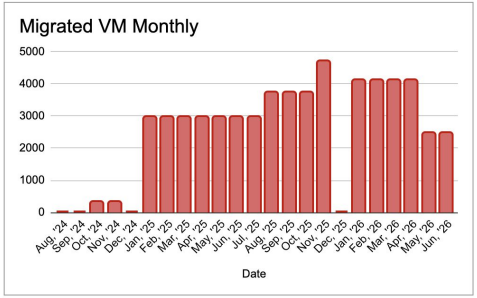
Red Hat Software Engineering and Customer Experience Engineering resource investment
Ongoing dedicated experts from Red Hat's PGE and CEE organizations

Red Hat Consulting Migration Program Management, Red Hat Technical Account Management

Customer

Application Testing of Migrated VMs
Customer led / Red Hat support





Red Hat

Mapping the Solution with Ecosystem Partners

VMware Portfolio

VMware Subscription Level	Select	Subscription / Core Count
VMware Cloud Foundation (VCF)		
VMware vSphere Foundation (VVF)	X	
VMware vSphere Standard (VVS)		
VMware vSphere Essentials Plus Kit (VVEP)		

VMware Product	Feature	Used (Y/N)
vSphere		Y
vSAN	Supported Storage Protocol	N
	Dynamic Volume Provisioning	N
	RWX for Live Migration	N
	Snapshot Support	N
	Clone Support	N
NSX (small set of clusters)	Microsegmentation	N
	Multi-Cloud Networking	Y
	Tunnels (IPSec, VPN)	Y
	Dynamic Routing (Distributed / Logical)	Y
	Central Network Management	N
	MPLS	N
	QoS	N
Aria Operations (vROP)	Performance Analytics (vSphere VMs)	Y
	Health Score	Y
	Alerting	Y

VMware Product	Feature	Used (Y/N)
BMC (today)	ITOM/ITSM integration (ServiceNow)	Y
	Recommendation Engine (e.g. rightsizing)	Y
	Automated Optimization	N
	True Visibility Suite	Y
Aria Automation (vRA)/vRo	Infrastructure provisioning (LCM)	Y
	Application Blueprints/workflows	Y
(Chef/Habitat)	Configuration Management	Y
	Service Catalog	Y
	Cloud Assembly	Y
Aria Log Insights		Y
HCX (Hybrid Cloud Extensions)		N
DSM (Data Services Manager)		N
DRS (Distributed Resource Scheduler)		Y
Storage DRS	use when needed	N
VDS (vSphere Distributed Switch)		Y
VMware Site Recovery Manager		Y
VMware Tanzu Kubernetes Service		N
VMware Tanzu Application Service (TAS, PCF)		N

3rd Party ISV Portfolio

Component	Existing Vendor
Backup & Recovery	NetApp Snap, SQL Veeam, IBM spectrum protect (TSM) / Tape *Plants, Cohesity (future)
DR	SRM, MSSQL Always ON, Oracle-Mirror, IBM spectrum protect (TSM) / Tape *Plants,NetApp Snap, SQL Veeam, ZDLRA
Monitoring	Dynatrace, WhatsUp Gold, vRealize, ACM Observability, Coming NetApp Insights,j
Logging	Splunk, Google Bucket, VM Insights, QRadar,
Metrics Collection & Alerts	Alertmanager, Webex Teams workplace, BMC, vRealize, AI-Ops , Turbonomic
Secrets Management	HashiCorp Vault
Certificate Management	Globalsign
Security in VM/Container	AV - ACS (Container Scanning) ,Cisco Traffic Watch and ACLs, vTPM, data encrypted at rest (SAN/NAS), compliance operator
Day 1 Operations	Habitat,chef,custom scripts
Automation and Configuration Management	Habitat,chef,custom scripts

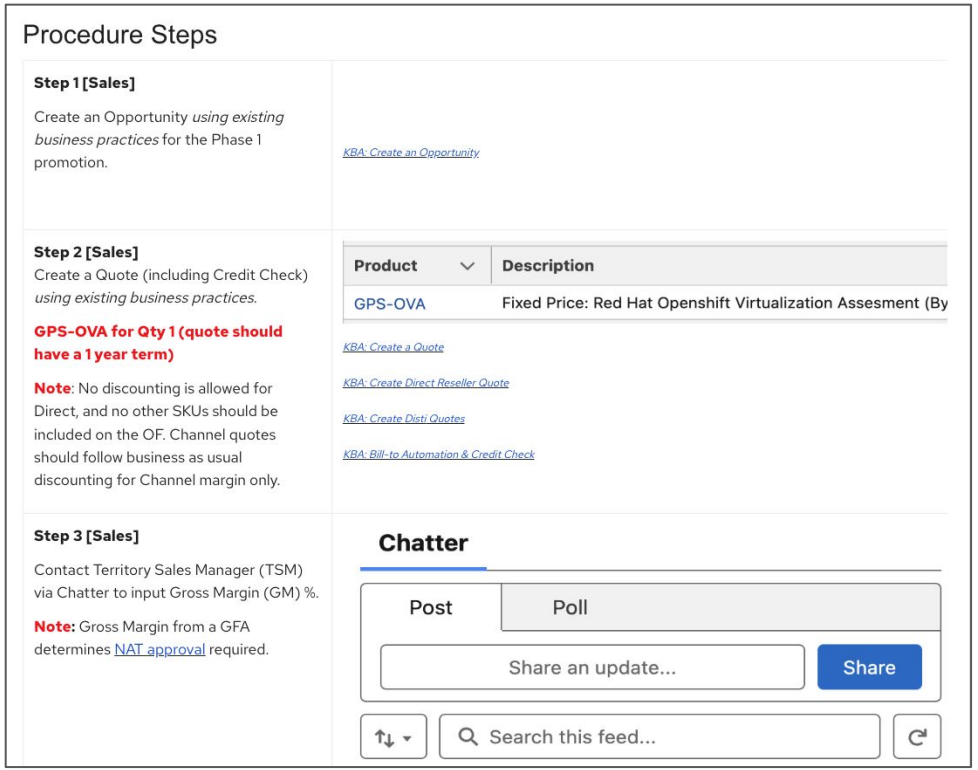
Note: Analysis of the Red Hat Services Accelerated Migration Approach, not an analysis of Red Hat OpenShift Virtualization

Accelerated Migration Approach: Key Considerations

	Considerations	Impacts
STRENGTHS The unique capabilities the GM + Red Hat partnership creates	• **Red Hat's Solid Foundation of Knowledge** of GM's environment & organization • Leverage Foundation that define the lifecycle of the migration effort for **early identification of opportunities for efficiencies & scale** • **Deliberate Planning Efforts :** vis-à-vis infrastructure requirements, risk factors, & critical assumptions defined in the **Preliminary High-Level Design** • Strategically **repurpose current investments** for cost avoidance (i.e., Dell hardware)	+ **Clarity** on critical assumptions & risks + **Defined** roadmaps & identified **synergies** + Familiarity of teams & environment will **accelerate collaboration** + Prior **investments get reutilized**/ **optimized**
WEAKNESSES The internal obstacles that may be present, but can be mitigated with planning & commitment of time & resources	• **Dedicated time & resources** (i.e., FTEs, access to systems) for the additional upfront discovery & detailed planning the Accelerated migration approach requires • **Higher number of dependencies, complexity & risks** associated with the accelerated & parallel migration approach • Anticipating GA **release of critical technical features** (Memory Overcommit & Storage vMotion) by EOY 2024	– Lack of resources will impede ability to complete **thorough planning** – Dependencies during parallel phases could create **'domino effect'** – **Technical features** for GA release are needed to make progress on approach
OPPORTUNITIES The external opportunities we can capitalize on that create long-term benefits	• Migration from a singularly focused virtualization platform (VMware) to a standardized container platform that offers an **effective path to modernize** (OpenShift Virtualization) • OpenShift Virtualization capabilities & Red Hat's support model **meets GM's strategic goals** • Operationalize GM's **multi-hybrid cloud strategy** & accelerate **GM's AI strategy**	+ Modern platform enables GM to unlock **accretive value over time** + Alignment with GM's goals that **shape long-term success**
THREATS Factors external to the joint migration team that will shape the ability to fully execute	• **Operational & Resource Dependencies:** 1) Maintenance/ planned downtime , 2) Timelines of security approvals, 3) GM resource availability • **Demands on Manufacturing:** 1) Adjustments to high availability requirements of plants, 2) Limitations of physical space & assets for side-by-side migration • **Landscape Complexities:** 1) Unsupported Operating Systems (ie. Ubuntu, etc.), 2) 2TB+ and 10TB+ disks, 3) Configuration Management Database (CMDB) accuracy • **Contingency:** Post-June 2026 with aggressive timelines & approach	– **Delays in execution,** compounded by the **'domino effect'** – **Negative OpEx** impact in 2026 & beyond

Note: Analysis of the Red Hat Services Accelerated Migration Approach, not an analysis of Red Hat OpenShift Virtualization

Instructions for entering VMA in RHSC



Procedure Steps

Step 1 [Sales]

Create an Opportunity *using existing business practices* for the Phase 1 promotion.

KBA: Create an Opportunity

Step 2 [Sales]

Create a Quote (including Credit Check) *using existing business practices.*

GPS-OVA for Qty 1 (quote should have a 1 year term)

Note: No discounting is allowed for Direct, and no other SKUs should be included on the OF. Channel quotes should follow business as usual discounting for Channel margin only.

Product	Description
GPS-OVA	Fixed Price: Red Hat Openshift Virtualization Assesment (By

KBA: Create a Quote

KBA: Create Direct Reseller Quote

KBA: Create Disti Quotes

KBA: Bill-to Automation & Credit Check

Step 3 [Sales]

Contact Territory Sales Manager (TSM) via Chatter to input Gross Margin (GM) %.

Note: Gross Margin from a GFA determines NAT approval required.

Chatter

Post | Poll

Share an update... | Share

Search this feed...

[Virtualization Migration Promotion - Phase 1 Assessment - Sales & Deal Desk FAQ]

Red Hat Learning

Seller Journey: Positioning the Virtualization Migration Factory (VMF)

Presenter: Services

45 Minutes

Red Hat Learning

Migration Services Journey

Virtualization Migration Assessment (VMA)

Plan to quickly and safely migrate from legacy virtualization platform

- Capture current VM architecture, analyze workload complexity, propose a high-level design and roadmap

Virtualization Migration Factory (VMF)

Deploy virtualization migration technology. Prepare to operate at scale

- Deploy OpenShift cluster, enable virtualization features, validate integrations, migrate first workloads and prepare for production

Achieve steady state migration - Reduce legacy footprint

- Migrate workloads, validate and automate migration pattern, scale and complete migration

Training Journey: Virtualization Ops/Engineer

Start here

Inception

1. OpenShift Intro Workshop
Hands-on workshop introducing Red Hat's learning platform and lab environments

2. Enroll into Red Hat Learning Subscription
Register your Red Hat ID and request platform access

Foundation

2. Managing Virtual Machines (DO316)
Learn the core skills to create, access, and manage VMs on OpenShift

3. Office Hour & Ask the Expert Sessions
Ford-exclusive support sessions, providing platform and content guidance

Earn Red Hat rewards for course completion

Foundation

4. Operating a Kubernetes Cluster (DO180)
Deploy, manage, and troubleshoot containerized applications

5. Configuring a Production Cluster (DO280)
Configure and manage OpenShift cluster to maintain security and reliability

6. Red Hat Certified OpenShift Administrator (EX280)
Performance-based evaluation of skills and knowledge required to configure and manage a cloud application platform

Expand and Evolve

7. Linux Automation with Ansible (RH294)
Bring operational efficiency by removing manual processes through automation

8. Red Hat Certified Engineer (EX294)
Performance-based evaluation of skills and knowledge required to understand and operate the Ansible Automation Platform

Exclusive rewards for obtaining Certifications

Ask the Expert sessions

Developer Days & In-person Events

Community-driven Continuous nurture

Red Hat Learning

Technical Account Management Solutions

Recommendations for successful migrations

- **Dedicated OpenShift TAM ~$463K/yr (Recommended for migrations >500 VMs)**
  Dedicated to one account only. Covers OpenShift only. Delivered remotely.
- **Enterprise TAM ~$512K/yr (Recommended for migrations of >5000 VMs)**
  Dedicated to one account only. Covers multiple products (e.g. RHEL, OpenShift and Ansible). Delivered remotely.
- **Shared Openshift TAM ~$129K/yr (Recommended for migrations <500 VMs)**
  Covers 4 accounts or more and only OpenShift. Delivered remotely.
- **Technical Relationship Manager ~$60K/yr (not recommended for migrations)**

Customer Example 1: Nvidia

Red Hat

Red Hat Alignment with Nvidia “Speed of Light”

Migrating **10,000 VM’s**, leveraging technology to scale, at the Speed of Light

Consider the Fastest Means to an Outcome

- Realize licensing cost savings sooner, with less risk to timelines
- Red Hat expertise, tooling, and manpower to drive fastest migration
- Continue to have a direct line of communication with Red Hat engineering to iterate as quickly as possible
- Leverage industry proven frameworks and methodologies
- Alleviate your teams to focus on other critical business initiatives

Think In Innovative Ways

- Scale with technology, not people
- Think big, achieve big
- Combine Nvidia team expertise, with world class technical guidance
- Leverage knowledge from previous successful engagements to contemplate the unknown

Red Hat VM Migration Challenges at Scale

Red Hat Services is the partner of choice to perform mass migrations from VMware to OpenShift Virtualization platform.

Anatomy of a Migration Stall

- Resource constraints while supporting multiple platforms
- Migration planning often underestimated
- Process and practices are not aligned with new platform
- Unforeseen, undocumented technical details

Solution

- Implement Red Hat Ansible for automating VM migration waves
- Red Hat Migration Factory encompassing automating processes and practices
- Day 2 platform automation

Common Migration Challenges

- Automation for pre and post-migration tasks
- Gaps in Day 2 platform operations
- Downtime coordination and scheduling with application owners
- Resource constraints

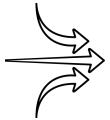
Benefits

- Accelerated path to migration and modernization
- Automated migration plan execution
- Reduced time and resources spent on manual testing and validation
- Reduce platform operations

Nvidia VM Migration Journey

What, how, and why

Challenge



Approach

Benefits

Operational Excellence
Reliability and scalability is a priority. The platform should support migrations as well as future growth.

Enhance Platform Capabilities
- Invest in Day 2 automation
- Build capacity management practices
- Consistency in cluster deployments

Platform Reliability
- ↓ Operational Cost
- ↓ Downtime

Balancing Speed and Reliability
Gaps in platform automation will slow down migration activities and come at the cost of stability

Integrate Platform Capabilities with Migration Tooling
- Demand and capacity based scaling
- Benchmarking migration activities

Predictably Scale with Demand
- ↓ Deployment Time
- ↑ Customer Experience

Resource Constraints
Supporting two platforms with a lean team is costly and time consuming

Scale with Process and Technology
- Automation-first approach
- Upskill teams with embedded resources

Upskilling Teams
- ↑ Platform Reliability
- ↓ Time to Migrate

Visibility and Metrics
Define and collecting metrics for dashboards, insights, and migration tooling

Effectively Utilize Metrics and Insights
- Metrics to inform downstream tooling
- Continuous improvement
- Executive visibility

Enterprise Agility
- ↑ Actionable Insights
- ↑ Operational efficiency

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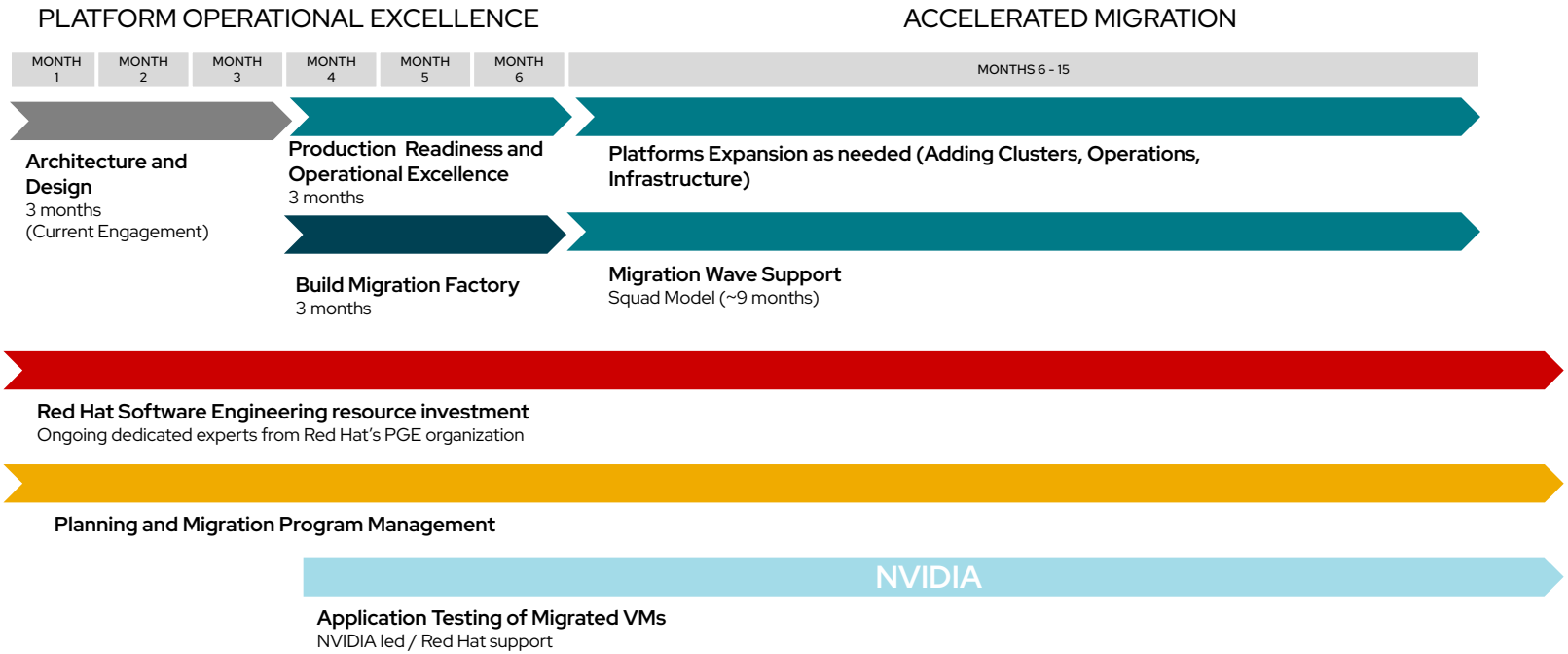
Nvidia “Speed of Light” Migration

Phase 2: Platform Operational Excellence + Migration Factory



Red Hat

Nvidia VM Migration Acceleration

Scope Overview

Operational Excellence

- Expand GitOps capabilities and single source of truth for cluster configs
- ACM policy generation and management for consistent governance and security
- ACM High Availability and DR
- Day 2 Operations:
  - Certificate management
  - Capacity management
  - Patch and upgrade management
  - Backup and restore
- Workload management and deployment strategies
- Additional operator configuration and optimizations
  - Node Tuning
  - Compliance
  - NMstate
  - Proactive Node Scaling
- Operational health, capacity, actionable insights, and dashboards

Migration Factory

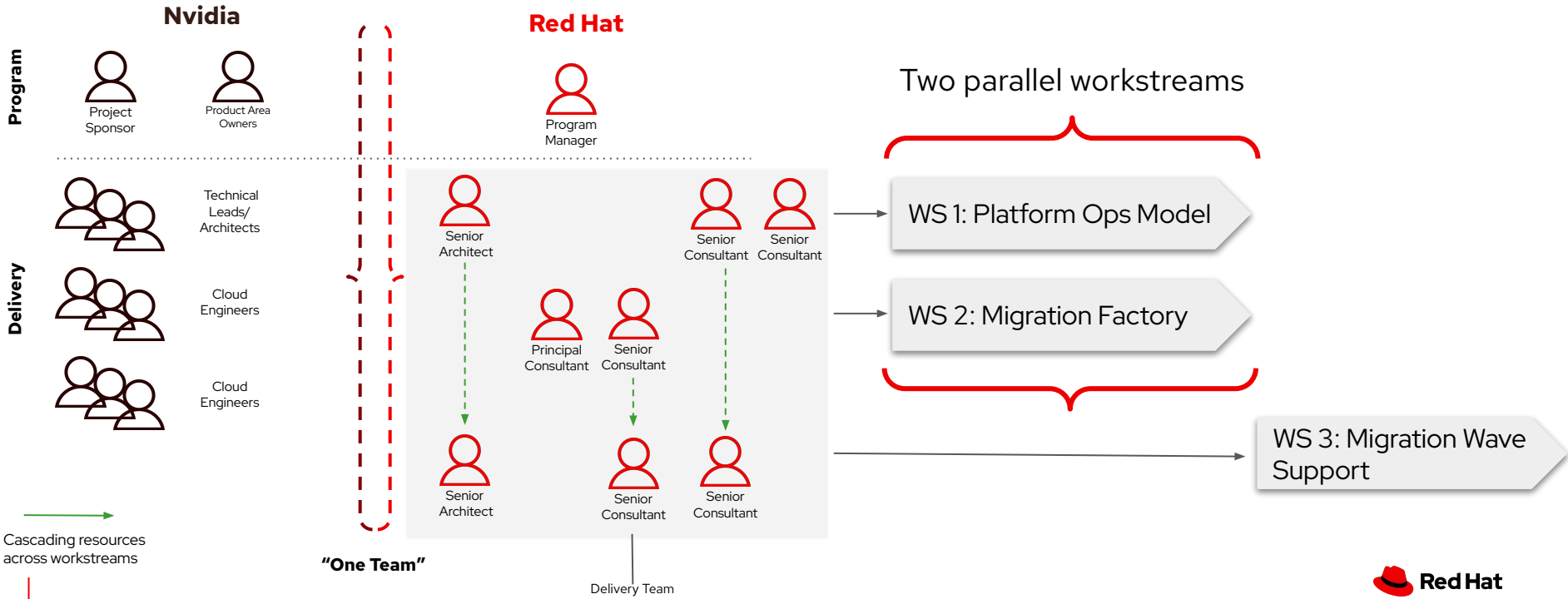
- Define and codify VM governance rules and migration policies
- Ansible Automation Platform
  - Private automation hub
  - GitOps platform configuration
  - Platform integration with existing tooling
  - Identify, authentication, authorization
  - Identify and create migration workflows
  - Initial wave automation
  - Secrets and key management
  - Execution environments
- Phase 1 initial migration wave
- Event-driven alerts and automation
- Capacity awareness in migration tooling
- Day 2 Operations
  - Testing and validation strategy and automation
  - Dynamic cluster scaling

Migration Wave Support

- Iterative augmentation of tooling development
- Migration wave planning and use case mapping
- Migration wave queuing and batching
- Pre-migration VM state inventory
  - Virtual hardware (disk, network, GPU, etc)
  - Critical services/agents
  - Access (service account, admin)
- Pre-migration validation
  - Target capacity
  - Storage Availability
  - Tier/Use Case features
  - Decision/risk engine
- Post-migration test and validation
  - Test and validate against defined attributes from pre-migration
  - User/key injection
  - Tagging
  - Agent/virtual hardware config
  - Resource reservation

Teaming Model

Nvidia – Red Hat Collaboration for Success



Red Hat

Teaming Model

Nvidia – Red Hat Collaboration for Success

WS 1: Platform Operating Model

Senior Architect

Platform Architecture

- Technical guidance and leadership of consultant deliverables across work streams
- Provides architectural for managing Openshift clusters
- Design and configure GitOps for source controlled configurations
- Cluster testing and validation strategy
- Design and document ACM availability and operational procedures
- Develop capacity and scaling plans
- Develop observability and exposing to downstream tools

Senior Consultant

Platform Operations

- Assess gaps in out-of-box policy vs requirements
- ACM policy configuration and management
  - Governance policy for ingress and certificates
  - Compliance operator
  - Custom policy development
- ACM multi-cluster observability and health
- Cluster Health - monitoring, alerting, remediation
- Assist with benchmarking migrations

Senior Consultant

Platform Operations

- Cluster provisioning and deprovisioning
- GitOps process engineering
  - Branching strategy
  - Repo design
  - Applying initial cluster configurations
  - Testing and validating
- Workload management and deployment strategies
- Automate operational procedures
  - Cluster back and restore procedures
  - Patch and upgrade management
  - Certificate management
  - Cluster testing and validation

Teaming Model

Nvidia – Red Hat Collaboration for Success

WS 2: Migration Factory

Principal Consultant

Automation Platform

- Design and implementation of Ansible Automation Platform
  - GitOps approach to platform configuration
  - Integration with existing migration tooling
  - Execution environments
- Identify initial automation workflows
- Identify, design, and document API interfaces with custom written and existing tooling
- Pre and post migration workflow design
- VM migration governance and migration policies
- Pre and post VM migration automation

Senior Consultant

Migration Automation

- Ansible platform configuration
  - Baseline automation collections and job templates
  - Credentials
  - Organizations, users, teams
  - Inventory management
- Create initial automation playbooks for VM migration
- Document migration wave automation and design
- Day 2 platform automation
  - Testing and validation strategy
  - Dynamic cluster scaling

Red Hat

Teaming Model

Nvidia – Red Hat Collaboration for Success

WS 3: Migration Wave Support

Senior Consultant

Migration Support

- Ongoing migration wave planning
- Ongoing migration wave execution and tooling support
- Migration wave batching
- Technical liaison for product and feature support
- Ongoing knowledge transfer and upskilling teams
- Post-migration VM automation
  - Test and validation of migrated VMs
  - Post migration configuration
  - User/key injection
- Day 2 platform support and automation

Senior Consultant

Migration Automation

- Ongoing migration wave execution and tooling support
- Pre-migration automation
  - Target cluster capacity
  - Storage availability and capacity
  - Tiering/Use case specific automation
- Develop decision and risk evaluation workflow automation
- Develop event-drive automation workflow from platform triggers
- Iterative automation development

Red Hat

Customer Example 2: Ford

Red Hat

Certification Environment for Phase 1

Phase 1 Outcome:
Prove the functionality, performance and reliability of the proposed cluster architecture as it would be implemented inside of Ford Motor Company's network and data center constraints.

