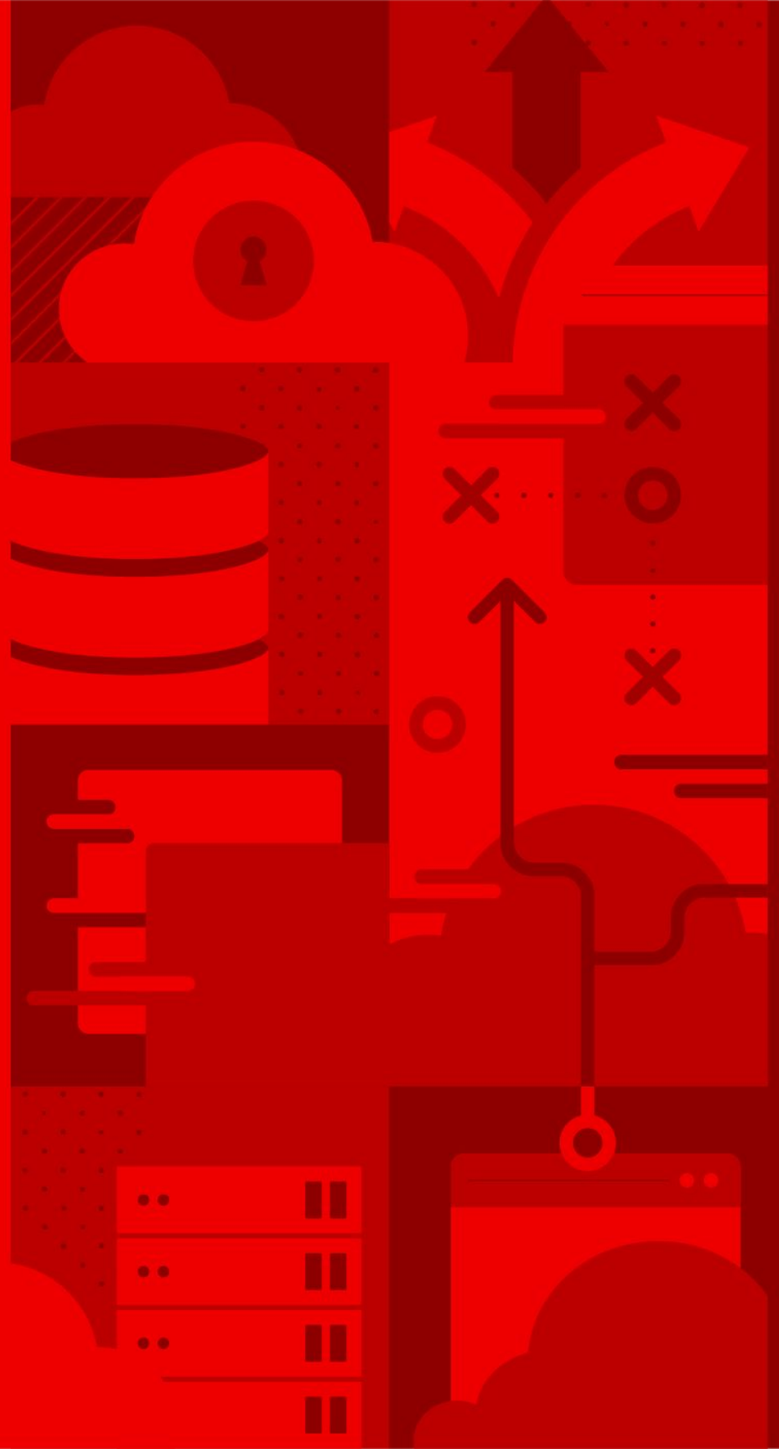


Infrastructure Migration Solution

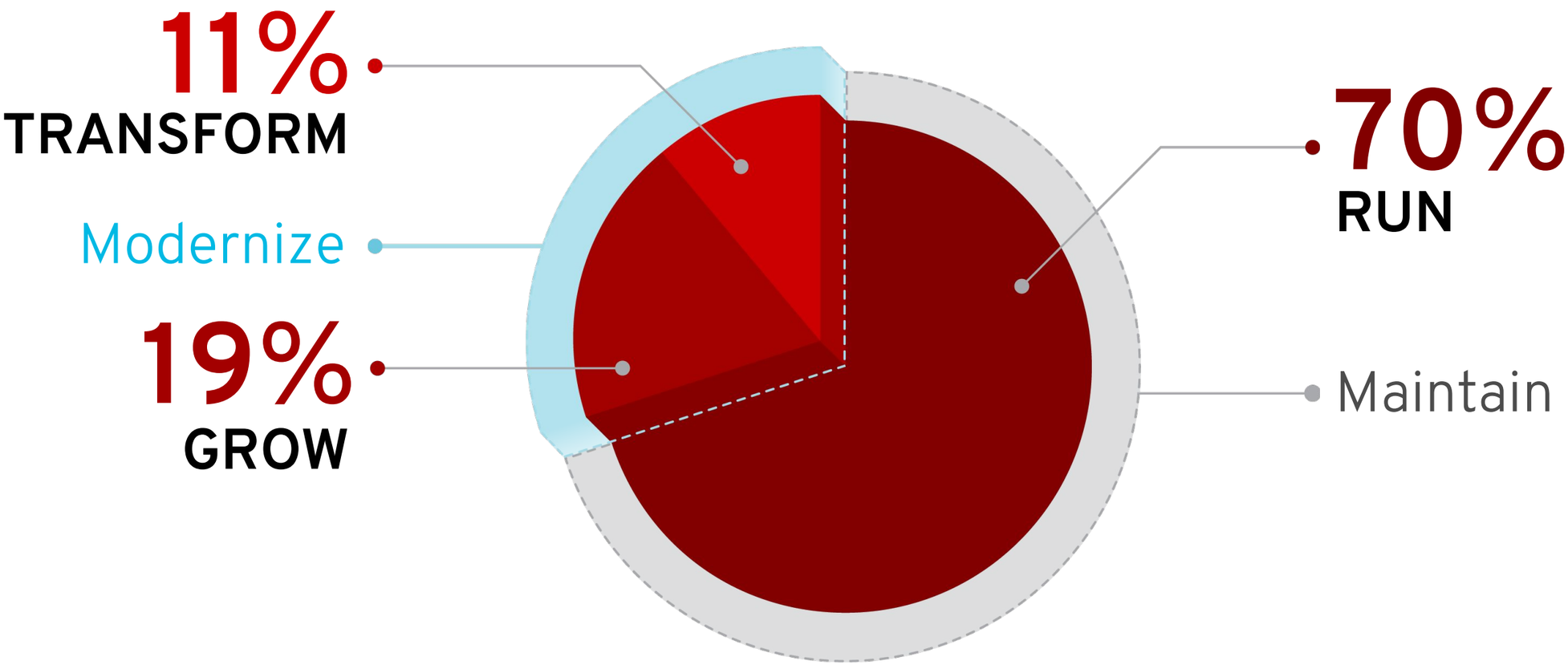
Red Hat

AGENDA

- Introduction: What is IMS?
- Ideal customer profile
- How does IMS work?
- Migration journey
- Customer success stories
- Best Practices/Considerations

INTRODUCTION

MAINTAIN AND MODERNIZE



Source: Graph created by Red Hat based on Gartner research. Potter, Kurt, Sanil Solanki, and Ken McGee, Run, Grow and Transform the Business IT Spending: Approaches to Categorization and Interpretation. Gartner G00308477, 27 June 2016