Objectives:
Evaluate the functionality, performance, and reliability of the proposed cluster architecture within Ford Motor Company's network and data center constraints.

Lays the foundation for migration by preparing OpenShift infrastructure and related automation, defining and validating a strategy for migration, and developing procedures and providing training.

Work Streams	Purpose
EDC Virtualization	Focus on the use-cases identified for the EDC deployment and VMs
Plant / Distributed Virtualization	Focus on the use cases and unique scenarios specific to the plant/distributed scenarios
Platform Automation	Enable the OpenShift Virtualization infrastructure deployment and the related automation (including reuse of existing assets at Ford)

Non-production environment. Initial VM migrations and initial use-cases tested with Phase 1 workloads

EDC and Plant /Distributed Virtualization

GOAL: Focus on the use-cases identified for the EDC deployment and VMs

OVERVIEW:

- Deploy and validate Openshift virtualization environments
- Migrate representative test VM workloads to the Openshift virtualization certification environments
- Complete a suite of functional, performance and resilience tests to certify the environments
- Initial VM Migrations (with MTV)
- Platform Operationalization (observability)
- Testing and Validation
- Develop a process for migrations of upper environments

OUTCOMES:

- Validation of the proposed OpenShift Virtualization architectures' functionality, performance, and reliability within Ford's network and data center constraints
- Successful testing of initial VM migrations and use-cases with initial workloads
- Have a tested process for migrations for upper environments

DEFINITION OF SUCCESS: Validated the agreed upon use cases for the four architectural migration models

Platform Automation

GOAL: Enable the OpenShift Virtualization infrastructure deployment and the related automation

OVERVIEW:

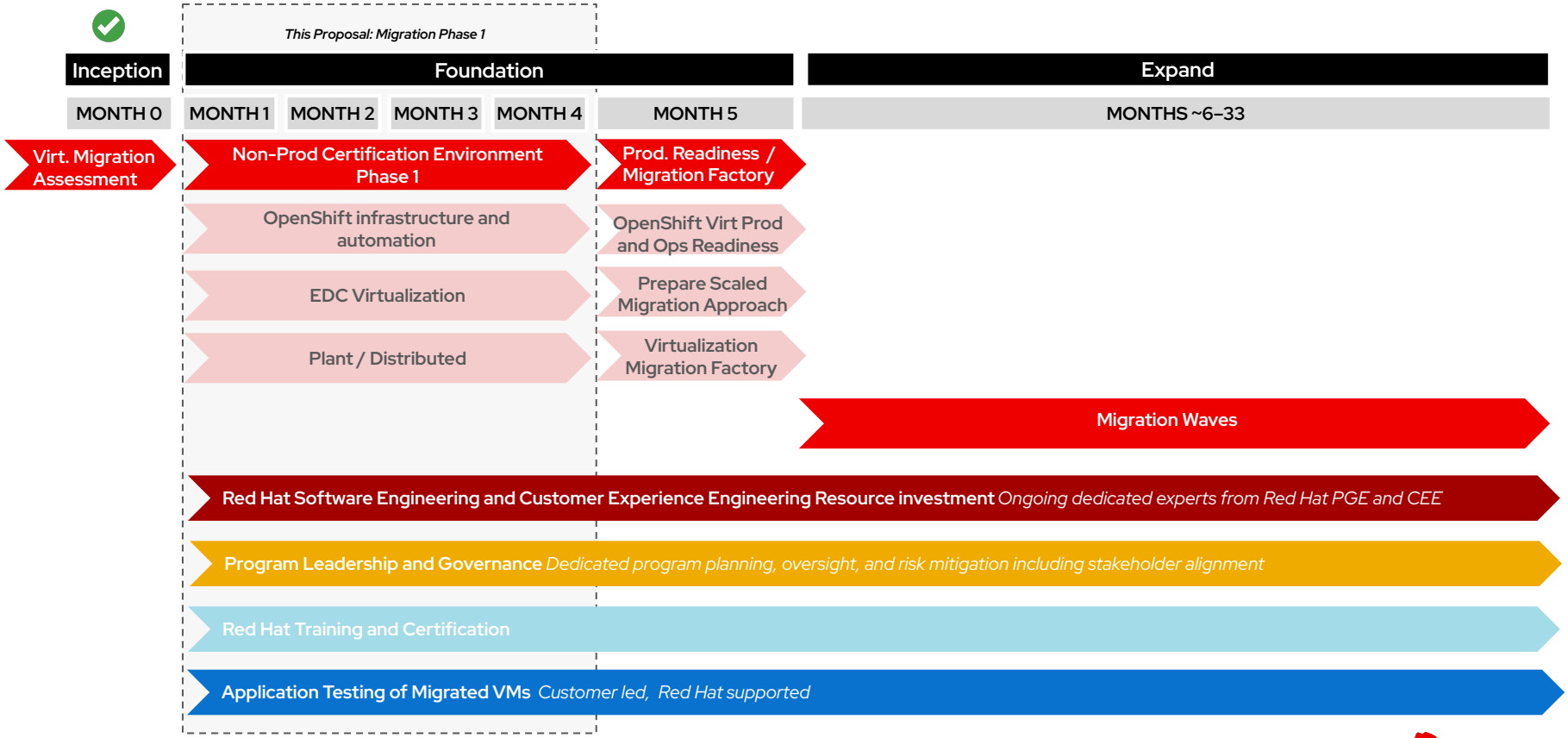
- Identify capabilities to assist with Ford's goal of establishing consistent Deployment and Day-2 operational automation practices for EDCs and plants
- Reuse existing automation and other platform artifacts (e.g., the GitOps based IaC) developed for the current OpenShift CaaS implementation
- Infrastructure low-level design
- IaC / GitOps and AAP automation for infrastructure
- OpenShift deployments
- Process and automation for host recommissioning

OUTCOMES:

- Automation-first approach with consistency of implementation
- Successful implementation of platform best practices and automation ensuring adherence to best practices and “doing it right the first time”

DEFINITION OF SUCCESS: Validate scaled migration and the critical Day-2 operations (3-5 use cases) using AAP automation; Review existing automation at Ford for reuse assessment and integration

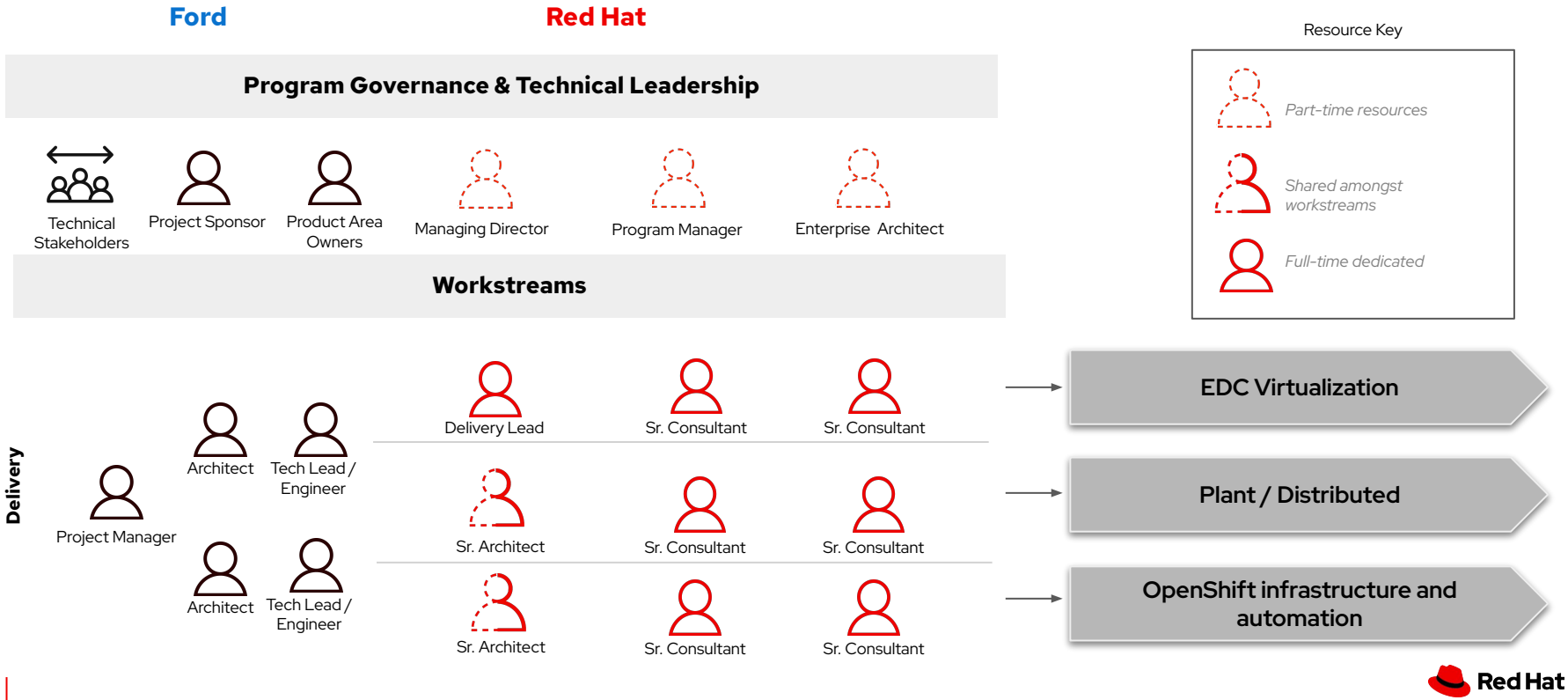
Ford Migration Program Timeline



*Fords outage and release schedules have not been provided to Red Hat for this estimate. This timeline is based on standard industry holiday and quarter schedules.
For a more accurate timeline, Ford will need to provide actual release and outage planning details.

Red Hat

Phase 1 Teaming Model



Red Hat

Phase 2: Migration

Deploy production infrastructure and migrate at scale

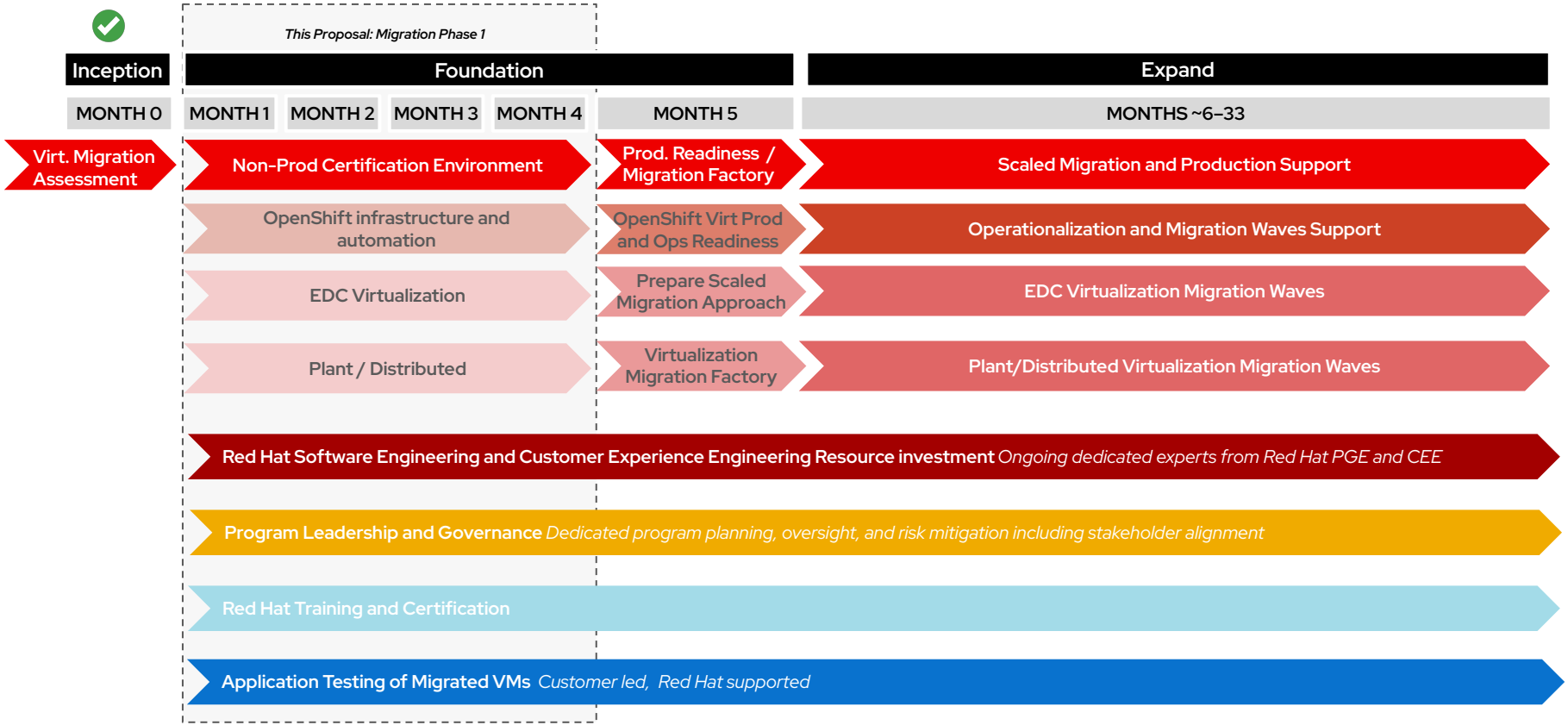
Migration Outcome:
Successfully transitioning thousands of virtual machines to OpenShift Virtualization clusters while ensuring the new platform meets Ford's production system requirements. The goal is to achieve an efficient, automated, and scalable virtualization platform that integrates seamlessly with the company's existing infrastructure and operational practices.

Objectives:

- Deploy, manage, and monitor OpenShift Virtualization clusters
- Develop automation solutions for VM migration
- Leverage existing automation and GitOps practices
- Prepare a scaled migration approach
- Ensure operational readiness

Work Streams	Purpose
Virtualization Migration Factory	Design and deploy Ansible Automation Platform and validate Ansible playbooks for batch VM migration, configurations, rollback and recovery, and VM validation
Scaled Migration Approach	Develop a seamless VM migration process with infrastructure-led and self-service options, workload planning, outage windows, preflight checks and exception handling
Platform Operations & Support	Ensure seamless deployment, management, and integration of OpenShift Virtualization clusters with company systems and support day-2 operations through ACM

Ford Migration Program Timeline



*Fords outage and release schedules have not been provided to Red Hat for this estimate. This timeline is based on standard industry holiday and quarter schedules.
For a more accurate timeline, Ford will need to provide actual release and outage planning details.

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Migration Factory Teaming Model

Ford **Red Hat**

Program Governance & Technical Leadership

Technical Stakeholders
Project Sponsor
Product Area Owners
Managing Director
Program Manager
Principal Architect
Project Coordinator

Workstreams

Project Manager
Architect
Architect
Tech Lead / Engineer
Tech Lead / Engineer

Senior Architect
Delivery Lead
Wave 1
Sr. Consultant
Consultant
Consultant
Wave 2
Sr. Consultant
Consultant
Consultant

Senior Architect
Delivery Lead
Squad 1
Sr. Consultant
Consultant
Squad 2
Sr. Consultant
Consultant

Senior Architect
Delivery Lead
Sr. Consultant

Resource Key

- Part-time resources
- Shared amongst workstreams
- Full-time dedicated

→ Virtualization Migration Factory

→ Scaled Migration Approach

→ Platform Operations & Support

Red Hat

Proposal for the Complete Migration

Red Hat

Bill of Materials

Recommended Red Hat Environment

Red Hat Portfolio

Product	Quantity
OpenShift Kubernetes Engine (Bare Metal Node) (1-2 sockets) For VM Migration	1,700 Nodes
Advanced Cluster Management (1-2 sockets)	TBD
Ansible Automation Platform (100 Managed Nodes)	5,000 Nodes
OpenShift Platform Plus (Bare Metal Node) (1-2 sockets) For App Platform	TBD

Host Count per Category

Product	Quantity
# of hosts for Virtualization use case	
# of hosts for Container Management use case	
# of hosts for Application Platform use case	

3rd Party ISV Portfolio

Component	Red Hat Recommended Vendor	Recommended Subscription
Backup & Recovery	Cohesity	TBD
DR	Cohesity	TBD
Monitoring	Current Solution: WhatsUP Gold,Cisco Workload monitoring, Dynatrace Add: ACM Observability, Alertmanager for Virt clusters	As-is + TBD
Logging	Current Solution: Splunk/Google Bucket/shell script/vRealize Log Insight Future: Logging 6.0 for OTEL	As-is + TBD
Metrics Collection & Alerts	Current Solution: WhatsUP Gold,Cisco Workload monitoring, Add: ACM Observability, Alertmanager for Virt clusters	As-is + TBD
Secrets Management	Current Solution: HashiCorp Vault	As-is
Certificate Management	Current Solution: Globalsign	As-Is
Security in VM/Container	Current Solution: AV - ACS (Container Scanning) ,Cisco Traffic Watch and ACLs, vTPM, data encrypted at rest (SAN/NAS), compliance operator	As-is
Day 1 Operations	Habitat,chef,custom scripts	Ansible Automation Platform (AAP)
Automation and Configuration Management	Habitat,chef,custom scripts	Ansible Automation Platform (AAP)

Red Hat

Discussion

- What did you learn?
- What do you plan to do differently with your customer?

10 Minutes

Sales Journey: The Road to Customer Value through Virtualization

Aligning to the Big 4 Business Drivers:
Revenue Growth | Strategic Improvements | Cost Optimization | Risk Avoidance |

Content Owners: RH Business Value Team supported by, BU, Ecosystem

2.5 hours

Red Hat Learning

VM migration or VM modernization

Option 0

Stay on VMware

Option 1

Move to OpenShift Virtualization Engine (OVE)

Option 2

Move to OpenShift Kubernetes Engine (OKE)

Option 3

Move to Openshift Platform Plus (OPP)

Challenges

Customer virtualization paths

$

"Get me off this platform"

Migrate

VM → VM

Most customers are here

OpenShift Virtualization Engine (OVE)

Virtualization
TDP/Sales Play

$$

"Get me to a better platform"

Migrate to Modernize

VM → VM + Containers

OpenShift Kubernetes Engine (OKE)

Container Management
TDP/Sales Play

$$$

"I'm ready to do it all"

Modernize

VM → App platform

Openshift Platform Plus (OPP)

Application Platform
TDP/Sales Play

Catch the cues: migrate

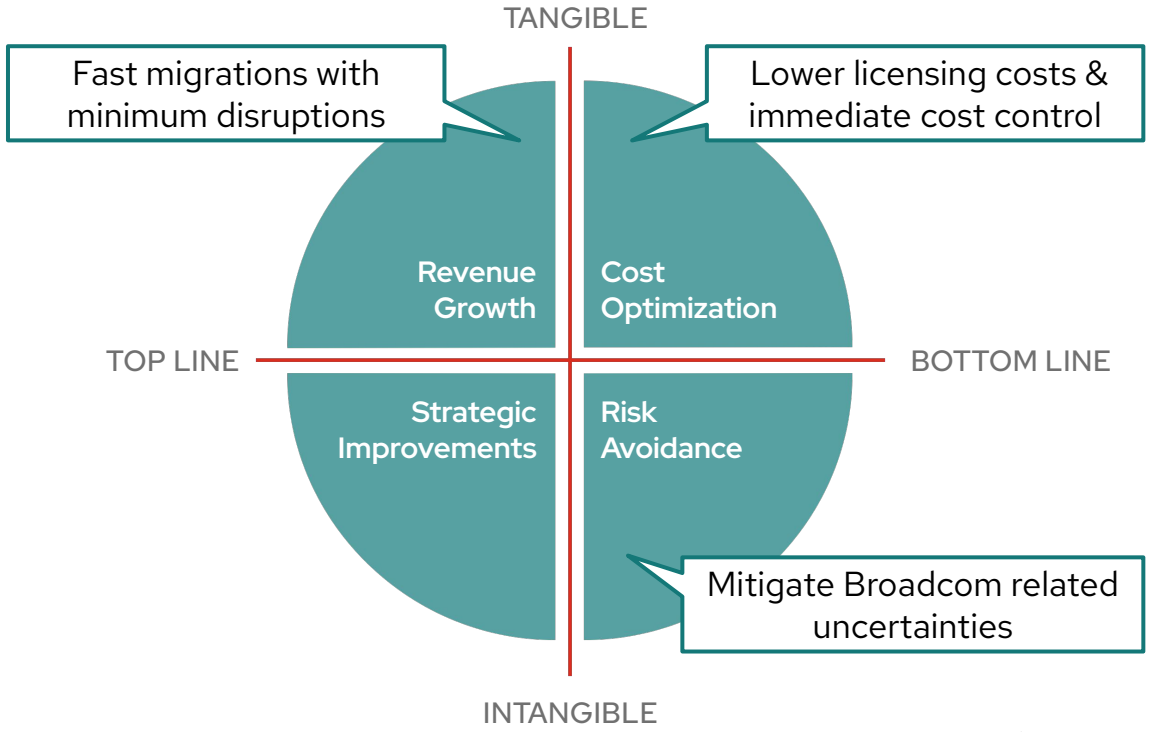
Openshift Virtualization Engine

"I have all my VMs in VMWare. Should I have multiple virtualization platforms ...?"

"I'm worried about what they'll do in the future ..."

"There's nothing technically wrong with VMWare ..."

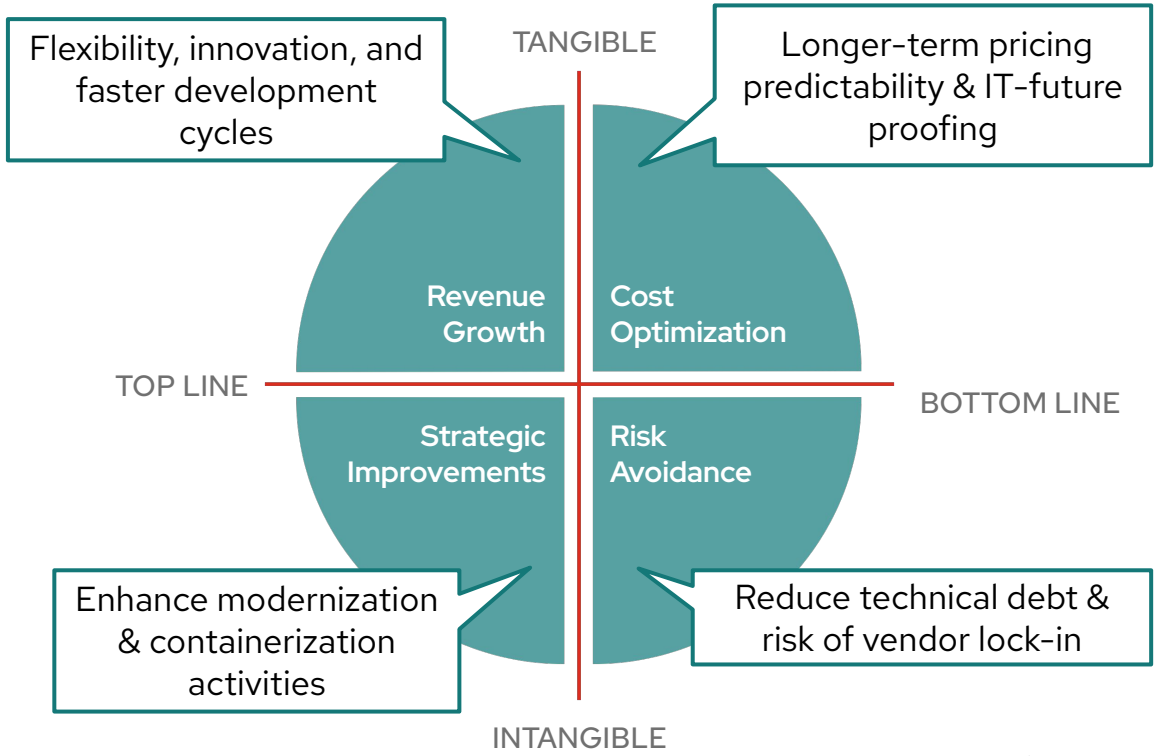
"I need something that won't hold me ransom on cost ..."



Catch the cues: migrate to modernize

"The Broadcom disruption is making me think about accelerating my modernization via containers ..."

"I would need something that provides more efficiency to make a significant change ..."

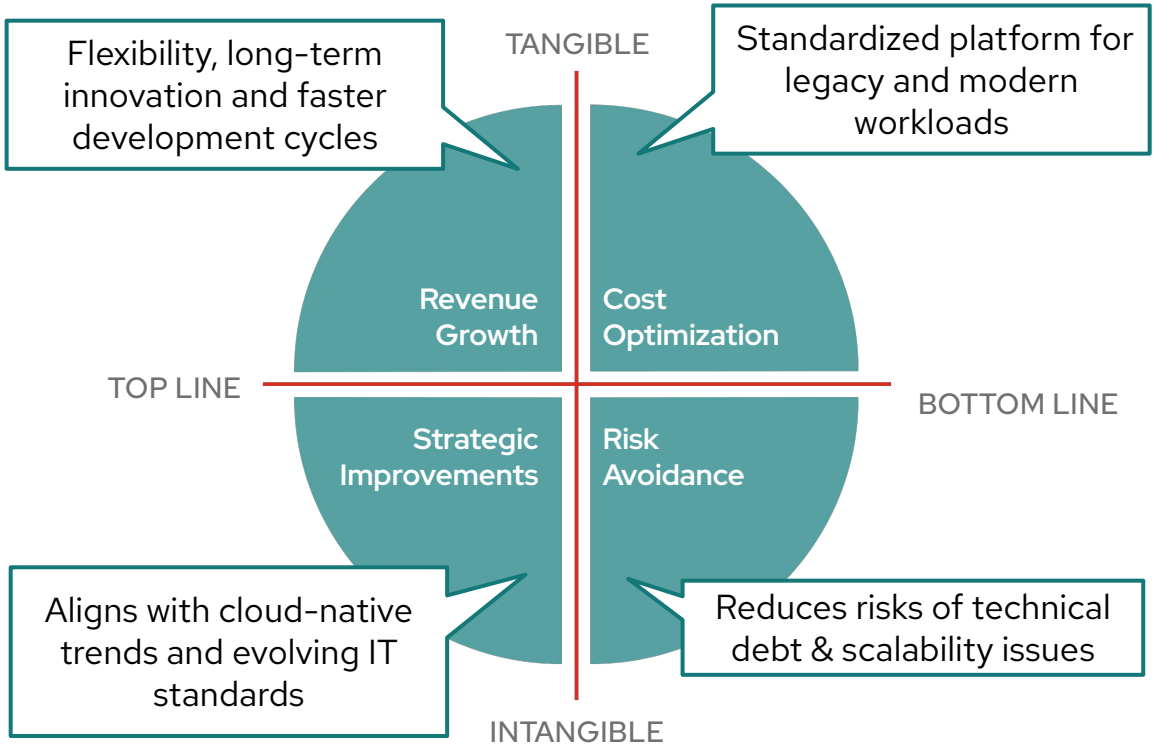


Catch the cues: modernize

OpenShift Platform Plus

"My VMware stuff has forced me to accelerate my app mod strategy to move towards modern architectures via cloud native apps..."

"I want to make sure my Infra Platform is set up to improve our customer / employee experience ..."



Red Hat Learning

Business Value Practice for the Virtualization Migration Assessment

Red Hat Learning

Customer TCO Example

Example

FSI Corp Assumptions & Inputs to Model

Additional scoping (e.g. VMA) can be done to get a more accurate target solution proposal

Assumptions:

- **10%** of VMs will be consolidated, retired, or moved to another platform (e.g. public cloud).
- Hybrid modernization scenario with **20%** of current VM estate will be app modernized/containerized.
- Server hardware will be upgraded to two-socket 128 total cores
- Assuming VMware Cloud Foundation subscription is being used for VMware environment.
- Assuming FSICorp OpenShift cost is covered under current ESA, and Red Hat software costs only include ACM, AAP, and RHEL is needed.
- Existing environment used as baseline; does not account for future increases due to growth.

Environment Inputs provided by FSICorp	
Number of ESXi hosts	2,900
Average sockets per server	2
Average cores per socket	32
Total number of cores	185,600
Total number of CPU sockets	5,800
Total VMs in Environment	35,800

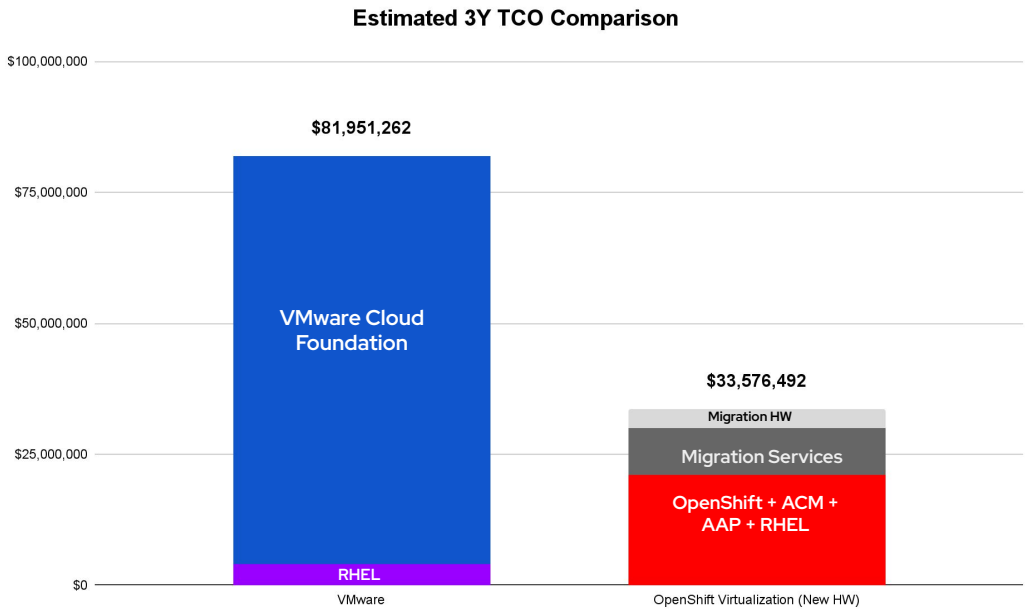
Extrapolated Inputs	
Average cores per VM	5.18
Applications running in environment	4,475
VM Density	12

Example

OpenShift Virtualization Will Yield Substantial Cost Savings

FSI Corp will avoid new higher Broadcom subscriptions and benefit from a modern application platform

Three-Year Cost Comparison for In-Scope VMs



3-Year Savings: $48.3M
Virtualization Cost Reduction: 59%

In addition to virtualization cost savings, **customers who use OpenShift as an application platform** realize powerful operational benefits, which deliver financial returns to the business:

- ➔ Less unplanned downtime, **protecting revenue and reputation**
- ➔ Faster application development, **accelerating time-to-market**
- ➔ Increased IT productivity, **boosting cost efficiency**

3-yr Cost Components	VMware	Red Hat
VMware Subscriptions	$77,952,000	
RHEL Subscriptions	$3,999,262	$3,999,26
OpenShift Subscriptions		$9,670,050
AAP Subscriptions		$7,684,669
Migration Services		$8,968,438
Migration Hardware		$3,654,000
3Y Total Cost	$81,951,262	$33,576,492
Total Cost Savings with OCP		$48,374,770
% Cost Savings with OCP		59%

Example

Additional Benefits of App Modernization to FSI Corp

5-yr VMware Migration Benefits Analysis

	Scenario 1 - "Lift and Shift"	Scenario 2 - "Hybrid Modernize"
Approach	1:1 migration of VMs from VMware to Openshift Virtualization	1:1 migration from VMware plus 20% identified for modernization in-flight
Estimated Benefits	**$53.1M cost savings over Initial 3 years (65% reduction)**	**Overall 5-yr project ROI of 178%**
Annual Software Cost Reduction	**-79% ($26m down to $6m)**	**-63% ($26m down to $16m)**
Benefits to Approach	• Faster migration time • lowest risk profile • lower investment	• Decreased time to market, • improved operational efficiency • Improved dev efficiency
Key Trade-offs	Limited to software cost reduction	Longer migration and investment cost

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Source: IDC report on "The Business Value of Red Hat

Red Hat
Business
Value Practice

Inputs Needed

Inputs needed for a business case analysis

Customer info for business case is a subset of data already being collected for VMA

Red Hat
Business
Value Practice

Engage the BVP member for the VMA kick-off meeting to gather info and explain business case methodology and deliverables.

Customer provided

1. Current customer VMware environment
2. VMware SKUs (existing and/or new), VMware add-ons (NSX, vSAN, SRM, vRA, vRO), and associated pricing
3. RHEL (and other RHEL-derivatives) guest OS
4. *VMware renewal date*

Customer + RH rep provided

1. Openshift SKUs + discount
2. Ansible / ACM and other needed SKUs + discount
3. Consulting costs and migration timeline
4. Training costs (alternatively, number of FTEs needing training on the OCP-V platform)

Current Customer VMware Environment	Customer Input	Details
Number of Data Centers		
Number of VMware Clusters		
Number of ESXi host servers (physical servers)		
# of CPU sockets per server or		typically 2-socket servers are the most common
- Total number of CPU sockets		
# of cores per socket or		16, 32, 64 cores per socket are typical
# of cores per server or		128 is optimal for OpenShift
Total number of cores in environment		
Average VM Density (number of VMs on a single ESXi host server) or		
Total VMs in vSphere Environment		
Average # of cores per VM		Commonly 1-4 cores per VM, but will have high variance for min and max
% of RHEL Guest OS		
% of RHEL derivatives that can be better replaced with supported RHEL(Rocky, Alma, CentOS, OEL)		Needed for RHEL guest OS costs if OKE/OCP/OPP is being used
Qty of memory (GBs)		
Amount of storage per server (GB) or		
- total amount of storage in environment (TB)		
Total number of applications running in the environment		
Any containers running in this environment? (Y/N)		
Any containers running outside of environment, in other parts of the enterprise? (Y/N)		
Current VMware subscriptions (VCF, VVF, EP, VVS, or legacy perpetual licenses)		
If on perpetual legacy VMware subscriptions, which ones and what is the date when they have to renew into subscriptions?		
Cost of VMware licenses and subscriptions		
% of VM estate that could be considered for app modernization effort		Needed for hybrid modernization scenario, where a portion of estate is app modernized. Assume 20% unless stated.
VMWare add-on and 3rd party		
Tanzu products (Y/N) and if 'Y', which ones?		
NSX (Y/N)		
SRM (Y/N)		
vSAN ((Y/N)		
vRO/vRA (Aria Suite) (Y/N)		
Others VMware add-ons (list--see VMware Bundles tab for new SKUs)		
VMware renewal date (optional - used for ROI calculations that involve retiring VMware subscriptions)		
3rd party products used with and to manage the VMware environment. E.g. Veeam for backup and recovery, Zerto for DR, etc		
Are there any hyperconverged infrastructure products incorporating VMware, such as Dell VxRail, HPE Simplivity, vSphere on Nutanix, etc?		

Bare Minimum Customer Inputs needed

Others are nice to have, but we can extrapolate and estimate any gaps

Red Hat
Business
Value Practice

Absolutely necessary input

Almost always 2-socket

Commonly 16, 32, 64 cores per socket
2-socket servers have 32, 64, 128 total cores per server

Need just one input to extrapolate others (assuming either total number of hosts or cores are known)

	Customer Inputs
Number of ESXi host servers (physical servers)	1,000
# of CPU sockets per server or	2
- Total number of CPU sockets	2,000
# of cores per socket or	32
# of cores per server	64
Total number of cores in environment	64,000
Average VM Density (number of VMs on a single server) or	16
Total VMs in vSphere Environment	16,000
Average # of cores per VM	4

Positioning the correct OpenShift edition

Red Hat

Red Hat OpenShift

The platform for all your workloads

Trusted

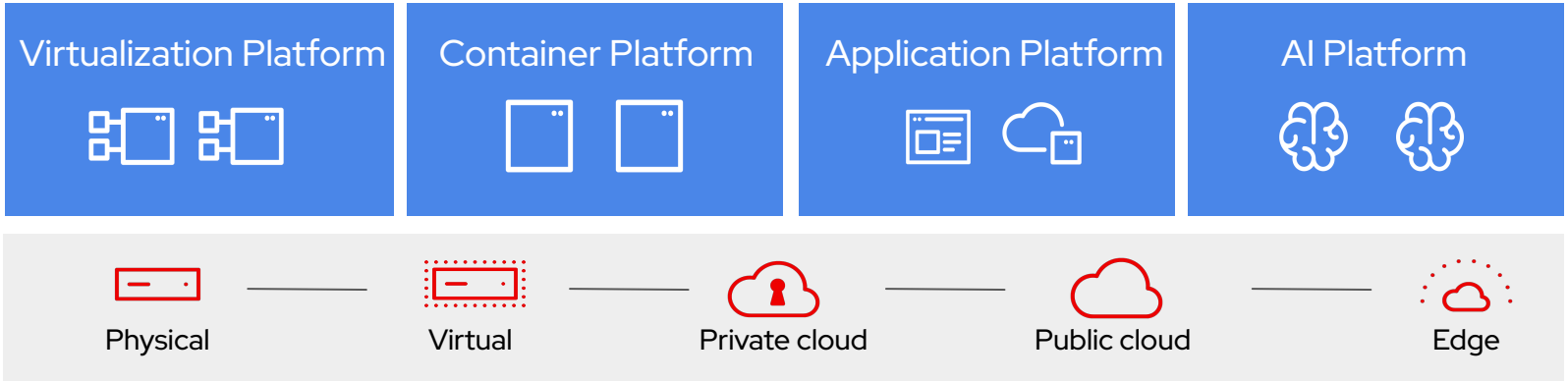
to reduce risk

Comprehensive

to improve productivity

Consistent

to increase flexibility



Super-sizing deals from virt to modernization

Customer Pain	"Complexity in our infrastructure makes it difficult to manage and costly to maintain. It becomes difficult to automate existing processes and deployments across multiple operating systems, platforms and footprints. This impacts our agility, and makes it difficult for us to maintain systems in critical areas, such as security vulnerabilities and performance."	"My VMware costs are going through the roof and I want to reduce my dependency on VMware."	"I need consistent, portable and scalable infrastructure for my containerized workloads and applications across any environment."	My developers spend too much time being distracted by infrastructure and security issues, and not focused on building applications. I need a platform that provides on-demand services, abstracts away operational considerations, speeds time to production, and makes my developers more productive.	"Managing my IT environment is more complex than ever and I don't have enough skills or budget to bring on more resources. I need automated, resilient infrastructure that frees time to innovate by maximizing existing investments and integrating AI tools into operations."	"It's difficult to get started with and scale up AI to meet the needs of my business. There are too many models to choose from and it is very expensive to train and build them into applications. There are also a number of data and security considerations that we are not equipped to handle."
Marketing Campaigns	RHEL	Virtualization	Container Management*	App Platform	Automation	Adopt & Scale AI
Sales Play/ TDP	Server/Cloud Operating System	Virtualization	Container Management	Application Platform	Mission Critical Automation	AI Platform
	Edge & Cloud Offerings					
Sales Tactics-	1. Adopt a standardized operating environment 2. Optimize and secure my operating system 3. Innovate across the hybrid cloud with RHEL 4. Maximize portability in the Cloud	1. VM Migration 2. VM Modernization	1. Kubernetes for general containerized application workloads (non-AI) 2. Kubernetes for third party AI workloads 3. Multicluster management and security at scale for Kubernetes.	1. Modernize legacy apps & develop net-new cloud-native apps 2. Increase developer productivity for kubernetes and hybrid cloud 3. Secure the software supply chain and platform operation	1. Enterprise-wide automation (expanding AAP in the enterprise) 2. Standardize on AAP (converting free to enterprise) 3. Maximize technology investments (AAP + AI/RHEL/Virt/ISV) 4. Network automation	1. Private AI 2. Operationalize AI 3. Multi-architecture AI Deployment
Products	RHEL, Satellite	**OpenShift Virtualization** OpenShift Virtualization Engine, OpenShift Kubernetes Engine, Ansible, ACM, Partner Products	**OpenShift Kubernetes Engine, OpenShift Container Platform, ACM, ACS**	**OpenShift Cloud Services, OpenShift Platform Plus** Developer Productivity, Runtimes & Integration	Ansible	RHEL AI, OpenShift AI

The consistent fabric of the hybrid cloud datacenter

Red Hat Application Foundations

Red Hat OpenShift Developer Services

Red Hat OpenShift AI

Self-Managed Platforms

- **Red Hat** OpenShift Platform Plus
- **Red Hat** OpenShift Container Platform
- **Red Hat** OpenShift Kubernetes Engine

Advanced Management & Security

Multicluster Management | Cluster Security Global Registry | Cluster Data Management

Integrated DevOps Services

Service Mesh | Serverless | Builds | Pipelines | GitOps | Tracing | Log Management | Cost Management | Migration Tools

Kubernetes & Cluster Services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | VMs | Operators | Helm

Red Hat Enterprise Linux — Linux (container host operating system) — **Red Hat** Enterprise Linux CoreOS

Physical — Virtual — Private cloud — Public cloud — Edge

Managed Cloud Services

- aws — Red Hat OpenShift Service on AWS
- Azure — Azure Red Hat OpenShift
- Google Cloud — OpenShift Dedicated
- IBM — Red Hat OpenShift on IBM Cloud

"Once you're running OpenShift, just light up more features"

Red Hat Learning

Hybrid cloud application platform

DRAFT

Red Hat OpenShift

Advanced Management & Security

Multicluster Management | Cluster Security | Global Registry | Cluster Data Management | Compliance & Policy Automation

Integrated DevOps Services

Service Mesh | Serverless | Builds | Pipelines | GitOps | Tracing | Log Management | Cost Management

VMs

Live migration | Auto-scaling | Windows & Linux | Migration toolkit

Containers

Image Registry | Container Runtime | Pod Autoscaling | Resource Quotas & Limits | Namespace Isolation | Container Networking

Kubernetes & Cluster Services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Operators | Helm

Red Hat Enterprise Linux

Linux (host operating system)

Red Hat OpenShift Platform Plus

Red Hat OpenShift Container Platform

Red Hat OpenShift Kubernetes Engine

Red Hat OpenShift Virtualization Engine

Managed Cloud Services

aws

Azure

Google Cloud

IBM

Physical — Virtual — Private cloud — Public cloud — Edge

V0000000

Red Hat

Red Hat

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Fully Automated Installers	✓	✓	✓	✓
Over the Air Smart Upgrades	✓	✓	✓	✓
Enterprise Secured Kubernetes	✓	✓	✓	✓
Hosted control planes	✓	✓	✓	✓
Operator Lifecycle Manager	✓	✓	✓	✓
Administrator Web console	✓	✓	✓	✓
OpenShift Virtualization	✓	✓	✓	✓
Compliance & File Integrity Operators	✓	✓	✓	✓
Virtual machine-based workload hosting	✓	✓	✓	✓
Container-based infra workload hosting	✓	✓	✓	✓
User Workload Monitoring	✓	✓*	✓	✓
Platform Logging	✓	✓*	✓	✓
OpenShift GitOps	✓	✓*	✓	✓
Metering and Cost Management SaaS Service	✓	✓	✓	✓
Container-based user application hosting		✓	✓	✓
RHEL guest and hosted virtual OpenShift subscriptions included		✓	✓	✓
App platform features (Serverless, Pipelines, Service Mesh, etc.)			✓	✓
Developer Application Catalog			✓	✓
Multi-cluster complete management with Red Hat Advanced Cluster Management				✓
Kubernetes-native security with Red Hat Advanced Cluster Security				✓
Scalable, central registry with Red Hat Quay				✓
Persistent software-defined storage and essential data services with OpenShift Data Foundation Essentials				✓

*VMs only.
Learn more.

Red Hat

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Enterprise Secured Kubernetes	✓	✓	✓	✓
Hosted control planes	✓	✓	✓	✓
Operator Lifecycle Manager	✓	✓	✓	✓
Compliance & File Integrity Operators	✓	✓	✓	✓
Virtual machine-based workload hosting	✓	✓	✓	✓
Container-based infra workload hosting	✓	✓	✓	✓
User Workload Monitoring	✓*	✓*	✓	✓
Platform Logging	✓*	✓*	✓	✓
OpenShift GitOps	✓*	✓*	✓	✓
Metering and Cost Management SaaS Service	✓	✓	✓	✓
Container-based user application hosting		✓	✓	✓
RHEL guest and hosted virtual OpenShift subscriptions included		✓	✓	✓
Runtimes, Build Tools, and IDE			✓	✓
CI/CD Pipelines			✓	✓
Serverless			✓	✓
Service Mesh			✓	✓
Tracing			✓	✓
Multi-cluster complete management with Red Hat Advanced Cluster Management				✓
Kubernetes-native security with Red Hat Advanced Cluster Security				✓
Scalable, central registry with Red Hat Quay				✓
Persistent software-defined storage & essential data services with OpenShift Data Foundation Essentials				✓

*VMs only. Learn more.

Virtualization Platform (OVE)

Trusted and consistent across hybrid cloud

Operate VMs	GitOps for VMs	Observability	VM Logging	Virtual machines
VM Security		Security policies	Cert & secret tooling	Auth and SSO services

Container Management Platform (OKE)

Trusted and consistent across hybrid cloud

Operate VMs and Containers	GitOps for VMs	Container registry	Observability	VM Logging	Virtual machines
VM and Container Security			Security policies	Cert & secret tooling	Auth and SSO services

Application Platform (OPP/Cloud Services)

Trusted, comprehensive, and consistent across hybrid cloud

Application Build	Runtimes & languages	Developer Tools	Serverless & functions	Cloud Services APIs	Migration tools
Application Delivery	CI/CD & GitOps	Container registry	Observability	Logging	Virtual machines
Application Security	Service mesh	Vulnerability scanning	Security policies	Cert & secret tooling	Auth and SSO services

Know How to Position OpenShift

	Virtualization	Container Management	Application Platform
Core OpenShift Product	OVE	OKE	OPP/Cloud Svcs
Competing Products	vSphere, Hyper-v, Nutanix AHV, Rancher Harvester	VMware VVF/TKG, Nutanix NKP, SUSE/Rancher RKE, Spectro Cloud, Canonical, Mirantis, FOSS (DIY upstream), EKS, AKS, GKE	VMware Tanzu Platform, Heroku, AWS AppRunner, Azure AS, Google App Engine
Pricing Pressure (Need to discount)	Medium	High	Low

Virtualization with Red Hat

Supporting your Virtualization journey

A customizable approach based on your business needs and your current readiness state

Learn

Virtualization Roadshows and Workshops

Workshops around the world with **virtualization admins** to show them how they would manage this **modern environment**

Strategy

Virtualization Migration Assessment

Identify current VM architecture, **analyze** workloads, and **propose a** high-level design and **roadmap** for a strategic critical **path forward**

Foundation

Virtualization Migration Proof of Value

Deploy OpenShift cluster, **enable and validate** virtualization features, **automate** Day 2 Operations

Expand

Virtualization Migration Factory

Address expenses by prioritizing and planning to **repeat** migration patterns, **validate** migration and **retire** your legacy platform

Evolve

Optional

App Modernization and Automation Accelerators

Maintain your existing VM investments and work towards modernizing applications **when you're ready**

Services + Training + Technical Account Management

Red Hat Learning

Red Hat Services

Red Hat Services for OpenShift

Services Solutions from Virtualization Migration to App Modernization

Virtualization Migration

Virtualization Migration Assessment (VMA)

Virtualization Proof of Value

Virtualization Migration Factory

Key Customer Outcomes

- Plan to quickly & safely migrate from legacy virtualization platform
- Prove virtualization technology. Prepare and operate at scale
- Production ready platform for VMs
- Achieve steady state migration and reduce legacy footprint

Application Modernization

App Modernization Accelerator

App Portfolio Assessment

Scaled App Modernization

Key Customer Outcomes

- Accelerated app onboarding
- App portfolio assessment & modernization
- Scaled app modernization patterns to reduce tech debt

Training and Certifications for Admins & Devs | Technical Account Management

Engage your Services Sellers for a Discovery Session today!

Red Hat Provides Customers with Options

Paths to Virtualization, Containerization & Application Modernization

Example Client Mix of OpenShift Environments

~70%	~15%	~15%
$	$$	$$$
"Get me off this platform"	*"Get me to a better platform"*	*"I'm ready to do it all"*
Migrate	**Migrate to Modernize**	**Modernize**
VM → VM	VM → VM + Containers	VM → App platform

OpenShift Virtualization Engine (OVE)	OpenShift Kubernetes Engine (OKE)	Openshift Platform Plus (OPP)
Only	*Mixed*	*Cloud Native Build/Modernize*
Virtualization	*Container & VMs Management*	*Application Platform*

NOTE: Many Customers will simply want to rehost / migrate their existing VMs to a new trusted platform. For this use case, OVE + ACM-V + Ansible is the low cost approach. However, for customers that have already invested in containerized applications they can run a portion of their environment using OKE + ACM supporting a mixture of VMs and Containerized customer applications. Finally, customers who have a portion of their environment undergoing new development or that wish to modernize their existing legacy applications; then modernization with Red Hat using OpenShift Platform Plus is the ultimate in cloud-native application platforming option. This mix provides customers with choice to run the right openshift entitlement; for the right workloads; in the right location - Data Center, Cloud or Edge.

Red Hat

The consistent fabric of the hybrid cloud datacenter

Always plant the Container Management and App Platform seeds for modernization during VM migration sales

"Once you're running OpenShift, just light up more features"

Activity #3: Profile your customer

Suggested time:
20 minutes

Your goals:

1. Plot your customer's **virtualization path**.
2. Identify your **customer's nuances**: pain points, needs, and how we align to both.
3. As a group, discuss your results.

One person from each group should be prepared to share their work with the room.

Workbook: Page 4

Get in the head of the decision maker

Decision Maker / Economic Buyer: CIO, CTO, CRO

Focus: Corporate goals, overall health of the organization
Strategic goals • Revenue growth • Innovation • Calculated risks

Pref. Language: $, ROI, EPS, Strategic Goals

Technical Proficiency: Low to Medium

Get in the head of the line of business owner

Line of Business - AKA: Application Owner, Department Head

Focus: Meet targets for their department or team
Speed to market • Cost (hard and soft) • Risks Minimization

Pref. Language: Business Impact, Scalability, Compliance

Technical Proficiency: Medium

Get in the head of the VMware admin

VMware Admin: Administrators, Infrastructure Architects

Focus: Simplify Migration & Reduce Operational Risk
Speed to Migration • Minimize Disruption • Flexibility & Scalability

Pref. Language: Consistency, Scalability, Efficiency, Security, VMware

Technical Proficiency: High

Present a compelling solution to the business buyer

BUSINESS OBJECTIVES  SOLUTION ENABLERS  BUSINESS IMPACT 

- Group business objectives into value categories relevant to your customer.
- Identify product-solution enablers that match the customer's key objectives.
- Identify the expected impact of the business capabilities that the solution enables.

Red Hat Virtualization enables business objective achievement

BUSINESS OBJECTIVES	SOLUTION ENABLERS	BUSINESS IMPACT
Cost Optimization	**ECONOMIC BUYER:** Create a strategy to offset current inflationary VM pricing	ECONOMIC BUYER: Reduce Software Costs
	APP OWNER: Integrated platform includes VMs, Kubernetes, and Application Platform for application lifecycle management with minimal disruption on any infrastructure.	APP OWNER: Increase resiliency and developer productivity
	VMWARE ADMIN: Simplify the management of fleets of VMs under a single pane of glass with increased observability	VMWARE ADMIN: Reduce infrastructure management effort

Your plan

What good looks like

1 Identify gaps

- What customer information do you need to learn more about?
- What tools can you leverage to help you do this?

2 Build your plan

- How will you use your value map?
- Keep in mind the components on the right

WHO: Contact

WHAT: Your Goals

WHEN: Timing & Preparation

RISK: Pre-empting risk

Discussion

- What did you learn? Where were your customers on their virtualization path?
- What were your common gaps, and how were you approaching them?
- What will you do differently with your opportunity and future opportunities?

Technical Sales: Conducting Technical Risk Assessments (the risk line)

Presenter: SSA

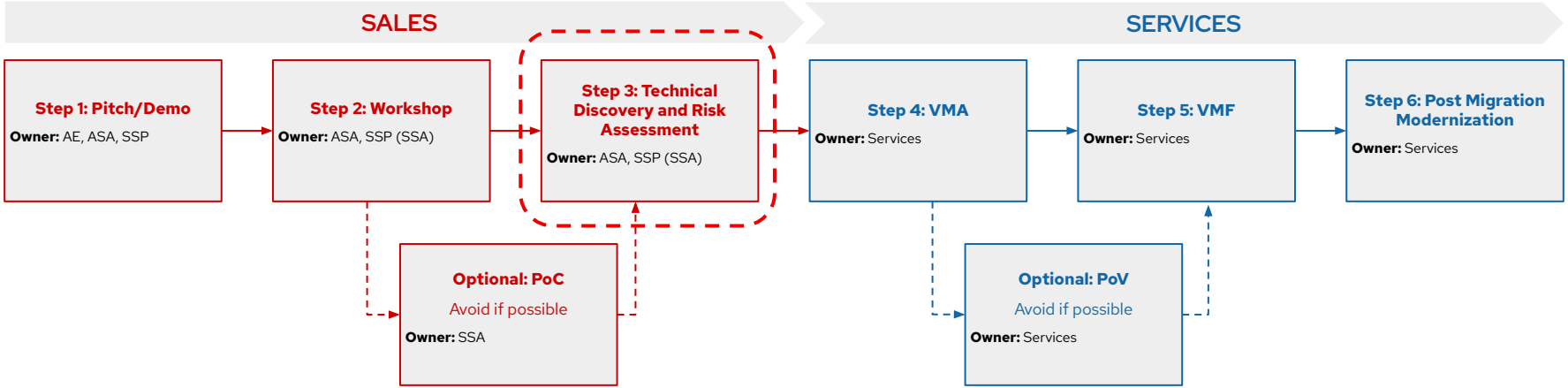
90 Minutes

Red Hat Learning

Objectives and Outcomes:

1. Know how to assess a customer's current environment
2. Understand the tools available to you
3. Understand what Red Hat and 3rd party software options are available to address the customer's needs

Virtualization Sales and Delivery Path

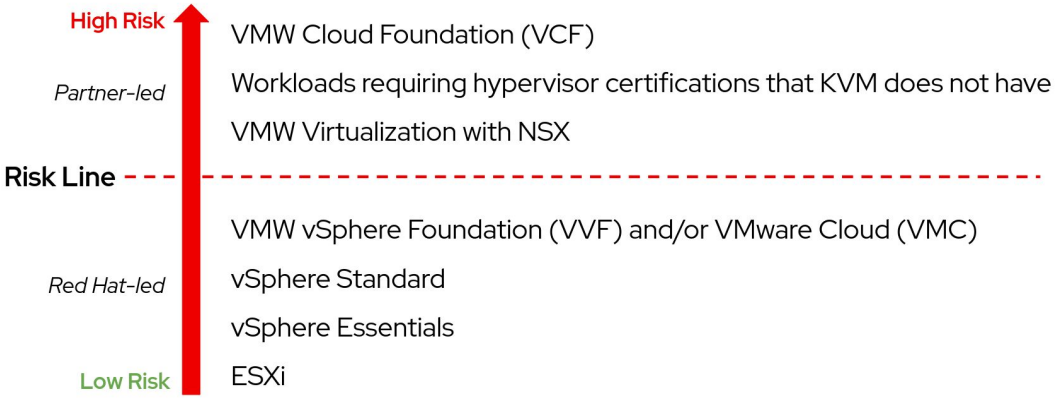


⚠️ All created assets should be stored in RHSC, see guidance here

Red Hat Learning

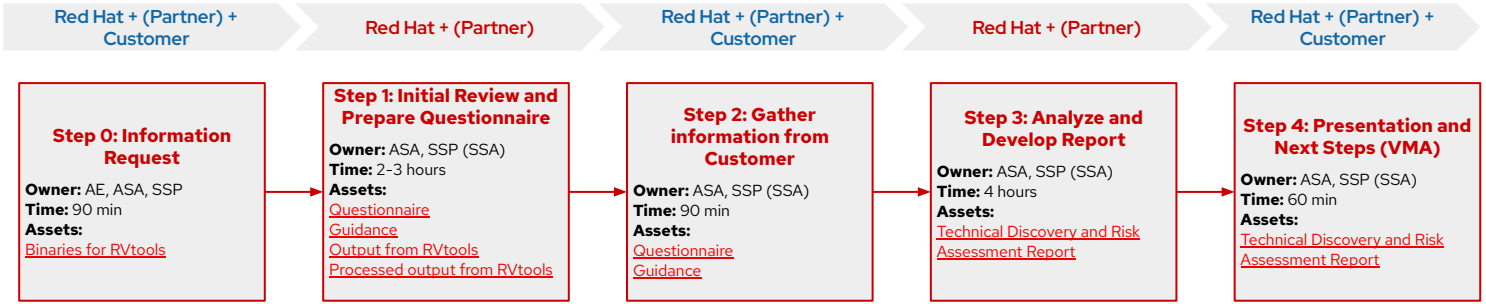
Presales Tech Discovery and Risk Assessment

- Presales activity to be performed **before** the VMA
- Process to follow together with the customer to perform a **high level** assessment of the current situation and their commitment to migrate
- Needed to set the **Risk Line** and decide if it is a Red Hat or partner-led opportunity



Red Hat Learning

Presales Tech Discovery and Risk Assessment



Red Hat Learning

Information Request

Participants: AE, SSP and/or ASA

If possible, get a customer commitment to provide **the RVTools report** (**in Excel format**). Example

It is known that some customers need relatively long time to internally request such information (virtualization is usually managed by an outsourcing company or a different organizational unit), so this is suggested to introduce this information need during the very first interaction (Step 1: Pitch/Demo) in the context of the overall process overview, in order to manage customer expectations.

RVTools is a free management tool for VMware present on most of VMware environments. Generates a MS-Excel report of VMware infrastructure.

- If the customer is willing to provide the full report, use the provided binaries* to compose the processed report.
- If the customer is providing just part of the report, or can't provide it for whatever reason (i.e. sensitive information), it is better to send them the binaries* so they can use them themselves on the full reports. Partial reports can't be analyzed.
- This report gives us a condensed view of the original one, easier to read and analyze.

* Source code contributed by Mario Mendoza, available here

Initial Review and Prepare Questionnaire

Participants: SSP and/or ASA with Assistance from OpenShift SSA / Architect

Gather all possible information from previous steps, including any output from the Proof of Concept if any.

- In the case the customer has shared the RVTools output, remember to use the provided binaries* to compose the processed report. It will provide information for some sections (*Sizing* and *Operating Systems*) of the Questionnaire so the customer doesn't have to fill those out.
- In the case the customer prefers not to share any information, the sections corresponding to *Sizing* and *Operating Systems* from the Questionnaire will have to be filled out manually by the customer.

⚠️ Important! Review the Questionnaire as well as the Guidance to prepare the meeting with the customer. Remember that the Guidance is an **internal only** document

* Source code contributed by Mario Mendoza, available here

Gather Information from Customer

Participants: SSP and/or ASA with Assistance from OpenShift SSA / Architect

Use the Questionnaire as well as the Guidance to gather all the information from the customer.

The Guidance is meant to help you find possible issues for the migration project, so it is focused on those possible issues. During you conversation with the customer, focus mainly on use cases instead of specific functionalities. Avoid to engage in a feature-by-feature comparison.

⚠️ Important: The Guidance document is **internal only**!

Analyze Information and Develop Report

Participants: SSP and/or ASA with Assistance from OpenShift SSA / Architect

Use all the information provided by the customer and the condensed report to build a high level document to assess the migration risk. This document will be reviewed together with the customer.

⚠️ Important: This exercise in no way replaces the rigor of the VMA but is very valuable for Services in the case we progress to a VMA

Presentation and Next Steps

Participants: SSP and/or ASA with Assistance from OpenShift SSA / Architect

Review the high level document with the customer to explain the migration risk if any.

Get a commitment from the customer to progress to the VMA.

Resources

Google Drive Folder

- RVTools report Example
- Binaries to process the RVTools report
- Processed RVTools report Example
- Guidance to complete the Questionnaire
- Questionnaire
- Report Template

Additional Resources

- Virt Power 90: Internal ISV Guidance for up to date information about the OpenShift Virtualization ecosystem evolution, challenges and concepts you will find around virtualization, objection handling, etc.
- OpenShift Virtualization Sales Play for a broad understanding of OpenShift Virtualization related messages and other useful resources for better understanding of Red Hat's position in the virtualization arena.
- OpenShift bare metal subscription changes-internal enablement-Q1-CY25 (revised)
- OpenShift subscriptions - bare metal | Sales FAQ
- Internal Red Hat: OpenShift Virtualization Capabilities and Workflow mapping
- Virtualization Migration Journey for an overview of the services Red Hat can provide as next steps after the pre-sales phase (in collaboration with Red Hat's Consulting Services).

Third party solutions

Software Infrastructure

Storage | Networking | Backup & disaster recovery

Run your business-critical applications with increased scalability and resilience. ISV storage partners provide container-native solutions to migrate and scale critical data in OpenShift Virtualization, minimizing downtime while supporting business growth.

1 of 2

Dell Container Storage Modules
by DELL
Easily install and manage Dell's CSI Drivers and CSM
Containerized application

NetApp Trident
by NetApp
Data connectivity to persistent data stores for Kubernetes applications
Solution

IBM Fusion
by IBM Japan, Ltd.
The easiest way to deploy OpenShift applications and watsonx.
Containerized application

Infinidat InfiniBox® Container Storage Interface (CSI) Driver
by Infinidat Ltd.
CNCF-compliant Kubernetes integration for InfiniBox storage systems, offering...
Containerized application

Browse all storage products →

red.ht/workswithvirt

Partner Assessment Dashboard - Internal only (ask your PAM for updated information)

Activity: Red Flag Challenge

Suggested time:
40 minutes

Your goal:

Find the **technical risks** in your opportunity and **identify mitigations** for those risks. Discuss your risks and mitigations with the group - ask for and apply feedback.

Each group should be prepared to share one or two risks and mitigations with the room

Workbook: Page 2

Discussion

- What were the most common “red flags” - technical risks?
- What mitigations are most common? What gaps remain?
- What will you do differently with your opportunity and future opportunities?

20 Minutes

Lunch

Time we will get started:

1:00 PM

Have you checked in already? If not, check in now (Red Hatters only)

*Real time retro

Red Hat Learning

Technical Sales: Communicating technical value during the Virtualization Roadshow

Presenter: SSA

150 Minutes

Red Hat Learning

Objectives and Outcomes:

1. Brief introduction to the Virtualization Roadshow

2. Understanding the “Hostile Witness” mindset of the audience member and how to address the audience with messages that resonate with them

3. Digging deeper into the “What’s in it for me” (WIIFM) for the capabilities provided by OpenShift Virtualization as compared to those provided in VMware

4. Understanding what enhancements are underway to improve on the roadshow workshop.

Helpful Hint!: See the EPW session on by Ed Keen on Positioning the VMA & VMX for more detail

Pave a Path Forward: SSAs sharing a view into next steps:

- Workshop to POC
- Workshop to VMA
- Workshop to Full Migration Factory

OpenShift Virtualization Roadshow
aka The Workshop

- This half day workshop is Red Hat's premier hands-on experience for VM admins and infrastructure architects to experience OpenShift Virtualization.
- While many attendees will be skeptical - even hostile - the workshop is an opportunity to introduce technical stakeholders (largely long time VMware Admins) to the similar features found in Red Hat OpenShift Virtualization.
- The Objective of the Workshop is to help these technical stakeholders gain confidence in their ability to become successful using Red Hat as the preferred alternative to VMware.
- While would we love for all of our attendees to become Red Hat Champions, it is reasonable for us to simply transfer enough confidence to them to get to neutral.

* Always consider using https://www.redhat.com/en/interactive-experiences to demonstrate confidently!

Red Hat Learning

The RoadShow (workshop) Provides Technical Stakeholders with a hands-on Experience to explore how OpenShift Virt handles...

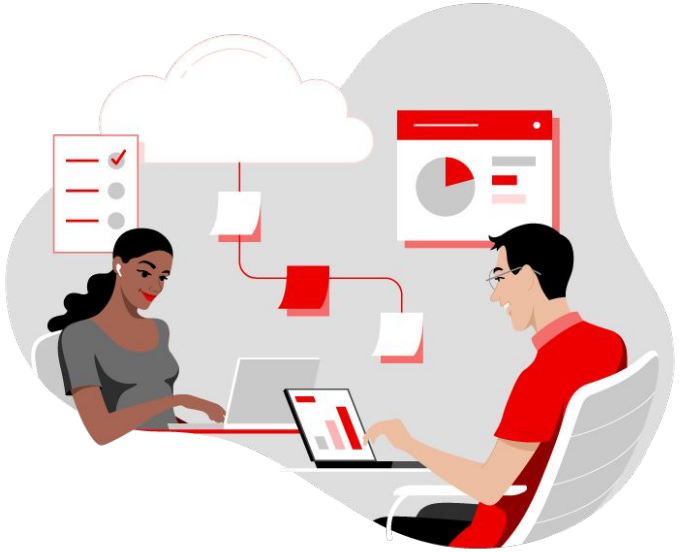
- **Virtual machines**
  Provisioning, management, and live migration
- **Migration**
  vSphere to OpenShift Virtualization
- **Storage Management**
  VM disks, Snapshots, VM Cloning
- **Backup and Recovery**
  Storage agnostic solution
- **Templates and Instance Types**
  Preconfigured VMs
- **Virtual machines and Applications**
  Day-2 Operations

Knowing your Audience

VMware admins have spent their decades-long careers building their skills within a proprietary technology suite. They have racked up certifications, built speed through mastery in using the VMware interface, and absorbed the VMware culture through participation in the VMWare community. The problem isn't the technology...its the cost and lost trust in the supplier.

VMware Administrators

- Want OpenShift Virt to be like VMware
- They are not necessarily familiar with Kubernetes
- Don't want to use YAML
- Don't differentiate between namespaces vs folders
- Want a refined and intuitive UI
- See migrations as something long and complex



Quick Reminder !

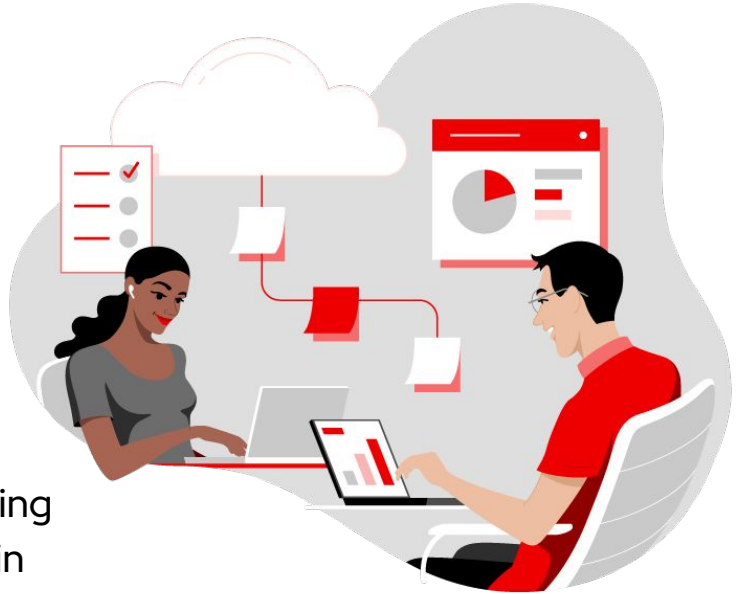
Delivering Roadshow content with confidence

Being of Value
Showing expertise in...

Being relevant to the audience by addressing their business needs and personal concerns.

Being comprehensible in the way the stories are told.

Being prepared by knowing the Lab*, having story episodes, and the aspired outcome in mind.

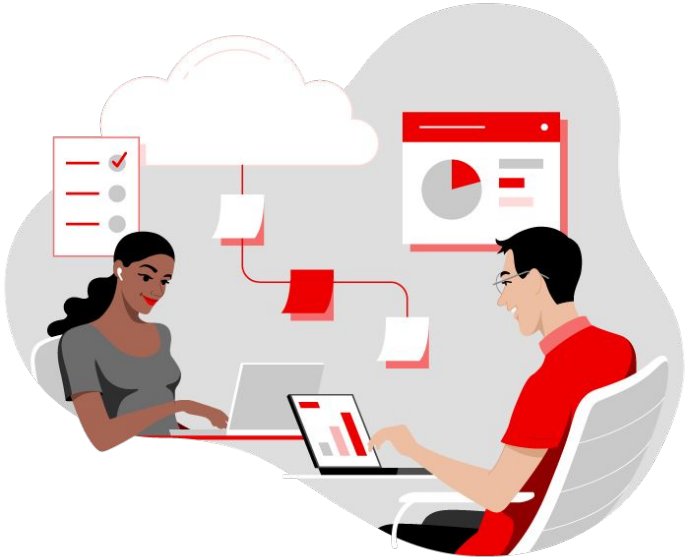


* Always consider using https://www.redhat.com/en/interactive-experiences to demonstrate confidently!

Red Hat Learning

Tips to improve the experience

- Start with the most interesting part: **Migration** from VMware to get their attention
- Avoid focusing on Modernization and focus instead on Migration
- Avoid using Kubernetes and container jargon as much as possible
- Explain how the projects/namespaces structure works vs their experience with folders
- Reminder to provision early and account for the number of participants
  partner.demo.redhat.com
- For large events create an RHDP help ticket and they will help with provisioning and support.



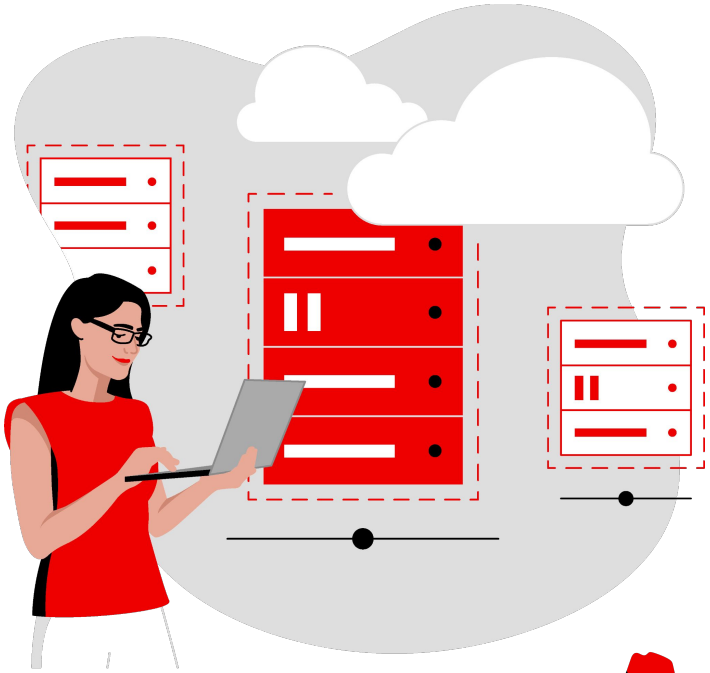
Bring traditional virtual machines into OpenShift Virt

Traditional VM behavior in a modern platform

- Administrator concepts and actions
- Network connectivity
- Live migration

Use existing VM roles and responsibilities

- Migrate traditional VMs easily with a set of comprehensive tools
- Maintain application components that are business critical
- Modernize application workloads and skill sets over time

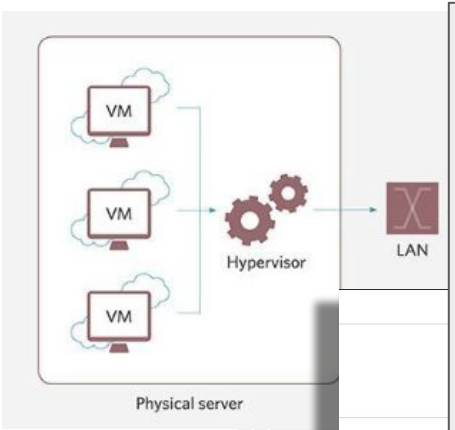


OpenShift Virt Basics

Terminology comparison

Feature	OpenShift Virtualization	vSphere
Where VM disks are stored	PVC	datastore
Policy based storage	StorageClass	SPBM
Non-disruptive VM migration	Live migration	vMotion
Non-disruptive VM storage migration	Storage Live Migration (4.17, 4.18 **TP**)	Storage vMotion
Active resource balancing	Pod eviction policy, descheduler	Dynamic Resource Scheduling (DRS)
Physical network configuration	nmstate Operator, Multus	vSwitch / DvSwitch
Overlay network configuration	OCP SDN (OpenShiftSDN, OVNKubernetes, and partners), Multus	NSX-T
Host / VM metrics	OpenShift Metrics, health checks	vCenter, vROps

Virtual machine live migration



What's in it for me?

There is an already existing ecosystem of non-VMware technologies in all organizations. OpenShift Virt is not meant to be a disruptive/prescriptive solution and it can integrate with the already existing products.

However, technology providers have varying levels of integration maturity with respect to OpenShift Virt. It's important to understand the capabilities and limitations of the non-Red Hat technologies that you have in place today. Ecosystem Catalog

Live Migration requirements

of moving a virtual

cal host to another

ations or causing

cts for the end user.

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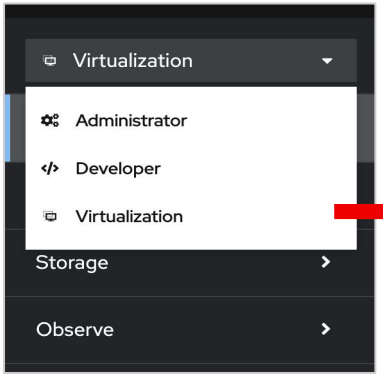
nanagement, load

tenance.

Red Hat Learning

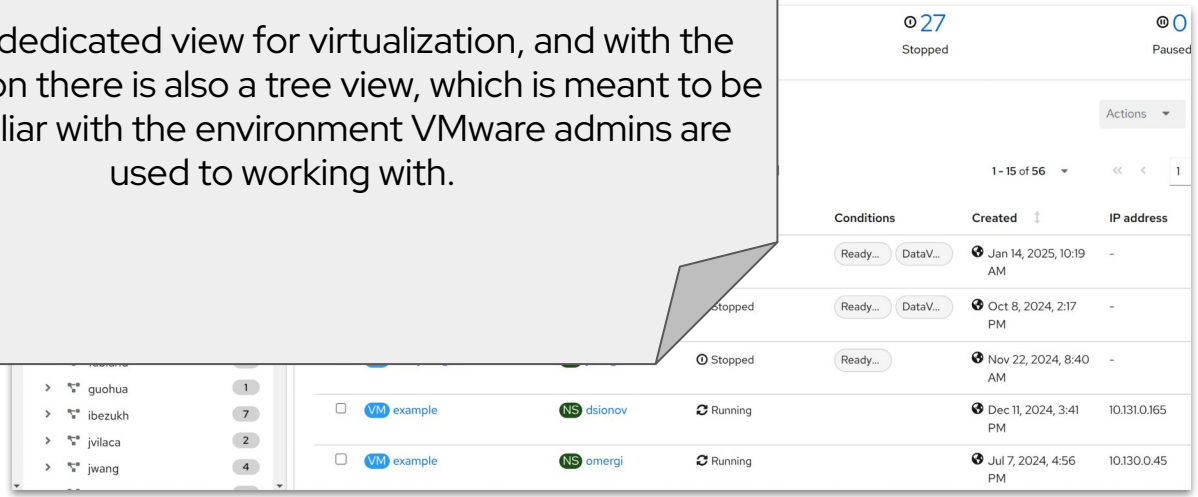
Management



What's in it for me?

Red Hat is rapidly developing specific features in OpenShift Virtualization to make it more friendly for VMware admins.

There is a dedicated view for virtualization, and with the latest version there is also a tree view, which is meant to be more familiar with the environment VMware admins are used to working with.



Admin - Svetlana Rubio

***Mission**:*
Maintain the reputation of stability of the IT Dept's virtualized environment

---

CHALLENGE
Take over more responsibility and reach a higher level of influence

Personal Objective:
Maintain her personal reputation as being highly skilled and efficient in her job. Wants to avoid new technologies impacting her ability to manage her work/life balance.

6/10 *Influence / Power* 4/10

05:00

Discussion Time – Virtual Machine Management

Think about what it means for this individual administrator and discuss the effective use of the workshop to convince Svetlana.

Red Hat Learning

Migration Toolkit for Virtualization

Migrating VM based applications with from VMware with minimal disruption

Migratio

- Simple

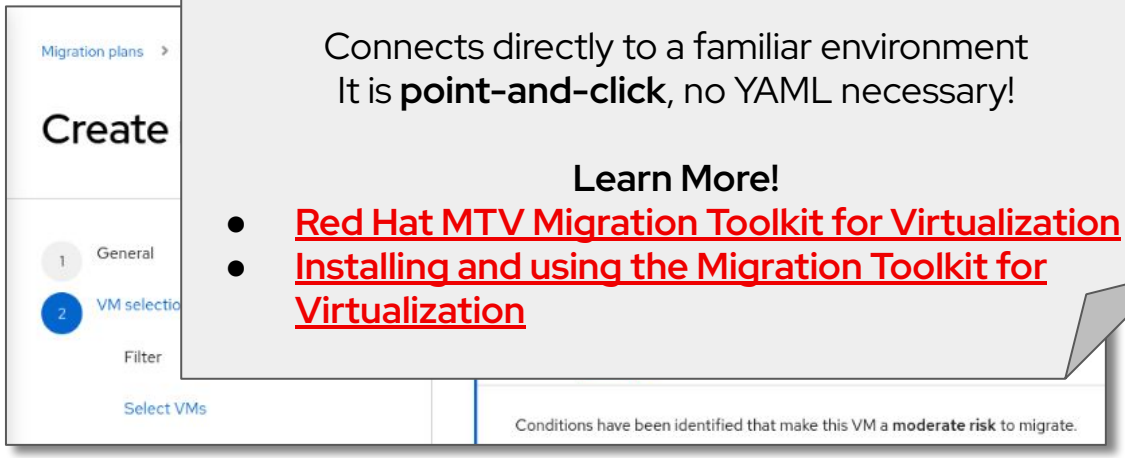
What's in it for me?

Supported method to easily migrate from vSphere
Analyzes potential issues before migrating
Allows to develop a **plan** before migrating.

Connects directly to a familiar environment
It is **point-and-click**, no YAML necessary!

Learn More!

- Red Hat MTV Migration Toolkit for Virtualization
- Installing and using the Migration Toolkit for Virtualization



Automating the virtualized application lifecycle

Install application

Orchestration

balancers, and firewalls
s Hosted database services,
nctions
) ServiceNow ITSM, service
ps
onse, and remediation
/CMDB

Optimize

Perform VM guest modifica
installing vm tools

Automation for virtual ma

Deprovision

e or stop virtual machine when
tion is no longer required

ation for OpenShift
ization

Deploy VM

Provision virtual machine with specified resources on to OpenShift Virtualization

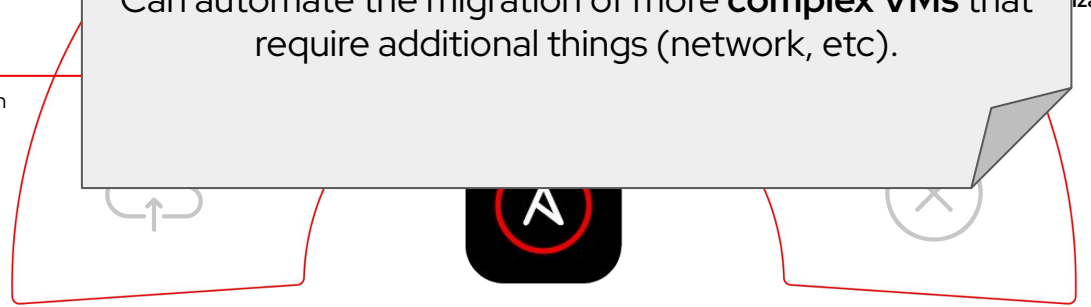
Automation for OpenShift Virtualization

What's in it for me?

Accelerate from the click-ops model to rapidly move thousands of VMs vs one at a time.

Can **automate** the migration and the complete life cycle of the VM with a single tool.

Can automate the migration of more **complex VMs** that require additional things (network, etc).



Red Hat Learning

Red Hat Demo Platform — Experience Red Hat OpenShift Virtualization

Admin - Kim Knopf

MISSION
Automate everything is my second name

CHALLENGE
Constant fight creating proper documentation

Personal Objective:
Takes pride in finding information on her own. Prioritizes self reliance and independence.

6/10 *Influence / Power* 4/10

Goals

Discussion Time

Migrating existing VMs

05:00

Think about what it means for Kim and discuss the effective use of the workshop assets to convince help her find new ways to accelerate her own learning.

Red Hat Learning

Storage Capabilities while using OpenShift Virt

Storage

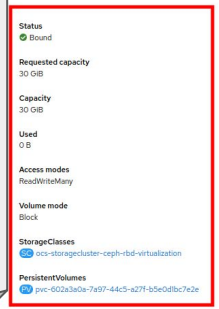
- OpenShift Virtual
  PersistentVolume
- Use dynamically
- Shared storage (
- Disks are attache
  - Connection
- Boot order custo

What's in it for me?

Red Hat works with many Storage solution providers!

Its **CRITICALLY IMPORTANT** that you convey that we need to find out what a customer is already working with and bring that partner into the solution.

Helpful Tip!: Be careful with product or CSI versions, as partners are quickly updating and improving drivers



Red Hat Learning

Backup and Restore a VM

OADP Operator

OpenShift API for Da
the fo

- **Backup:** You can back
  filter the resources by type

  OADP backs up Kubernete
  them as an archive file on

  You can restore resources
  objects in a backup or filte
  label.
- **Schedule:** You can sc
- **Hooks:** You can use ho
  pod

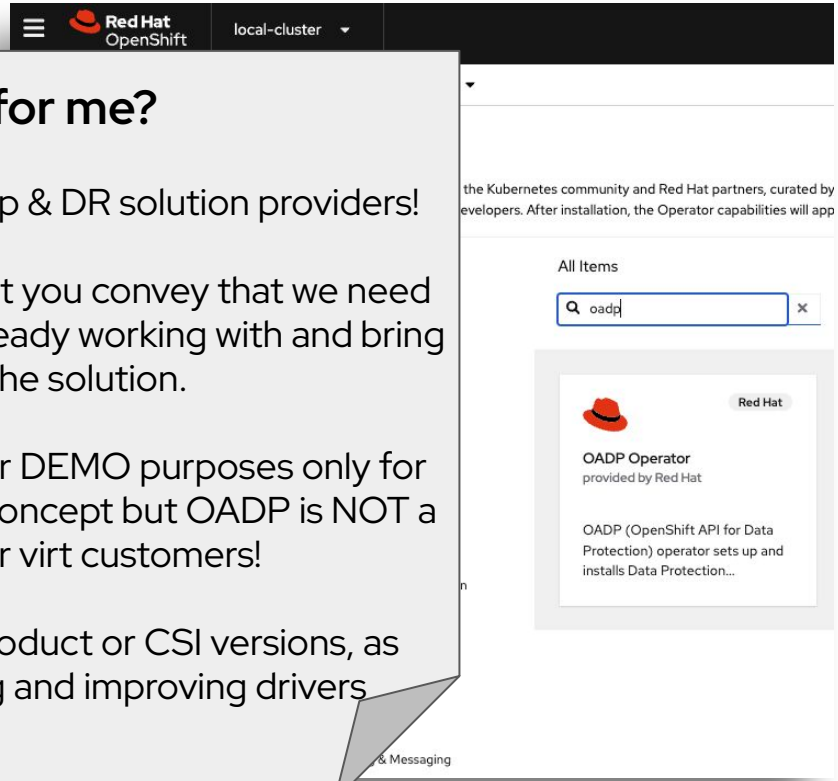
What's in it for me?

Red Hat works with many Backup & DR solution providers!

Its CRITICALLY IMPORTANT that you convey that we need to find out what a customer is already working with and bring that partner into the solution.

Our Agnostic OADP tooling is for DEMO purposes only for Virt! This is to demonstrate the concept but OADP is NOT a production solution for virt customers!

Helpful Tip!: Be careful with product or CSI versions, as partners are quickly updating and improving drivers



Red Hat Learning

Backup Solutions for Red Hat OpenShift

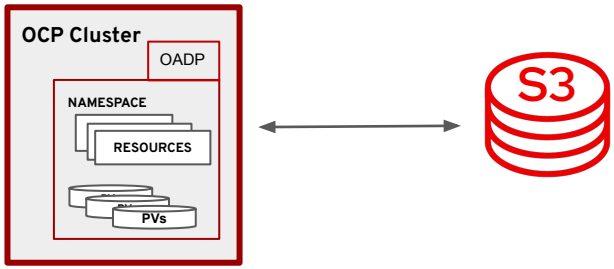
OpenShift OADP 1.14- Native backup utility with 4.14 and higher

Business Continuity

OpenShift native backup utility

-or-

IBM Spectrum Protect, Veeam, Dell, Trilio, Veritas, Commvault



- **Application level (Namespace), consistent backups with OADP**
- CLI based **scheduling and management** of backups
- **Built-in data mover** enables CSI-based storage snapshots to be backed up to a remote S3 compatible object store.
  - **Plugable DataMover** support (ie. VolSync)
- **Supports** all **OpenShift storage provisioners** that also support **CSI Snapshots**

Discussion Time - Backup and Restore a VM

05:00

Think about what does this mean for this individual administrator (happy with the Backup solution already in place and takes care of resilience) and discuss the effective use of the lab assets to convince Patty.

Red Hat Learning

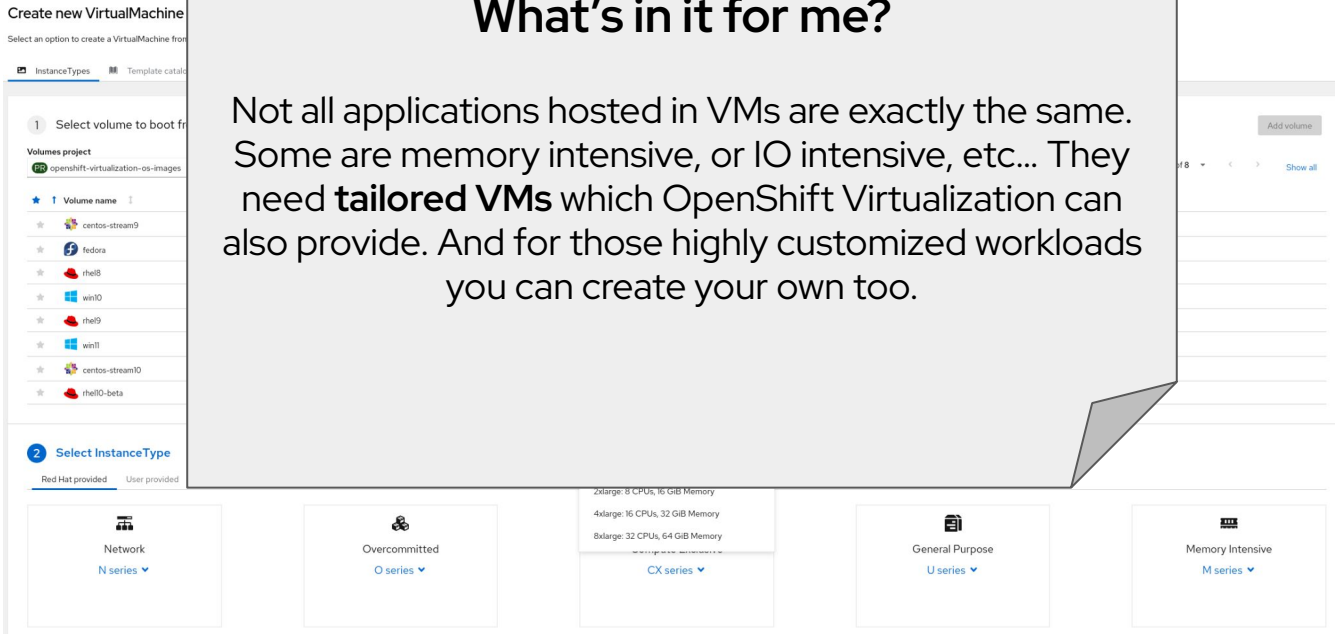
Templates and Instance Types

Instance Types

Public cloud experience for VM creation using Instance Types

- Streamlined V
- Instance type
  - Ne
- Simplifies De

ntensive

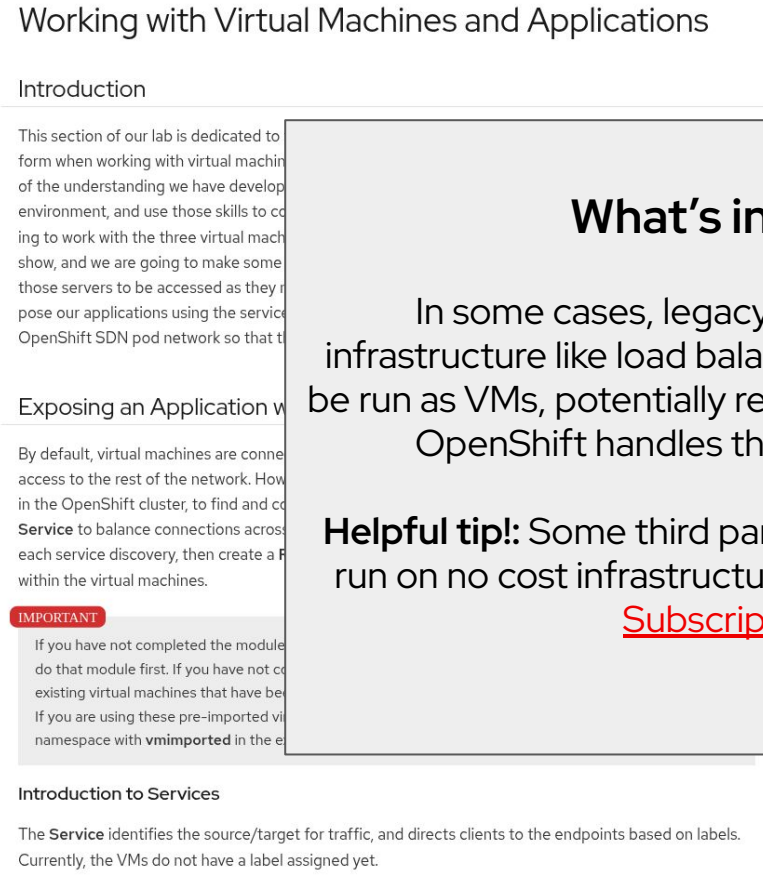


What's in it for me?

Not all applications hosted in VMs are exactly the same. Some are memory intensive, or IO intensive, etc... They need **tailored VMs** which OpenShift Virtualization can also provide. And for those highly customized workloads you can create your own too.

Red Hat Learning

VMs and Applications



Working with Virtual Machines and Applications

Introduction

This section of our lab is dedicated to
form when working with virtual machin
of the understanding we have develop
environment, and use those skills to co
ing to work with the three virtual mach
show, and we are going to make some
those servers to be accessed as they r
pose our applications using the service
OpenShift SDN pod network so that t

Exposing an Application w

By default, virtual machines are conne
access to the rest of the network. How
in the OpenShift cluster, to find and co
Service to balance connections across
each service discovery, then create a **R**
within the virtual machines.

IMPORTANT

If you have not completed the module
do that module first. If you have not co
existing virtual machines that have be
If you are using these pre-imported vi
namespace with **vmimported** in the e

Introduction to Services

The **Service** identifies the source/target for traffic, and directs clients to the endpoints based on labels.
Currently, the VMs do not have a label assigned yet.

What's in it for me?

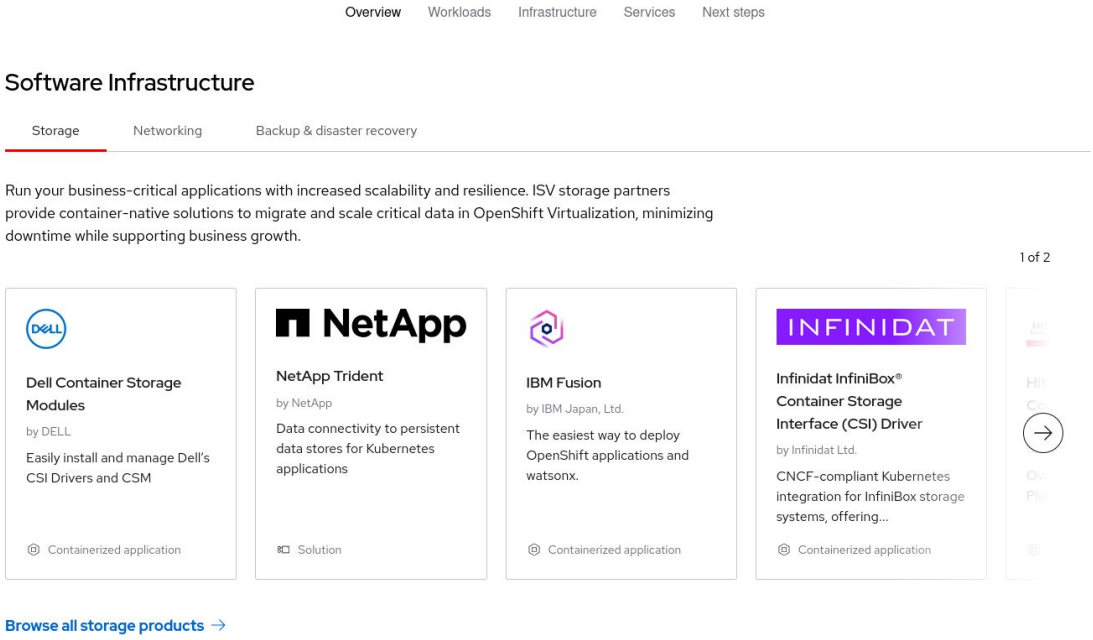
In some cases, legacy VMs that were hosting infrastructure like load balancers, etc.. no longer have to be run as VMs, potentially reducing the resource usage, as OpenShift handles that functionality natively

Helpful tip!: Some third party applications are eligible to run on no cost infrastructure nodes. More details in the Subscription Guide

Red Hat Learning

Ecosystem enhancing Red Hat OpenShift Virtualization

A growing infrastructure ecosystem



red.ht/workswithvirt

Red Hat Learning

Storage automation for virtual machines and containers

- Flexibility and Mobility
  - VM Live Migration, VM High Availability
  - Cold migration between clusters
  - Storage policy-like experience via StorageClass
- Day 2 Benefits
  - Automated capacity management via Autopilot (Filesystem extension handled externally)
- DR and Data Protection
  - Async DR with only two OpenShift clusters required
  - Sync DR with less complexity and more flexible failover options
  - VM auto-detection and simple backup and restore

Kubernetes Data Protection and Mobility

K10 5.5 launched in October 2022 with VM capabilities

- Discover VMs: snapshot VM configuration and VM storage
- Freeze a VM before snapshot (optional annotation) w/ timeouts and unfreeze
- Restore VM snapshots with resource transforms and automatic orchestration

K10 enterprise features apply to VM workloads for automated data protection

- Apply K10 policies to virtual machines
- Export and import virtual machines for disaster recovery and virtual machine mobility between clusters

TRILIO

Disaster and recovery

"Significantly accelerate time to market, while ensuring reliability and quality of the overall solution."

Rolled out a greenfield large scale application at the core where some components had to be in virtual machines. Architect, develop, test, and scale production-like deployments many months before a containerized version of applications being available.

- 100s of sites consolidated to run on minimum amount of hardware
- Accelerate solution by several years using non-containerized workloads

storware
BACKUP AND RECOVERY

Storage Automation for virtual machines and containers

Discover enterprise-grade data protection for the Red Hat ecosystem- now with Red Hat OpenShift Virtualization support

- Automated and scheduled backups
- Policy-Driven backup and recovery
- Incremental backups and deduplication
- Backup catalog and metadata management
- Granular recovery options
- Recovery verification
- Encryption and data integrity
- Role-based access control
- Wide range of backup destination options including file system/object storage, tape pools and legacy backup systems (IBM/Dell/Micro Focus and others)

Pair IBM data services with Red Hat OpenShift Virtualization

Manage virtual machines with operators and CRDs

- Windows and Linux virtual machines
- Common GitOps management tools
- Common fusion container-native storage layer

Define application-aware backups with “recipes”

- A fusion recipe defines workflow to backup and restore application state
- Enforce consistency to ensure recoverability (e.g., database dump and restore)
- Orchestrate fusion backup policies from a central hub

Flexible deployment options

- Deploy fusion data services in any OpenShift cluster
- IBM Storage Fusion HCI System – an integrated system purpose built for Red Hat OpenShift applications
- Single point of contact for support

Orchestrating NVIDIA GPU accelerated virtual machines with Red Hat OpenShift

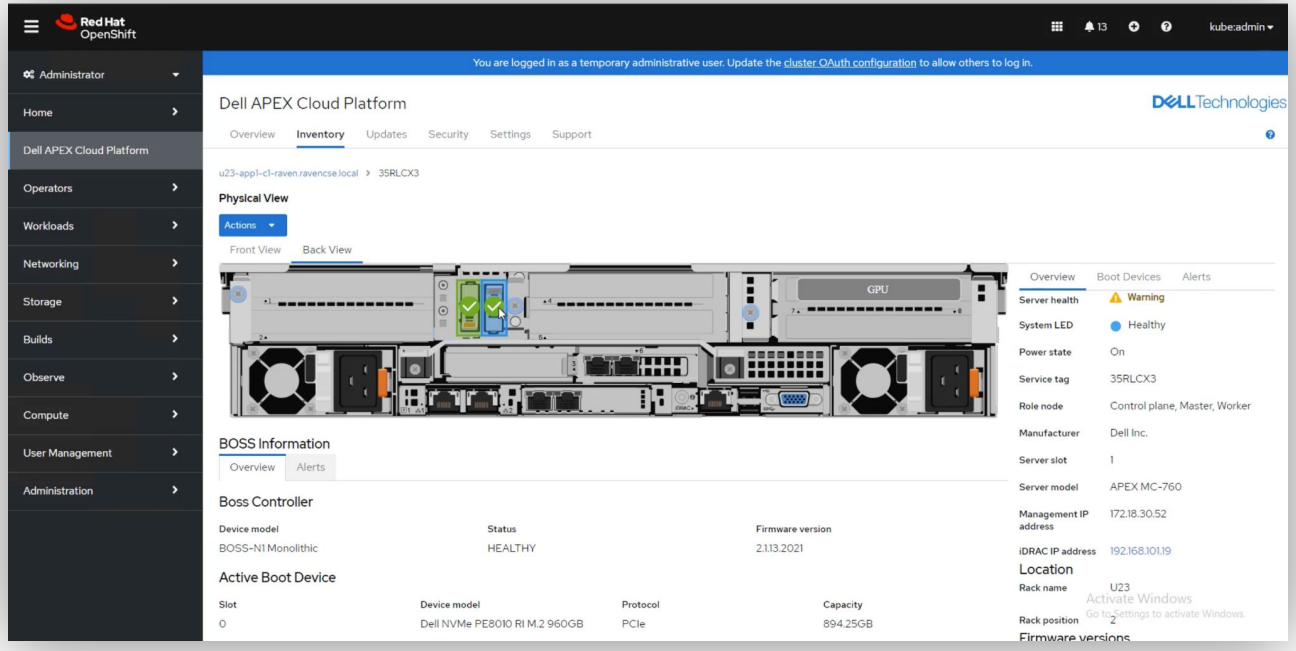
- GPU-accelerated applications running in virtual machines can be orchestrated by Red Hat OpenShift, just like ordinary enterprise applications, enabling unified management.
- In addition to AI, enabling Red Hat OpenShift graphics GPU use cases.
- The NVIDIA vGPU manager allows multiple virtual machines to share access to a single physical GPU, enabling simultaneous utilization with time-sliced vGPUs (no MIG support for now).
- The NVIDIA GPU Operator automates deployment, configuration, and lifecycle management of GPU-accelerated workloads.

Industry leading storage and data management functionality for modern workload deployments

- Support both virtualized and containerized apps in a single infrastructure
- Virtual machines live migration, CSI topology awareness and storage offload
- Fast and efficient, best-in-class snapshots and clones
- NetApp Astra provides functionality to protect, move, and store apps

Data protection for virtual machines is coming in Q4 2023

New exciting partnership with Dell

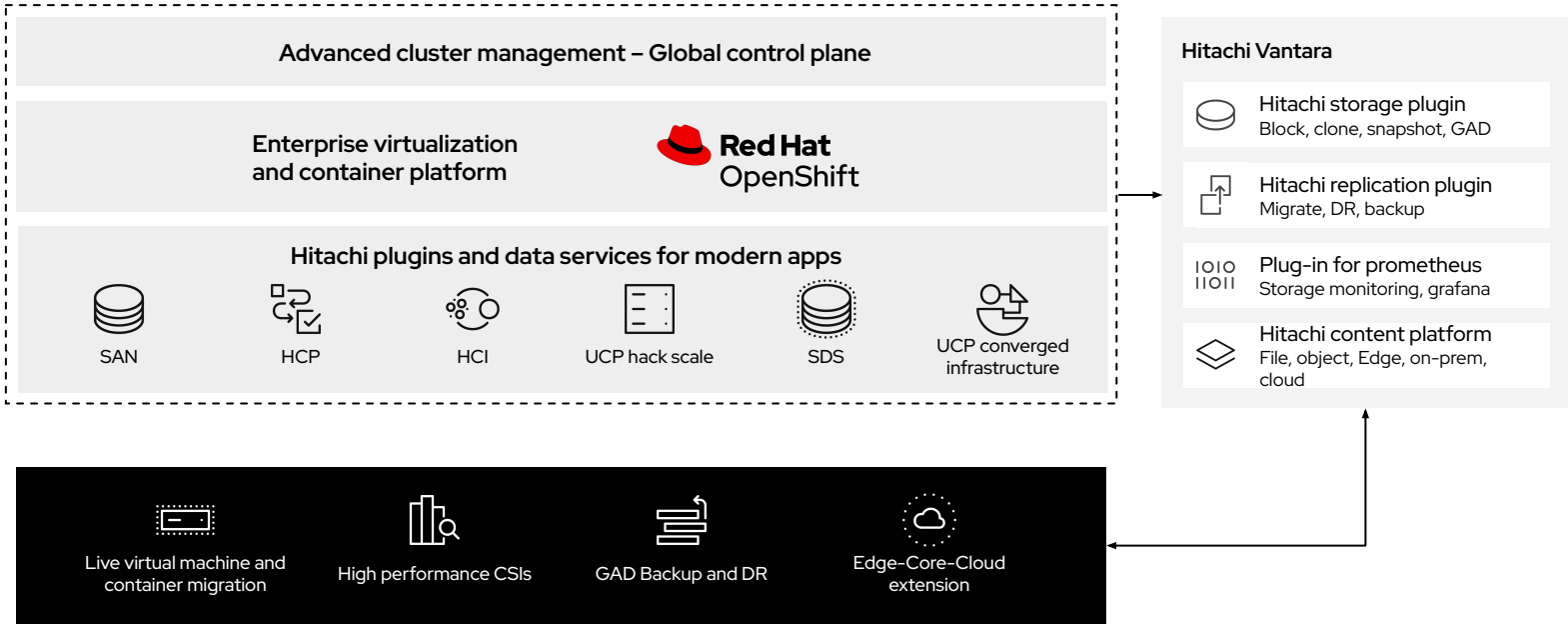


Red Hat Learning

Red Hat OpenShift Virtualization

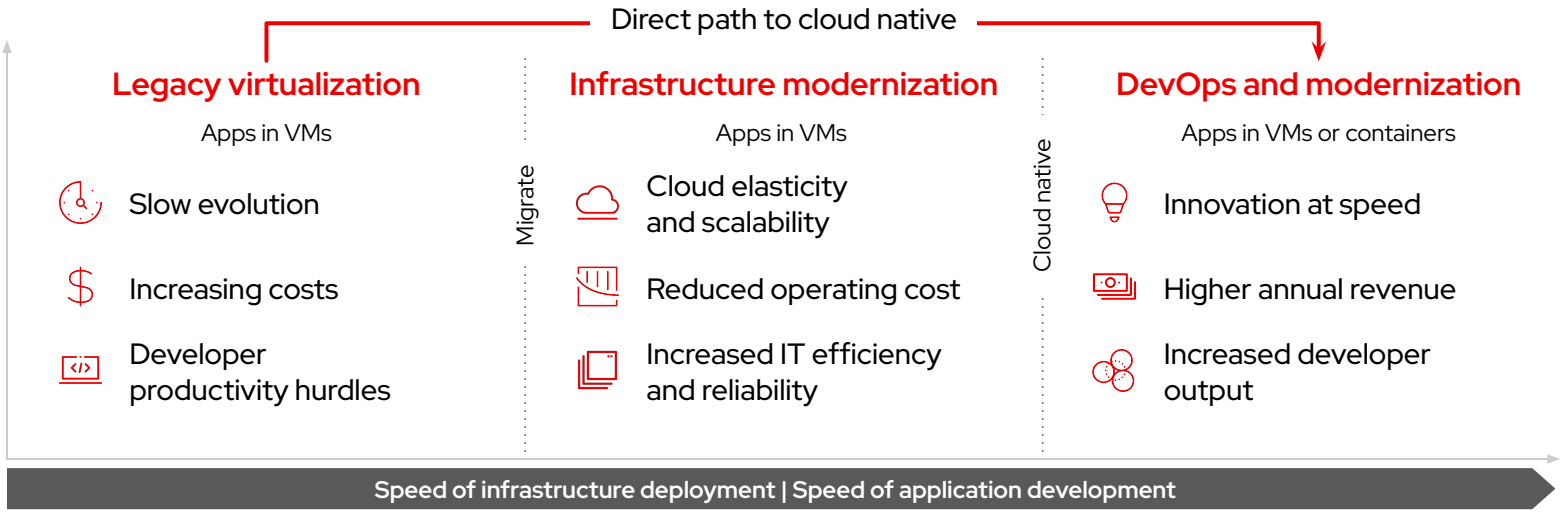
HITACHI
Inspire the Next

Hitachi Plugins and data services for modern apps, and containers

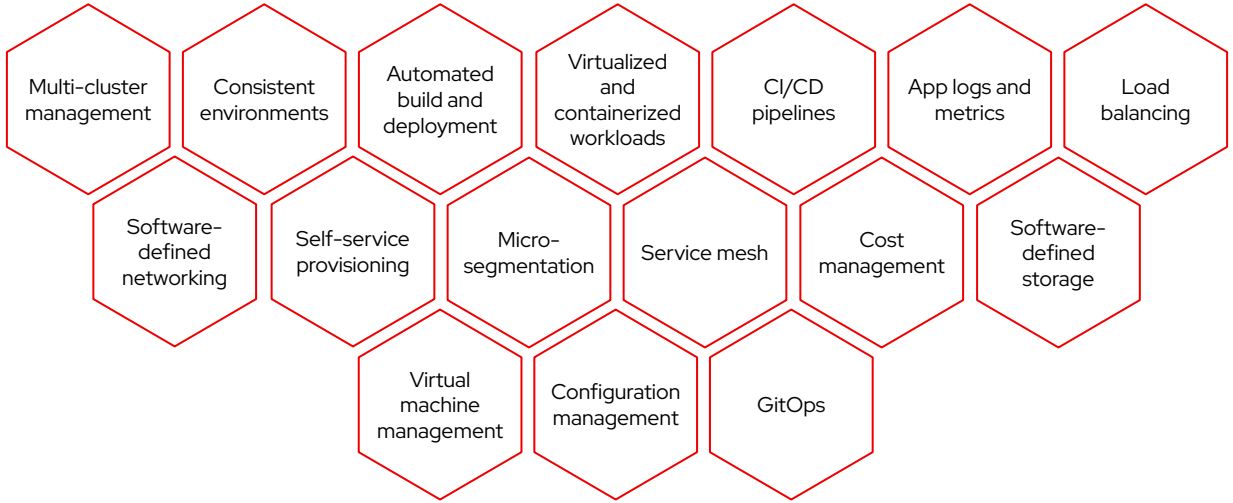


Beyond Virt
...What's Next

Modernize at your own pace



A modern application platform with comprehensive lifecycle and infrastructure management



Red Hat

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Enterprise Secured Kubernetes	✓	✓	✓	✓
Hosted control planes	✓	✓	✓	✓
Operator Lifecycle Manager	✓	✓	✓	✓
Compliance & File Integrity Operators	✓	✓	✓	✓
Virtual machine-based workload hosting	✓	✓	✓	✓
Container-based infra workload hosting	✓	✓	✓	✓
User Workload Monitoring	✓	✓*	✓	✓
Platform Logging	✓	✓*	✓	✓
OpenShift GitOps	✓	✓*	✓	✓
Metering and Cost Management SaaS Service	✓	✓	✓	✓
Container-based user application hosting		✓	✓	✓
RHEL guest and hosted virtual OpenShift subscriptions included		✓	✓	✓
CI/CD Pipelines			✓	✓
Service Mesh			✓	✓
Serverless			✓	✓
Tracing			✓	✓
Runtimes & Webtools			✓	✓
Multi-cluster complete management with Red Hat Advanced Cluster Management				✓
Kubernetes-native security with Red Hat Advanced Cluster Security				✓
Scalable, central registry with Red Hat Quay				✓
Persistent software-defined storage & essential data services with OpenShift Data Foundation Essentials				✓

*VMs only. Learn more.

Bring cloud-native functionality to virtual machines

What's in it for me?

Technology is a rapidly evolving field. **Staying relevant** and maintaining expertise is important. VMs are going to be around for a very long time. However, most new development will happen on containers for both internally developed and COTS applications
Learning a **future proof technology** which will help you in your career
Better **control** by having a single platform for containers and VMs

Self-service virtual machine by project

What's in it for me?

Today, most organizations need to coordinate multiple groups to deliver a VM. That takes a lot of time, often 2 weeks+.

By moving into an OpenShift Virt environment, all of those necessary components can be scripted so once you meet the governance approval (SNow) then the actual provisioning activity can be executed with cloud-like speed

Can focus on higher level optimization as opposed to more manual level activity

Can **deliver** a VM for a new project in 2 minutes

Short Break

*Real-Time Retro

SSA Track: Defining the scope of a Virtualization PoC

Presenter: SSA

60 Minutes

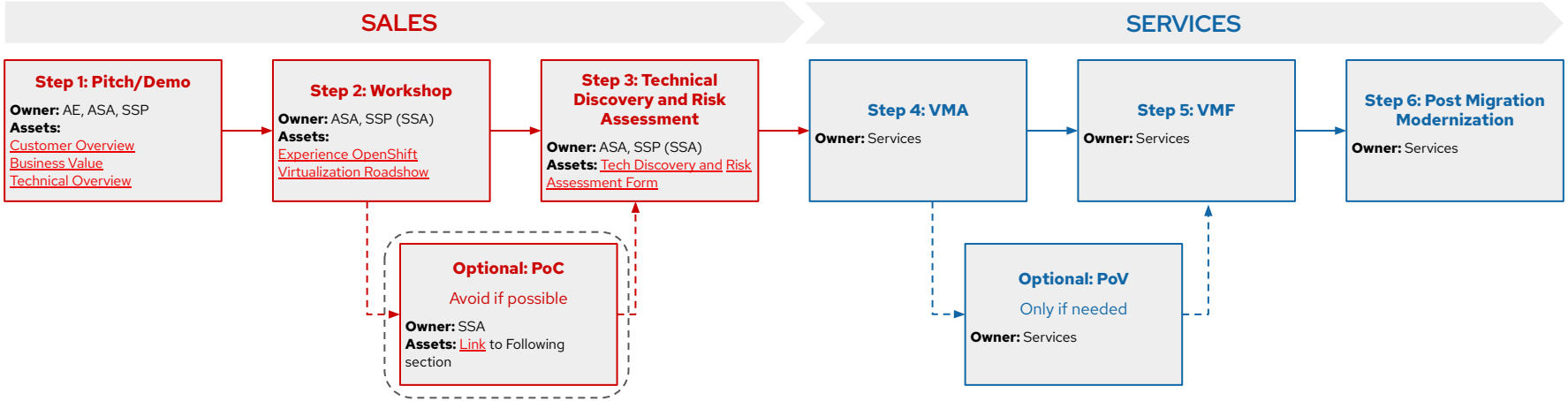
Red Hat Learning

Defining the scope of a Virtualization PoC

If you can't make it good, at least make it look good.

Bill Gates, Founder of Microsoft

Virtualization Sales and Delivery Path



Proof of Concept and Proof of Value

	Proof of Concept	Proof of Value
Definition	Prove that OpenShift Virtualization works for a set of defined use cases previously agreed with the customer	Prove the value of OpenShift Virtualization to a customer within their infrastructure by hosting a sample of their VM workloads
Structure	Use cases both as product baseline and specific use cases defined and agreed with the customer	Integration with networking, storage and validation of identified migrated VM workloads
Handled by	OpenShift Virtualization SSA	Services / Partners
Environment	Customer hardware in lab or testing environment	Non production environment with storage and network integrations that will persist in the Migration Factory Build
Timing	Optional as part of the presales process, **before** the VMA	It is an optional phase to complete **after** the VMA
Can become a production environment?	No	Available to be enhanced for production usage via follow-on consulting engagements such as the Virtualization Migration Factory solution

How did we get here?

Typical motivations for requiring a Virtualization PoC

- *"I am not completely sure about the product"*
  - Need to test integrations with other products
  - Not enough compelling references
  - The product is too new
  - Want to perform a feature-by-feature comparison with my current solution

- *"I want to play around with the product"*
  - Probably don't know what they want
  - Need clear success criteria and defined next steps

Is the PoC really necessary?

Negotiating the PoC

- PoCs are not free for Red Hat
  - They require Specialist Solution Architects involved
  - Average is around two weeks - can be much longer
  - There is a limited amount of people able to conduct a PoC
- Try to avoid it if possible
  - Is the customer dedicating time and resources?
  - Are they paying for the PoC?
  - Can you use references to mitigate concerns?
- Beware of “Corporate Architecture Teams”

Virtualization PoC Checklist

Make sure all these requirements are met

- Defined entrance criteria
  - Specific set of use cases to be tested
  - If there is a partner integration needed, that partner needs to be involved
- Defined success criteria
  - What the PoC needs to be considered successful
- Defined evaluation criteria
  - How success criteria are measured
- Commitment on a buying decision if the PoC is successful (move to a VMA)
- Commitment on having someone from the customer actively participating during the PoC

If not, this is a Workshop or a Demo

Options for proving our solution

Demo

- Demonstrates features
- Takes place on Red Hat hardware
- Pre-canned workflow determined by customer's desired features
- Duration is less than an hour
- Executed by SSAs **pre-VMA**

Workshop

- Gets customer hands on with features
- Takes place on Red Hat hardware
- Pre-canned workflow determined by workshop modules
- Duration is hours in length
- Executed by SSAs **pre-VMA**

Proof of Concept (POC)

- Proves the feasibility of our solution
- Takes place on customer hardware in lab environment
- Scope set by well-defined entrance, success, and evaluation criteria
- Duration is days in length
- Executed by SSAs **pre-VMA**

Proof of Value (POV)

- Proves the value of our solution through a production-ready migration
- Takes place on customer hardware
- Scope set by number of production-ready VMs to be migrated
- Duration is weeks in length
- Executed by RHCS or partners **post-VMA**

LOW — HIGH

Time & Cost

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Aspects to take into account

Before determining success criteria

- Understanding where we stand
  - Know if you are “dating exclusively” or if you are “seeing other people”
  - Or if you are exclusive and exploring if you are ready for marriage?
- Is it a general functionality test or there are specific aspects to test?
  - “General PoC” is risky
  - Do not engage in feature-by-feature comparison
- Is there a commitment on next steps after a successful PoC?
- Are we competing with other solution?
  - Be aware of our strengths and weaknesses
- Are we owning the PoC?

Standard Virtualization PoC Process

Provide evidence that OpenShift Virtualization will meet or exceed customer requirements

Identify customer need	List use cases	Agree success criteria	Develop PoC	Evaluate results	Retrospective
▸ Work with the customer to identify the challenges they face with their current virtualization platform (guided by Virtualization Sales Play content)	▸ Develop a document detailing the use cases to be demonstrated ▸ Focus on our solution strengths ▸ Use a standard baseline and add specific customer requirements	▸ Define success criteria with the customer ▸ Agree on further steps once all the requirements have been met	▸ Work on the use cases defined in the scoping document ▸ Provide documentation with the PoC results	▸ Review with the customer the documentation and PoC results ▸ Agree on outcomes	▸ Review PoC results and customer feedback ▸ Lessons learnt, what went well, what could be improved
Driven by SSP, AE, ASA	*Driven by SSP, SSA, ASA*	*Driven by ASA, SSP, SSA*	*Driven by SSA* *Account SA needs to be present*	*Driven by AE, SSP, ASA, SSA*	*Driven by SSP, ASA, SSA*

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Mapping customer needs

Goals	Benefit KPI & Metrics	Use Cases	PoC Scoping Examples
Cost Avoidance	Reduced operating cost and lock-in risk	Migrate virtualized workloads to OpenShift	VMs Migration from VMware with MTV
Revenue Growth	Free up capital to invest	Use VMware savings to invest in other areas (like AI) to grow revenue	
Strategic Improvement	Unified platform resource demands	Reduce skill sprawl and optimize resources by learning single administration framework	VM Management Virtualization Management with ACM
Scalability	Time to scale	Leverage the scale advantages of Kubernetes for VMs - gain hybrid cloud flexibility	Adding new nodes to cluster HA of VMs VM resizing
Innovation	Release Velocity	Streamline app delivery with self-service options and integrations with GitOps pipelines	Managing VMs with OpenShift GitOps
Efficiency	Developer Efficiency, Infra Utilization	Simplify the management of VMs, containers, and containerized apps under a single pane of glass	Developer self service

Common use cases

Section	Suggested Use Cases	
Installation and configuration tests	• Installation and configuration of the OpenShift cluster • Adding nodes • Installation of the Virtualization Operator	
Functional tests	• Working with ISO images • Run and delete VMs • Dynamic VM definition • Static VM definition with instance types • Access through OpenShift console • Network interfaces hot plug • Monitoring • Placement rules	• Creating templates • Creating bootable volumes • Cloning disks and instances • Managing tags • Snapshot creation and restore • Live migration • High availability
Migration tests	• Installation of MTV Operator • Migration with MTV from vCenter and from an ESX/ESXi server	
Custom tests	• Integration with customer storage/network – Partners involved	

Not a PoC

- **Performance Testing**
  - Needs to be in a real production environment
  - Needs to use actual workloads
  - Needs to have optimization experts involved, i.e, Services
  - SSAs are to demonstrate the desirability of the features
- **Architecture Design**
  - Needs to be handled by Services
  - Especially in the case there are many vendors involved
- Any implementation in Production environments

PoC Best Practices

Before

Establish clear and achievable goals with the Customer via the POC Guide

Scope small - this increases your chances of success & accelerates the sales cycle

Don't start until agreements are in place on the use cases and the pre-flight

Do as much pre-work as you can

Communicate the status, every day, to stakeholders

Track and document progress in a timely manner

During

Connect with your customer

Never assume and always teach

Stay positive, even in the face of adversity

Reach out to your team, the BU and support when necessary

Communicate the status, every day, to stakeholders

Track and document progress in a timely manner

After

Retrospective with the account team on strategy and next steps

Document your work and the outcomes in RHSC

Tear down any environments you may have internally (RHDP)

Periodically reach out to the account team for status updates

Provide limited email assistance to the customer to ensure smooth delivery

If applicable, create a packet for the services team, documenting your work and its outcomes

Red Hat Learning

OpenShift Virtualization Key Contacts

Didier Vitiello
Director, OpenShift Virtualization EMEA

Danielle Lee
OpenShift Virtualization Leader, APAC

Vagner Farias
Principal SSA, OpenShift, LATAM

Kevin Tunks
OpenShift Ecosystem Global Leader

Ken Savich
Senior Manager, Virtualization Team, NA

Atul Deshpande
Principal SSA OpenShift, Telco

Ask Me Anything and Discussion - Day 1

Presenter: Platform, Services, BU, Ecosystem

Welcome | Competitive Landscape and Objections | Objection Showdown | Pitch to Win Prep | Pitch to Win | Ask Me Anything | Wrap up and Close

EPW-Virtualization Presales

Executive Partner Workshop

Welcome back to Day 2

15 Minutes

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Objections Discussion/Competitive Landscape

Presenter: Platform, BU

60 Minutes

Red Hat Learning

“OpenShift Virtualization is new or immature…”

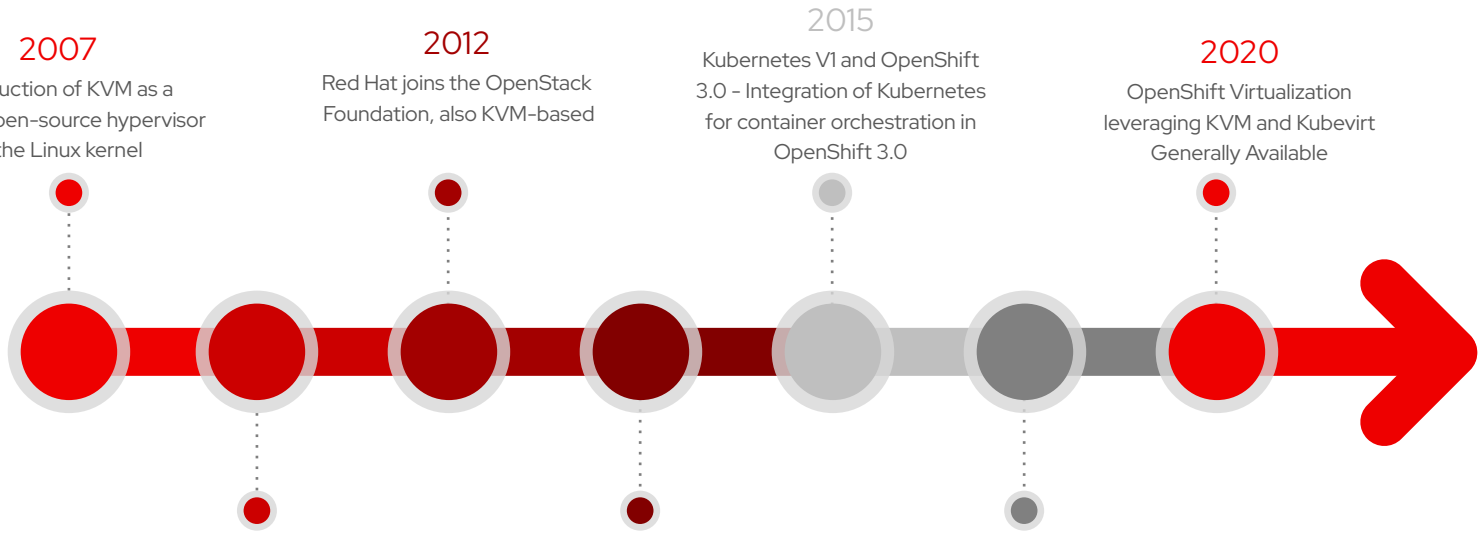
How the Objection is Framed by Customers:

- “This is a brand-new solution.”
- “We can’t trust this yet.”
- “KubeVirt is still evolving.”
- “This doesn’t have the track record we expect from our virtualization stack.”

OpenShift Virtualization Maturity:

- "Standing on the shoulders of giants."
- Not new technology: built on proven components.
- Used by multiple hyperscalers - meaning large-scale providers trust and deploy it at global scale.
- Billions of VMs running on KVM in production today.
- Kubernetes is not “new” either — it has had nearly a decade of hardening.
- KubeVirt - since 2016

Red Hat has a long history with Virtualization



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"The analysts say it's not ready..."

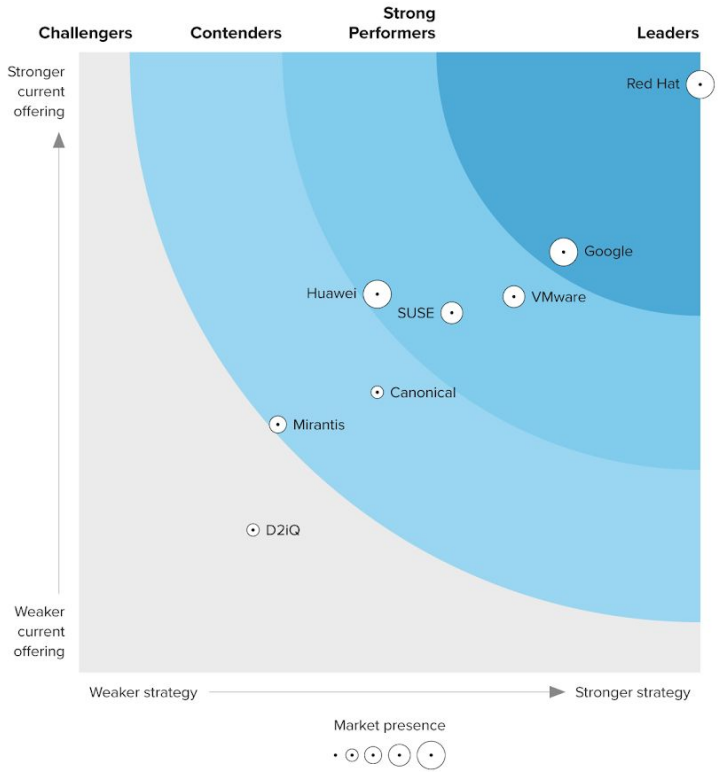
How the Objection is Framed by Customers:

- "Analyst xyz says KubeVirt isn't enterprise-ready."
- "We saw a xyz analyst report with concerns."
- "There's no virtualization Magic Quadrant anymore."
- "This isn't what analysts are recommending."

Red Hat Response to Analyst Feedback:

- Analysts often assess KubeVirt on its own — not the full OpenShift platform, including partners.
- The last Gartner virtualization MQ was several years ago since VMware dominated this space.
- Recent analyst briefings have shifted tone positively (e.g., post-4.17 & 4.18 updates).
- Analysts are asking for more customer references — many are in progress or scheduled for Summit.
- Use internal rebuttal materials when needed. Reach out to the team for support.

The Forrester Wave™: Multicloud Container Platforms, Q4 2023



"**Red Hat sets the pace with enterprise IT capabilities and massive market presence.** With OpenShift's systematic innovation and development on multiple fronts, Red Hat has helped transform the MCP market segment."

"The demand for OpenShift prompted AWS and Microsoft Azure to sell OpenShift as a managed service, despite having their own Kubernetes-based container services. Red Hat's differentiated strategic vision is to up the ante on enterprise-grade open source computing."

The Forrester Wave™: Multicloud Container Platforms, Q4 2023: The Eight Providers That Matter Most and How They Stack Up
Oct 2023

Source: Forrester Research, Inc. Unauthorized reproduction, citation, or distribution prohibited.

Red Hat

Red Hat is a recognized industry leader

2024 Gartner® Magic Quadrant™: Container Management

Source: Gartner, "Magic Quadrant for Container Management," Dennis Smith, Tony Iams, Wataru Katsurashima, Michael Warrilow, Richard Watson, 10 September 2024

2024 Gartner® Magic Quadrant™: Cloud Application Platforms

Source: Gartner, "Magic Quadrant for Cloud Application Platforms," By Tigran Egiazarov, Mukul Saha, Anne Thomas, Steve Schwent, 4 November 2024

Red Hat Learning

“So, who else is using it?”

How the Objection is Framed by Customers:

- “We haven’t seen anyone actually using this in production.”
- “Are there any public case studies?”
- “If it’s so great, why aren’t customers talking about it?”
- “We need to talk to someone who’s already done this.”

“So, who else is using it?”

Red Hat’s Customer Reference Reality:

- Strong pipeline of adopters – many are already in production.
- Trusted brands using OpenShift Virtualization today:
  - NVIDIA, Visa, NASA JPL, Emirates NBD, Morgan Stanley, Siemens, Orange
- Many customers are willing to talk privately, but not ready for public marketing use yet.
- Some hold back due to legal restrictions or fear of Broadcom pricing retaliation.
- Red Hat is actively building reference stories.
- Many virtualization customer sessions scheduled for Summit.
- Internal references are often available for 1:1 conversations, even if not public.

Features, features, features!

- Virtualization admins don't know OpenShift, they're going to ask about features
- They'll hit you with a long list of vSphere features and capabilities for OpenShift to match, including ones they *never* use.
- Don't fall into the trap!
- Establish what the customer actually needs versus entire VMware feature-set
- An opportunity to focus on customer workloads and operational workflows

We've come a long way since RHV

Category/Feature (versus best-in-class)	RHV		OpenShift Virtualization	
			EOY 2024	Target 2025
vAdmin friendly user interface	90		50	70-80**
VM density	90		90	90
Single cluster virtualization infrastructure management	80		95	95
Mixed VM and container environment	60		100	100
Infrastructure HA	50		95	95
Hotplug (storage, memory, compute)	10		90	90
ISV backup integrations	20		70	80
Disaster recovery integrations	90		55	80
Storage integrations / acceleration	90		85	90
Software defined networking	50		80	90

*Feature comparison summary sheet **For single cluster management this will be higher

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Common Question: Is it fast enough?

- Many business critical application require serious performance, like databases and application servers.
- For similar configure workload on similar hardware, you can expect **performance parity, proven during customer PoCs**
- Conservative performance settings out-of-the-box
- Recent improvements in 'Virtual Machine Profiles' in UI
- Involve the Red Hat performance and scale team if needed
- VMware's terms of service disallows us in making any public comparisons
- We have several proof points on RHCC
  - Scale to 6,000 VMs learning path
  - OpenShift Virtualization - Tuning & Scaling Guide
  - Storage partner CSI benchmarking

Common Question: Is my workload, O/S, appliance supported?

- VMware certification matrix has thousands of apps
- We've extended supported Operating Systems to other Linux

- Red Hat Catalog Infra feature = "OpenShift Virtualization"
- red.ht/workswithvirt

- Getting your workload certified
  - Validate your Red Hat OpenShift Virtualization workload
  - The OpenShift Partner Lab

Common Question: Kubernetes is new / hard / scary !

- New web console UI and ACM dashboard make VMs more accessible.
- Inclusion of OpenShift Lighspeed assists in traditional vAdmin onboarding
- OpenShift Virtualization is OpenShift, we (Red Hat) have a massive catalog of learning courses to flatten the learning curve
  - So do our partners
- Dedicated/specific courses for OpenShift Virtualization
  - **D0316** - Managing VMs with OpenShift
- Virtualization Migration Assessment has prescriptive “Enablement and Training”

Red Hat

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Enterprise Secured Kubernetes	✓	✓	✓	✓
Hosted control planes	✓	✓	✓	✓
Operator Lifecycle Manager	✓	✓	✓	✓
Compliance & File Integrity Operators	✓	✓	✓	✓
Virtual machine-based workload hosting	✓	✓	✓	✓
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OpenShift GitOps	✓*	✓*	✓	✓
Metering and Cost Management SaaS Service	✓	✓	✓	✓
Container-based user application hosting		✓	✓	✓
RHEL guest and hosted virtual OpenShift subscriptions included		✓	✓	✓
Runtimes, Build Tools, and IDE			✓	✓
CI/CD Pipelines			✓	✓
Serverless			✓	✓
Service Mesh			✓	✓
Tracing			✓	✓
Multi-cluster complete management with Red Hat Advanced Cluster Management				✓
Kubernetes-native security with Red Hat Advanced Cluster Security				✓
Scalable, central registry with Red Hat Quay				✓
Persistent software-defined storage & essential data services with OpenShift Data Foundation Essentials				✓

*VMs only. Learn more.

Self-managed OpenShift editions

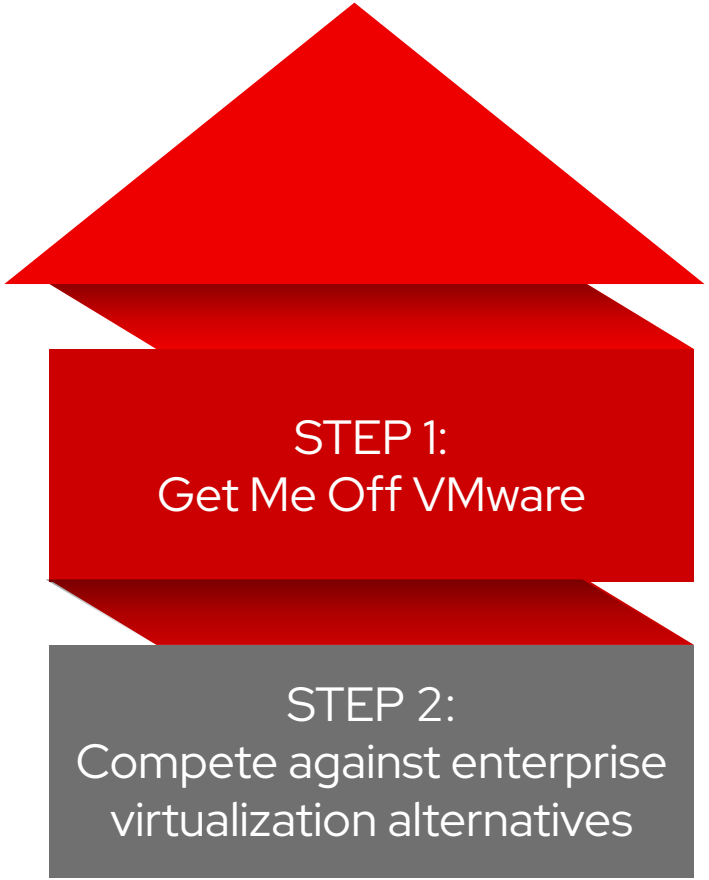
	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Virtual machine workloads Migrate, manage, and deploy virtual machines	✓	✓	✓	✓
Enterprise Kubernetes for container applications Build, deploy, and run containerized applications		✓	✓	✓
Comprehensive application platform Full set of operations and developer services and tools			✓	✓
Management and security at scale Complete platform for accelerating app development and app modernization				✓

Find a feature breakdown across all OpenShift editions in our subscription guide.

Know How to Position OpenShift

	Virtualization	Container Management	Application Platform
Core OpenShift Product	OVE	OKE	OPP/Cloud Svcs
Competing Products	vSphere, Hyper-V, Nutanix AHV, Rancher Harvester	VMware VVF/TKG, Nutanix NKP, SUSE/Rancher RKE, Spectro Cloud, Canonical, Mirantis, FOSS (DIY upstream), EKS, AKS, GKE	VMware Tanzu Platform, Heroku, AWS AppRunner, Azure AS, Google App Engine
Pricing Pressure (Need to discount)	Medium	High	Low

Competing in VMware Migration Conversations



STEP 1: Get Me Off Of VMware

vSphere - "we can provide a comparable experience/feature set."

VVF - "Here's why you don't want to modernize with Tanzu and if you are going to upgrade, why not use one platform for everything?"

STEP 2: Enterprise virtualization alternatives

Defend against;

Microsoft

- Hyper-V
- Azure Stack

Nutanix

- AHV
- NKP

SUSE/Rancher

- SUSE Virtualization (formerly Harvester - HCI)
- Rancher Virt (Prime)

Hyperscalers

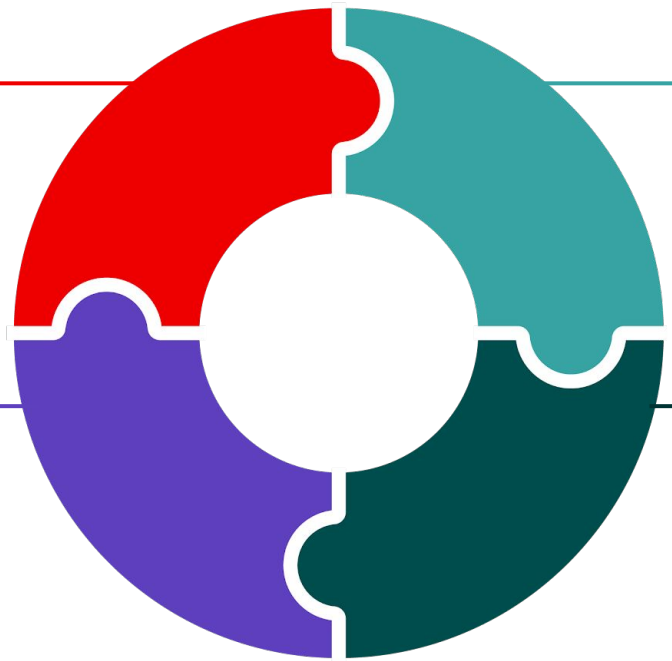
Virtualization Competitive Landscape

Others

SUSE/Rancher, Oracle, Proxmox, HPE, SpectroCloud - Assorted Lock-in, Maturity, enterprise readiness, modernization and ecosystem concerns.

Hypervisors

Nutanix/MSFT Hyper-V: Trade one lock-in for another - what happens in a few years if you want to modernize?



Status Quo: VMware

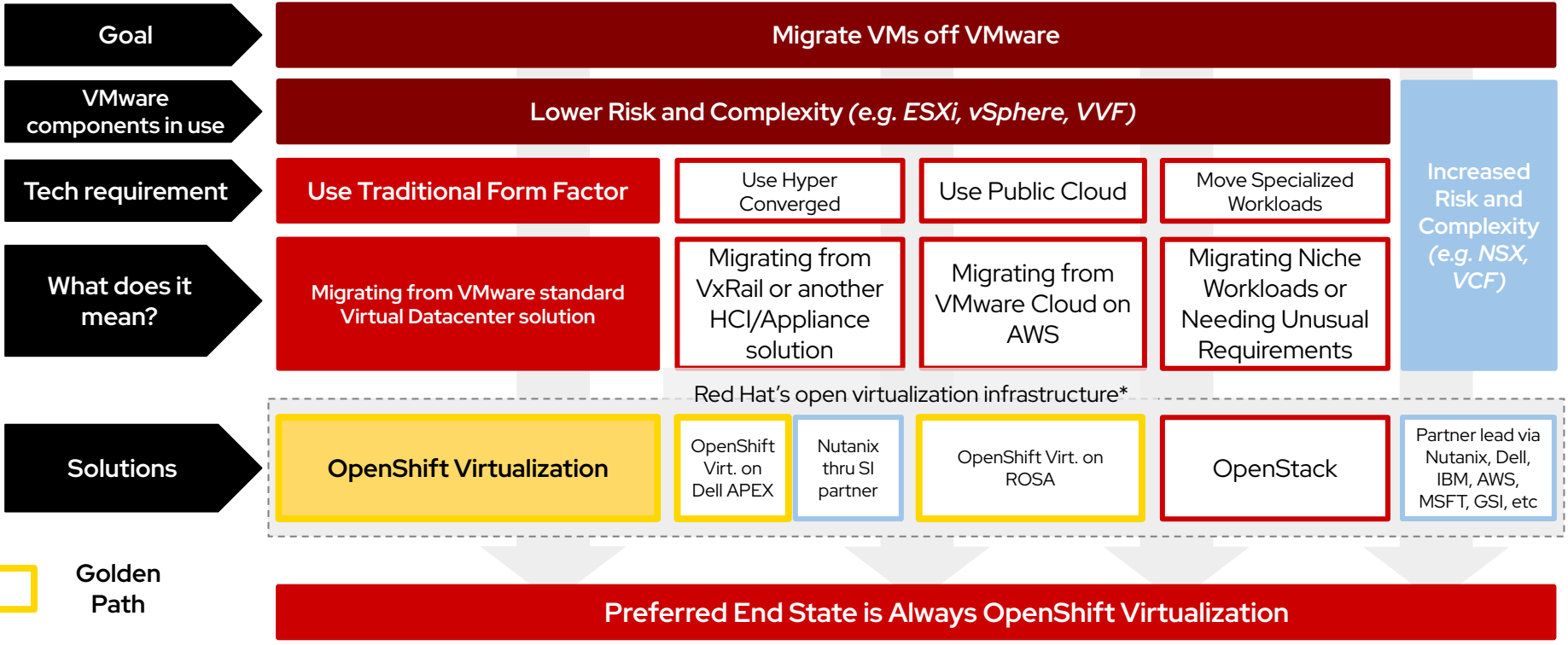
Stick with **VMW**: Comfortable but expensive and risky. Do you want to use Tanzu to modernize? Will Broadcom invest to keep up with tech innovations?

Hyperscalers

How about on-prem options? Lock-in concerns.

VMware

Paths from VMware with Red Hat's open virtualization infrastructure



* Red Hat's open virtualization infrastructure is a solution, not a product

Red Hat Learning

VMware

- Longtime market leader – familiar, stable, and widely adopted.
- Deep enterprise feature set including vMotion, DRS, HA, and NSX.
- Pricing and packaging changes after Broadcom acquisition causing disruptio and increase pricing for many customers
- New subscription-only model removes perpetual licensing.
- VCF bundling forces customers to pay for full stack, even if unused.
- Limited integration between vSphere and Tanzu Kubernetes (separate stacks).

Customers have varying levels of investment in VMware

High

Increased planning, higher complexity
(Partner-led approach)

Migration Complexity

Rapid migration, lower complexity
(Red Hat-led approach)

Low

VMware Cloud Foundation (VCF)

Workloads requiring hypervisor certifications that KVM does not have

VMware Virtualization with NSX

VMware vSphere Foundation (VVF) and/or VMware Cloud (VMC)

vSphere Standard

vSphere Essentials

Use your existing ISV Partners*

Storage

Products for OpenShift Virt using CSI (container storage interface)

- HITACHI Inspire the Next
- portworx by Pure Storage
- DELL Technologies
- Red Hat OpenShift Data Foundation
- Hewlett Packard Enterprise
- NetApp
- IBM

Backup/DR

Products for OpenShift

- storware BACKUP AND RECOVERY
- veeam
- portworx by Pure Storage
- TRILIOVAULT
- IBM
- VERITAS

Networking

Products for OpenShift Virt using CNI (container networking interface)

- ISOVALENT
- TIGERA
- CISCO
- f5

Cloud Services

Current public cloud providers offering OpenShift virtualization

- aws

Compute

Products for OpenShift

- IBM
- Hewlett Packard Enterprise
- DELL Technologies
- Lenovo
- CISCO

Red Hat Learning

* This is not an exhaustive list of ISV partners, with new partners being added all the time.

Complete the platform with your existing technology partners

Storage

Products for OpenShift Virt using CSI (container storage interface)

Backup / DR

Products for OpenShift

Networking

Products for OpenShift Virt using CNI (container networking interface)

Cloud Services

Current public cloud providers offering OpenShift virtualization

*Tech Preview

*Tech Preview

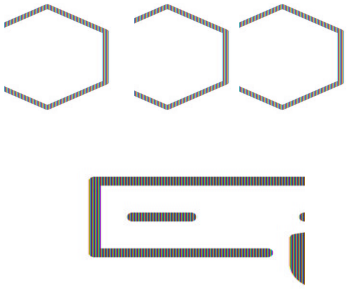
Compute

Products for OpenShift

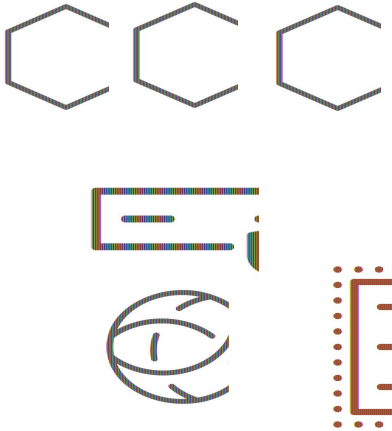
* This is not an exhaustive list of ISV partners, with new partners being added all the time.

VMware only deploys to vSphere

Red Hat vs VMware for containerized applications on-prem or multi-cloud



Containerized applications



Red Hat enables containerized applications anywhere where Linux runs: Cloud, DataCenter, Edge

VMware VCF/VVF requires organizations to pay for vSAN, NSX (VVF only) before containers can be enabled.

Red Hat and Tanzu vSphere Foundation

VMware vSphere Foundation	*Approximate* Red Hat equivalent
vSphere Enterprise Plus	No exact equivalent bundle ● OpenShift Virtualization ● KVM (a technology - not a Red Hat product/SKU.)
vCenter Standard	No equivalent, the OpenShift console manages OpenShift and is included with OpenShift
Tanzu Kubernetes Grid	Approximate OKE
Aria Suite Term Standard (VMware Aria Operations: Log analysis, Operations platform, Visualization,Policy management,Performance monitoring and analytics, Capacity management, Workload balancing,Change, configuration, and compliance management	Approximate OpenShift Observability

Red Hat and Tanzu vSphere Foundation - add ons 1/3

VMware vSphere Foundation	*Approximate* Red Hat equivalent
VMware Cloud Disaster Recovery (VCDR) *Sold as protected TiB and Per Protected VM*	No equivalent
VMware Ransomware Recovery (RWR) *Sold as Per Protected VM*	No equivalent
SRM *Sold as pack of 25 VMs*	Approximate OpenShift API for Data Protection (OADP) ODF Backup Third-party ecosystem including: Kasten, Storeware, Cloudcasa
vSAN *Sold as Per TiB (minimum purchase is 8TiB per CPU Socket)*	Approximate OpenShift Data Foundation
VMware Load Balancer (NSX Advanced Load Balancer *Sold as per service unit*	Partner third-party ecosystem including: AVInetworks, F5 Big IP, F5 Nginx Plus, Citrix ADC (pka NetScaler ADC) Alteon, Akamai, AWS Route53, Azure Traffic Manager

Red Hat and Tanzu vSphere Foundation - add ons 2/3

VMware vSphere Foundation	*Approximate* Red Hat equivalent
Tanzu Mission Control (TMC) *Sold as per CPU Core* • TMC SaaS • TMC (Self-Managed)	Approximate ACM
Tanzu Application Platform (TAP) *Sold as per vCPU*	Approximate OpenShift as an Application Platform
Tanzu Spring Runtime *Sold as per CPU Core*	Approximate Red Hat Runtimes
Tanzu Guardrails Enterprise (TGE) *Sold as per resource* • Tanzu Hub • Tanzu Guardrails • Aria Automation Config (formally Saltstack) • Automation for Secure Clouds • Automation for Secure Host	Approximate - OpenShift & ACS offer policy enforcement. Ansible does automation
Tanzu Guardrails Advanced (TGA) *Sold as per resource* • Tanzu Hub • Tanzu Guardrails • Automation for Secure Clouds	Approximate equivalent - OpenShift & ACS offer policy enforcement. Ansible does automation

Red Hat and Tanzu vSphere Foundation - add ons 3/3

VMware vSphere Foundation	*Approximate* Red Hat equivalent
Tanzu Cloudhealth Enterprise (TCE) *Sold as percentage of monthly cloud spend*	Approximate Red Hat Insights has cost management
Tanzu Application Catalog (TAC) *Sold as active artifact*	Red Hat Catalog
Tanzu Ops for Apps (formally Wavefront) *Sold as point per second (PPS)*	Approximate OpenShift Observability
Tanzu Insights (TI) *Sold as event per month*	Approximate Red Hat Insights

*OpenShift Virt High Level Feature Mapping Doc

Red Hat vs VMware

Market Leader vs. Market Follower

2011 to 2023
More than 3000 customers

Red Hat

Years of Cloud Native Leadership

OpenShift

Kubernetes, Developer Services, Operators, Serverless, ServiceMesh, Virtualization, Container optimized Linux Operating System

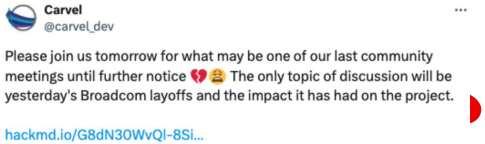
vmware

Disjointed Kubernetes offerings without migration path.

Multiple unintegrated products.

Tanzu Kubernetes Grid	~~Tanzu Kubernetes Basic~~	~~Tanzu Kubernetes Standard~~	~~Tanzu Kubernetes Advanced~~	~~Tanzu Kubernetes Enterprise~~	Tanzu Labs	Tanzu Kubernetes Operations
Tanzu Mission Control	Tanzu Service Mesh	Tanzu Application Service (was Pivotal)	Tanzu Observability(was WaveFront)	Tanzu Build Service (was Pivotal)	Tanzu Data Service (was Pivotal)	Tanzu Application Platform

https://blogs.vmware.com/partnernews/2022/10/tanzu-basic-advanced-end-availability.html
https://github.com/cncf/toc/issues/1314



Red Hat Learning

Objection Handling - VMware

"I've got 90K+ VMs across multiple continents, you certainly can't handle every workload"	Respond to customer's concern about handling a large-scale, geographically distributed VM infrastructure by emphasizing the scalability, flexibility and adaptability of Red Hat's Open Virtualization Infrastructure: • Scalable Architecture: OpenShift is built on a scalable and cloud-native architecture, designed to manage large numbers of containers and VMs efficiently. We have helped many other customers do so. It is designed to handle extensive workloads and can be scaled to meet the demands of even the most diverse VM environments. • Single platform consistency: OpenShift gives teams a single, consistent user experience and the freedom to quickly build and deploy apps anywhere using a comprehensive suite of tools and services. • Multi-Cloud Compatibility: With inherent support for hybrid/multi-cloud environments, OpenShift can manage VMs across different regions and cloud providers. This ensures flexibility in deploying and managing workloads globally catering to your distribution of VMs
"How do I do day 2 operations? For OpenShift? For VMs?"	Addressing the concern about Day 2 operations for both OpenShift and VMs within OpenShift Virtualization environment can be approached by highlighting the rich UI experience with CLI and APIs for common VM operations • OpenShift also has built-in capabilities for networking, storage, observability, and other IT operations. • RHEL and Windows guests are compatible with customer's in-guest automation • OpenShift also includes monitoring tools that provide real-time insights into both container and VM performance. This will aid in proactive management, ensuring issues are addressed quickly with minimal downtime. • Ansible Automation Platform to automate ongoing day 2 ops including related network storage and other infrastructure for accuracy and consistency of management– from provisioning to patching and compliance to sunsetting of unused VMs • Additionally Red Hat's extensive support structure offers guidance and assistance for Day 2 operations, ensuring you have the expertise needed at every step.
"Is the performance of VMs on OpenShift as good as what I'm using today? Is the platform capable of meeting my needs?"	Addressing the customer's concerns about VM performance on OpenShift involves focusing on the platforms capabilities and benefits that it offers in maintaining or enhancing the customer's current performance levels: • By using KVM to run in OpenShift, workload performance is equivalent across all Red Hat infrastructure platforms including RHEL, Red Hat Virtualization, Red Hat OpenStack and now OpenShift Virt. • Admins can import their business critical workloads into OpenShift, confident that they'll be able to serve users at the same SLAs as their existing virtualization implementation.

Microsoft

Red Hat

Summary of Microsoft Hyper-V

- Microsoft Hyper-V offers a virtualization layer on existing Windows Server deployments.
- Hyper-V financially is attractive to Microsoft customers as it is often included in the Microsoft ELA.
- Hyper-V is older technology compared to the newer cloud native KubeVirt that is included with Red Hat OpenShift.
- Hyper-V requires Microsoft System Center which may be a larger add-on cost.

OpenShift offers customers choice of hardware, storage, networking and more from a partner ecosystem. A modern container based cloud native development platform, AI, security and management round out a comprehensive cloud native platform for VMs, containers at the Edge, on-premise or managed service in the cloud.

OpenShift Virtualization or Microsoft Hyper-V

	OpenShift	**Hyper-V**
Product	Complete cloud-native application platform available on-premises, in ROSA AWS and at the Edge.	Virtualization only platform on Windows Server on-premises or as Azure VMs
Ecosystem	Growing ecosystem of partners	Large ecosystem of partners
Open/closed	Open source, CNCF foundation	Microsoft closed source
Tooling	Ansible, GitOps, OpenShift, others	Microsoft tools, PowerShell
VM functions: live migrate, pause etc	✅	✅
Networking	Open source networking, partner solutions	Microsoft Networking

Summary of Microsoft Azure Stack

- Microsoft Azure Stack is a hyperconverged offering: the hardware, operating system, hypervisor, networking and storage sold as single unit with little flexibility/choice
- Azure Stack may be attractive to Microsoft customers as it uses the familiar Azure cloud GUI.
- Azure Stack is a proprietary/closed solution locking customers into Microsoft.

OpenShift offers customers choice of hardware, storage, networking and more from a partner ecosystem. A modern container based platform: AI, security and management round out a comprehensive cloud native platform for VMs, containers and serverless at the Edge, on-premise or managed service in the cloud.

Hyperconverged alternatives to Azure Stack

Azure Stack is not a Kubernetes based management of VMs.

Customers do **not** get the benefit of unified management of container and VM applications. Customers are locked into AWS or Azure prescribed hardware solutions.

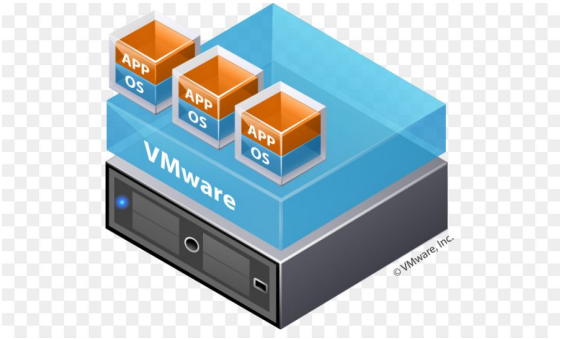
For customers considering Azure Stack, these OpenShift solutions may fit: DELL Apex, HPE GreenLake, or IBM Fusion.

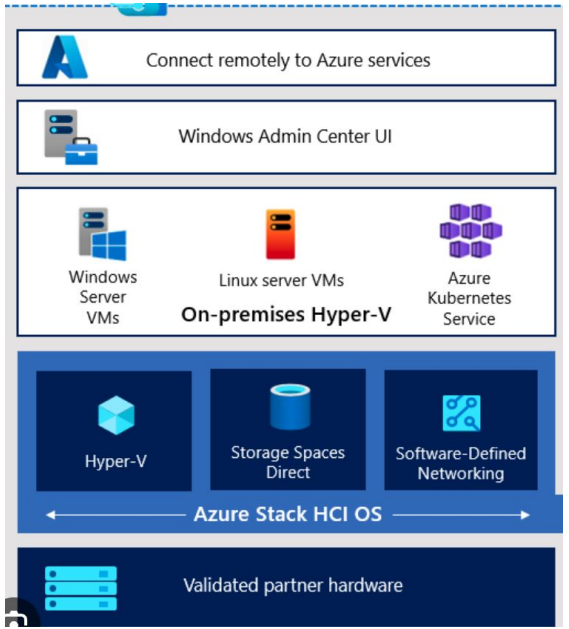
These are hyperconverged appliances with OpenShift pre-installed.

Migration from VMware to Microsoft

Microsoft

1. A proprietary closed solution
2. VMs and Kubernetes only





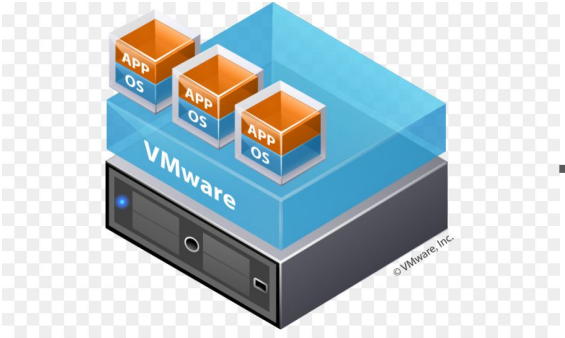
https://learn.microsoft.com/en-us/azure-stack/hci/hybrid-capabilities-with-azure-services

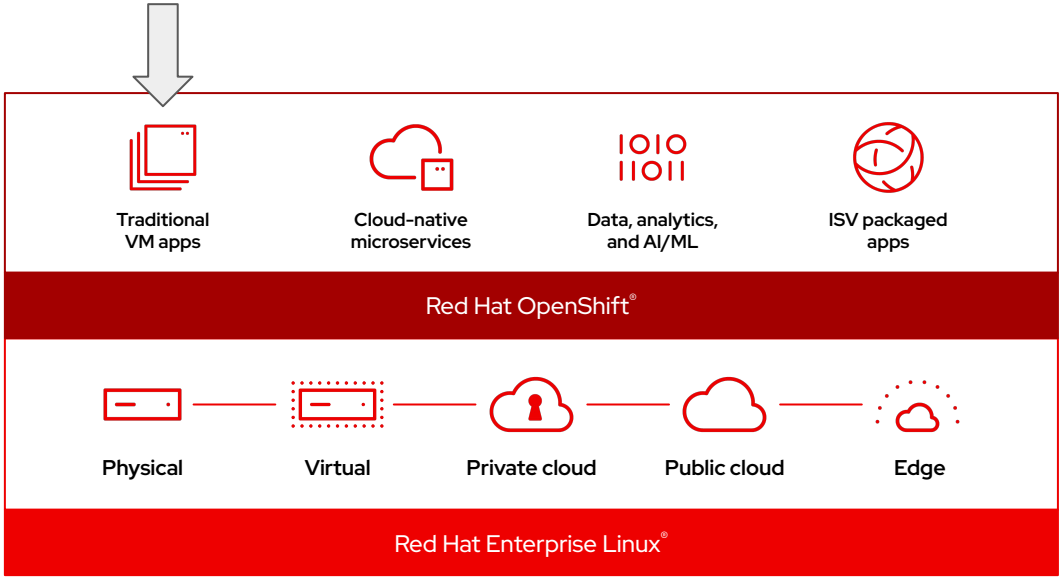
Acquisition + migration cost = VM + Kubernetes only platform

Migration from VMware to OpenShift

OpenShift

1. Stepping stone to an Application Platform.
2. Opportunity to modernize to containers: AI/ML, CICD, Cluster Management,DevOps, GitOps, Security **included**.
3. Virtual machines as first class citizens.
4. Includes AI platform (SKU add-on).





Acquisition + migration cost = Modern app platform with VMs

Red Hat Learning

Nutanix

Red Hat Internal Link to Nutanix Competitive Update 5/7/2025

Red Hat

Summary of Nutanix

- Nutanix focuses on hyperconverged offerings: the hardware, operating system, hypervisor, networking and storage sold as single unit with little flexibility/choice.
- Nutanix is attractive to VMware customers as it offers a similar experience.
- Nutanix cloud native/Kubernetes is **not** rated by analyst firms (Gartner, Forrester, IDC etc) due to lower revenue than required for a Magic Quadrant rating.

Nutanix has fewer modernization options than OpenShift Virtualization offers. Customers adopting Nutanix would be doing a lift and shift with little gain other than a different virtualization platform.

OpenShift offers customers choice of hardware, storage, networking and more from a partner ecosystem. A modern container based platform: AI, security and management round out a comprehensive cloud native platform for VMs, containers and serverless at the edge, on-premises or managed service in the cloud.

At a glance, Red Hat & Nutanix

	Red Hat OpenShift	Nutanix AHV
What is it?	Flexible open platform: cloud, on-prem Edge	Turnkey appliance: compute and storage tightly integrated
Offering	Application platform available as a managed service in the cloud, on-prem or at the Edge. AI offering and Automation with Ansible.	Hyperconverged appliance storage and compute with a Kubernetes add-on. Not a fully fledged application platform.
Scaling	Highly scalable across cloud or bare metal	Limited to capacity of each additional appliance.
Initial experience	More complex .	Quicker turnkey.
Market penetration	SMB, Commercial, Enterprise, Public Sector	Mostly SMB & commercial

For customers that strongly prefer an appliance:
OpenShift is available in appliance form factor from DELL APEX, IBM Fusion and HPE Greenlake

Red Hat

OpenShift or Nutanix Kubernetes Platform, differentiators

- **Linux**: OpenShift is built on Red Hat Enterprise Linux which has a 25+ year history as the most widely deployed commercial Linux offering, while Nutanix offers unsupported Rocky Linux or bring your own
- **Kubernetes**: Red Hat secures and makes Kubernetes enterprise ready, whereas Nutanix offers 'pure' upstream Kubernetes with no backports, lifecycle or support.
- **Updates**: Red Hat offers over the air updates of the entire platform including Linux.
- **Security**: Red Hat leads with Advanced Cluster Security and security of Linux.

In addition:

- Red Hat customer references
- Red Hat leadership in analyst reports where Nutanix is **absent**
- Red Hat leadership in upstream contributions which enables Red Hat to create Enterprise grade open source software that is secure, backported for fixes and with long term lifecycle support

*More detail on Nutanix here.

High level comparison 1/2

Criteria	Red Hat OpenShift Virtualization	Nutanix
Virtualization Type	Container-based/ Hybrid/Hyperconverged	Hyperconverged (only)
Traditional or Modern Virt	Modern	Traditional
Virtualization Technology	KubeVirt (based on KVM)	AHV (based on KVM)
Proprietary	No	Yes
Management	OpenShift Container Platform	Prism Central
Licensing Model	Subscription-based	Subscription-based
Integrated Solution	OPP+ includes K8s, Virtualization, Mgmt, Storage	Pay for Services Separately
Ecosystem	Marketplace.redhat.com	Nutanix Marketplace
Cloud Providers	All major cloud providers	AWS and Azure
Scalability	High	Medium

High level comparison 2/2

Criteria	Red Hat OpenShift Virtualization	Nutanix
Automation	Yes	Yes
Hardware Compatibility	Large ecosystem	Specific
Open Source	Yes	No
Migration Tools off VM	Yes (MTV)	Yes
Maximum node counts	500 Nodes per cluster	32 Nodes
DHCP Required	Yes for IPI / No for all other methods	No
Storage Solution	ODF (Internal or external Ceph Storage) Partners	Nutanix Unified Storage only
Multi Cluster Management	Advanced Cluster Management (or 3rd party)	Prism Central
Network Configuration	SDN, OVN-K, Service Mesh or 3rd party	OVS
Backup	OADP or 3rd party (Veam/Kasten, etc...)	Leap (policy driven DR/Run books)
Management VM required	No	Yes
GPU support	Yes	Yes
Hardware purchase required	No	Yes (No if unsupported)

Objection Handling - Hypervisors

"We are a big MSFT shop - it just makes sense to jump to Hyper-V."	Red Hat offers flexible architectures based on modern open processes to solve customer problems. Hyper-V architectures are Microsoft centric with less flexibility and more lock-in. • Hyper-V is older technology compared to the newer cloud native KubeVirt that is included with Red Hat OpenShift. • Hyper-V requires Microsoft System Center which may be a larger add-on cost. • OpenShift offers customers choice of hardware, storage, networking and more from a partner ecosystem.
Why wouldn't I just move to Microsoft's Hyper-V or Nutanix?	• Microsoft's Hyper-V is a virtualization only platform on Windows Server on premise or as Azure VMs. OpenShift is a complete cloud-native application platform available on-prem, on ROSA (AWS) and at the Edge. • Nutanix does have a hypervisor and architecturally similar approach to VMware. Having said that, do you really want to exchange one proprietary, legacy technology for another? Red Hat's Open Virtualization infrastructure migrates you to a "future proof" platform with comparable virtualization functionality today AND the ability to modernize at your own pace going forward.
"Nutanix looks and feels like what I use now PLUS they have kubernetes as well!"	• Red Hat secures and makes Kubernetes Enterprise ready, whereas Nutanix offers 'pure' upstream Kubernetes with no backports, lifecycle or support. • OpenShift is built on Red Hat Enterprise Linux which has a 25+ year history as the most widely deployed commercial Linux offering, while Nutanix offers unsupported Rocky Linux or bring your own. • Let's compare solutions by looking at analyst report ratings and customer references.

SUSE/Rancher

Red Hat

OpenShift Virtualization or SUSE Virtualization - offering

	OpenShift Virtualization	**SUSE Virtualization**
Linux	RHEL	SUSE
Virtual Machine hosting	KubeVirt	Kubevirt
Container Orchestration	Kubernetes	Kubernetes
Storage	ODF + **partners**: HPE, Hitachi, IBM, Portworx	Longhorn
Networking	CNI / Multus / OVN-Kubernetes / SRIO-DPDK	Multus
Logging	Red Hat OpenShift Logging Operator and LokiStack & external systems	FluentD & external systems
Monitoring	Prometheus	Prometheus
Backups	OADP + **partners**: Portworx, Trilio, Vault	Backup command
Public Cloud	Managed service in AWS - ROSA	X
GPU support	✅	✅

OpenShift Virtualization or SUSE Virtualization - resources

	Red Hat	SUSE Virtualization
Reference architectures / eBook	Ref Arch eBook	None on the SUSE website
Online demos	YouTube	None on the SUSE website
Online whitepapers	Large scale tuning guide	None on the SUSE website
Customer training class	Available	None on the Rancher website
Managed Service on AWS	ROSA	Not available

Major Difference in Developer Experience

- Curated Developer Experience (OpenShift developer tools)
    - Code Ready IDE, ODO, IDE PlugIns, Helm, GitOps, Serverless, Data services, Source to Image, any language, 200+ Helm charts/ certified containers
- 100% Open Source Tool Flexibility across all aspects of application lifecycle (code/debug, build/package, run, CI build, CD deploy)

SUSE Rancher

- 100% DIY with customer responsible for all integrations
- Minimal Helm Chart catalog

Objection Handling - Others

"Oracle offered me a sweet deal."	Oracle Virtualization lacks the modernization options available with the OpenShift Platform. Moving to Oracle for virt would amount to a lift and shift with no other benefits. ● Oracle Virt is KVM virtualization only ● Low contributions to KubeVirt project - innovation? ● Kubernetes/containers available as a separate add-on.
"SUSE told me that along with Rancher they basically offer the same thing as you do?"	The SUSE Rancher solution provides more basic kubernetes functionality, in contrast with the complete application platform that is OpenShift. The SUSE Rancher solution has: ● A limited ecosystem compared with OpenShift ● No managed service options for virt in the cloud ● Limited support options and documentation
"Red Hat is becoming just like IBM - I am thinking about a small company solution like Proxmox."	Proxmox lacks the modernization options that OpenShift Virtualization offers. Customers adopting Proxmox would be doing a lift and shift with little gain other than a different Virtualization platform. ● Proxmox is a tiny company, per LinkedIn about 30 employees ● Product offering is KVM virtualization only, missing: AI, cloud service, developer platform, Linux, security, management ● No ratings by analyst firms (Gartner, Forrester, IDC etc) ● Small partner ecosystem, low if any CNCF contributions. ● Support limited to 8 hours a day EMEA timezone

High Level Comparison

	Red Hat OpenShift	AWS Outposts	Azure Stack	Google Distributed Cloud
Hardware	Choice of certified hardware Customer can re-use existing hardware.	AWS provided hardware Customer **cannot** re-use existing hardware.	Certified hardware Customer **cannot** re-use existing hardware.	Partner hardware Customer can re-use existing hardware.
Software	OpenShift with Virtualization	Prescribed AWS services	Prescribed Azure services	Anthos/GKE Enterprise
Management	ACM and Ansible	AWS console	Azure Console	Google Console
Disconnected	Yes	No	No	Yes
Containers	OpenShift based on Kubernetes	EKS distro of Kubernetes	AKS distro of Kubernetes	GKE distro of Kubernetes
Virtual Machines	OpenShift Virt operator (Kubevirt)	Migrated to EC2	Migrated to HyperV	VM runtime (Kubevirt)
Linux guest	RHEL **included**	RHEL, Centos	Azure Linux, RHEL, SUSE, Ubuntu	RHEL, Ubuntu, Rocky
Windows guest	Not included	Not included	Not included	Not included
Migration tool	MTV	AWS Migration ?	VMM; Starwind	M2VM

*Public cloud on-prem VMware alternatives

OpenShift Virtualization Differentiators

Differentiator	Description
Simplifies the migration of VMs	Customers are able to easily migrate their existing virtual machine workloads with migration tooling that is already included with Red Hat OpenShift. For large-scale migrations, the Red Hat Ansible Automation Platform (AAP) adds further efficiency, ensuring a smooth and automated transition.
Offers a path to infrastructure and application modernization	Red Hat OpenShift Virtualization is part of a unified hybrid cloud platform that allows customers to build, modernize, and deploy applications at scale. Red Hat OpenShift Virtualization brings modern application development processes and tools to VMs that help expedite the modernization of VM-based applications including the integration of AI capabilities.
Provides a single modern cloud-native virtualization infrastructure for existing VMs	Red Hat OpenShift supports VMs, containers, and serverless, allowing customers to standardize infrastructure deployment and maintenance on a single platform. Teams can also use the same development pipelines for applications in VMs or containers, regardless of where they run – on-premises, or in hybrid, public, or private clouds, providing consistency and flexibility.
Supported by a healthy open source community and diverse partner ecosystem	Red Hat has been involved in the virtualization space since the inclusion of the Kernel-based Virtual Machine (KVM) hypervisor to the Linux Kernel in 2007. Paired with KubeVirt for VM management, a project that Red Hat engineers have been involved with since its inception, both KVM and KubeVirt are at the heart of OpenShift Virtualization, and leverage the strength of open source development and an extensive community of corporate and individual contributors. In addition, Red Hat works with our partner ecosystem to integrate storage and networking, backup and disaster recovery, and hardware infrastructure.

Additional Resources

- BU OpenShift Competitive Pages: Source, RHCC
- Summary of Competitive Features - Virt
- OpenShift Virt - VMware Alternatives deck
- RH1 Preso - How to handle objections and master virtualization conversation
- MS Azure or Red Hat
- Nutanix or Red Hat
- Rancher/SUSE or Red Hat
- Oracle Virt or OpenShift Virt
- ProxMox or OpenShift Virt
- Customer References Page
  - Virt References Deck
- Analyst Relations Page
- Virt Sales Play Page

OpenShift Virtualization Assets Deck

red.ht/virt_assets

Discussion

- What were your most common objections and competitive situations?
- What unique objections or competitive situations have you seen previously with your customers?

15 Minutes

Ask Me Anything and Discussion - Day 2

Presenter: Platform, BU, Services

Wrap up and close Day 2

Presenter: Field & Partner Learning

15 Minutes

Red Hat Learning

Next Steps

1. Complete EPW-Virt-Presales **post-event survey**
2. **Evangelize** what you learned this week/promote VMA

   (talk to your account teams including TSM and ecosystem)
3. Check out the latest **Tech Power Hour: Virtualization**

   (partner recording coming soon in PTP)
4. Attend tomorrow's **Power 90**

   (Enterprise Storage for Virtualization with IBM Fusion Access for SAN)
5. Share your **Pitch to Win** slide decks in our Slack channel

Thank you for attending!

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Learning