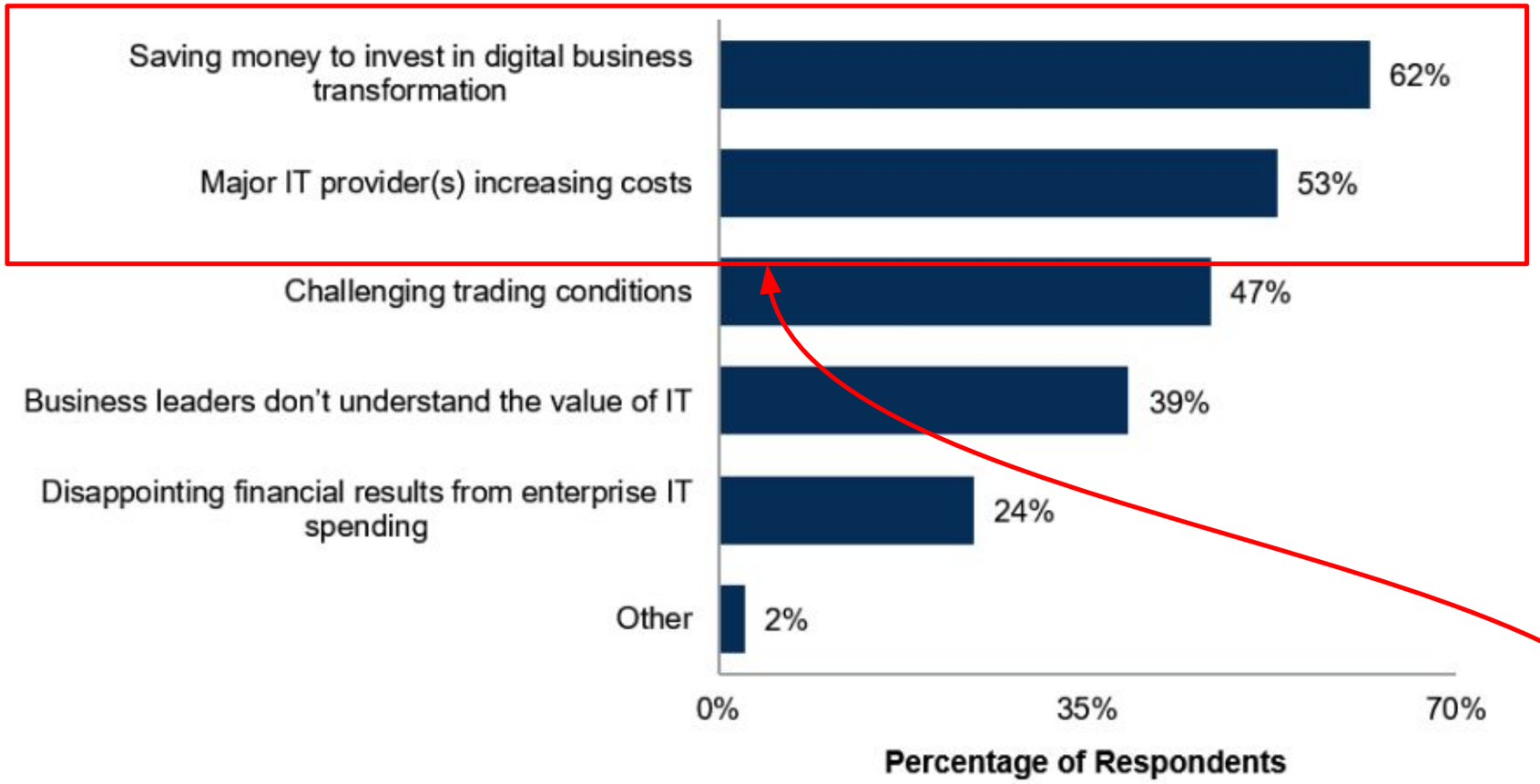
STATUS QUO

Continually increasing costs, limited capacity, virtual machine centric

MODERNIZE AND MIGRATE

Decrease cost, increase capacity, invest in transformation

OPTIMIZE ENTERPRISE IT SPENDING IN YOUR ORGANIZATION



Source: Gartner, Enterprises Cut IT Budgets to Pay for Digital Business. October, 2018 https://www.gartner.com/document/3891073

"Saving money to invest in digital business transformation is now the top reason why organizations optimize IT spending: Companies are spending more on digital business transformation by spending less on other forms of IT. Cost increases from major IT providers are the second-most-common reason for optimizing other IT costs"

DIGITAL BUSINESS TRANSFORMATION: Red Hat
MAJOR IT PROVIDER: VMware

INFRASTRUCTURE MIGRATION SOLUTION (IMS)

Products

Red Hat Virtualization

Red Hat OpenStack

Red Hat CloudForms

Services

Planning and Platform Setup

Migration Tooling and Approach

Migration Execution

Training

Red Hat Learning Subscriptions

Migrate to an Open and Modern Infrastructure

Optimize existing infrastructure in order to invest in digital transformation initiatives

VMWare to RHV & OpenStack

CentOS or OEL to RHEL

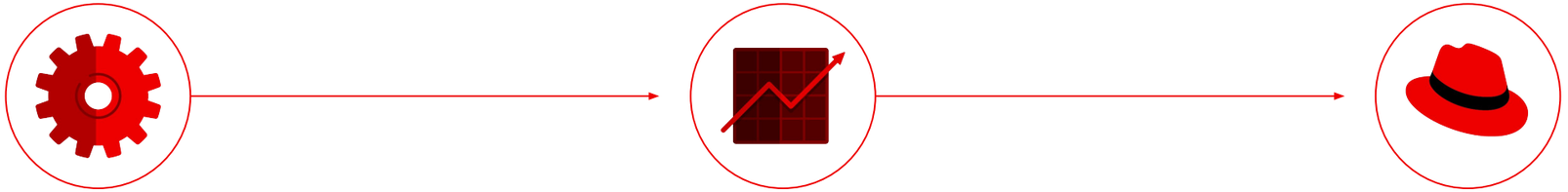
Customer Benefits

- Take out cost from existing infrastructure allowing to fund innovation initiatives
- Accelerate cloud native development and optimize existing IT
- Phased journey to hybrid cloud
- Increases I.T.'s strategic relevance

IMS Current Status

- IMS 1.2 - GA June 6, 2019
  - Allows migrations from VMware 6.0 (and later)
  - Based on RHV 4.3+, RH OpenStack Platform 13+, CloudForms 4.6+
- IMS is part of Red Hat Modernization and Migration Solutions offerings
- Solution Brief
- Documentation
- Initial idea presented at Red Hat Summit 2015 (has come a long way…)
  - Session: *Cloud Automation: Migrating 1000+ Servers from vCloud to OpenStack*

It's never ever been easier to migrate from proprietary to a fully enterprise ready open source solution



Application	**Red Hat Application Migration Toolkit**	Red Hat Middleware
Operating system	**Convert2RHEL**	Red Hat Enterprise Linux®
Hypervisor	**Infrastructure Migration solution**	Red Hat Virtualization or Red Hat OpenStack Platform

INFRASTRUCTURE MIGRATION STRATEGY

HOW TO MOVE YOUR CUSTOMER'S VMWARE BUDGET TO RED HAT TECHNOLOGIES

FIND THE RIGHT ACCOUNTS

PROPOSE A COMPELLING ROI AS A WAY TO FUND INNOVATION

ACCELERATE THE MIGRATION JOURNEY

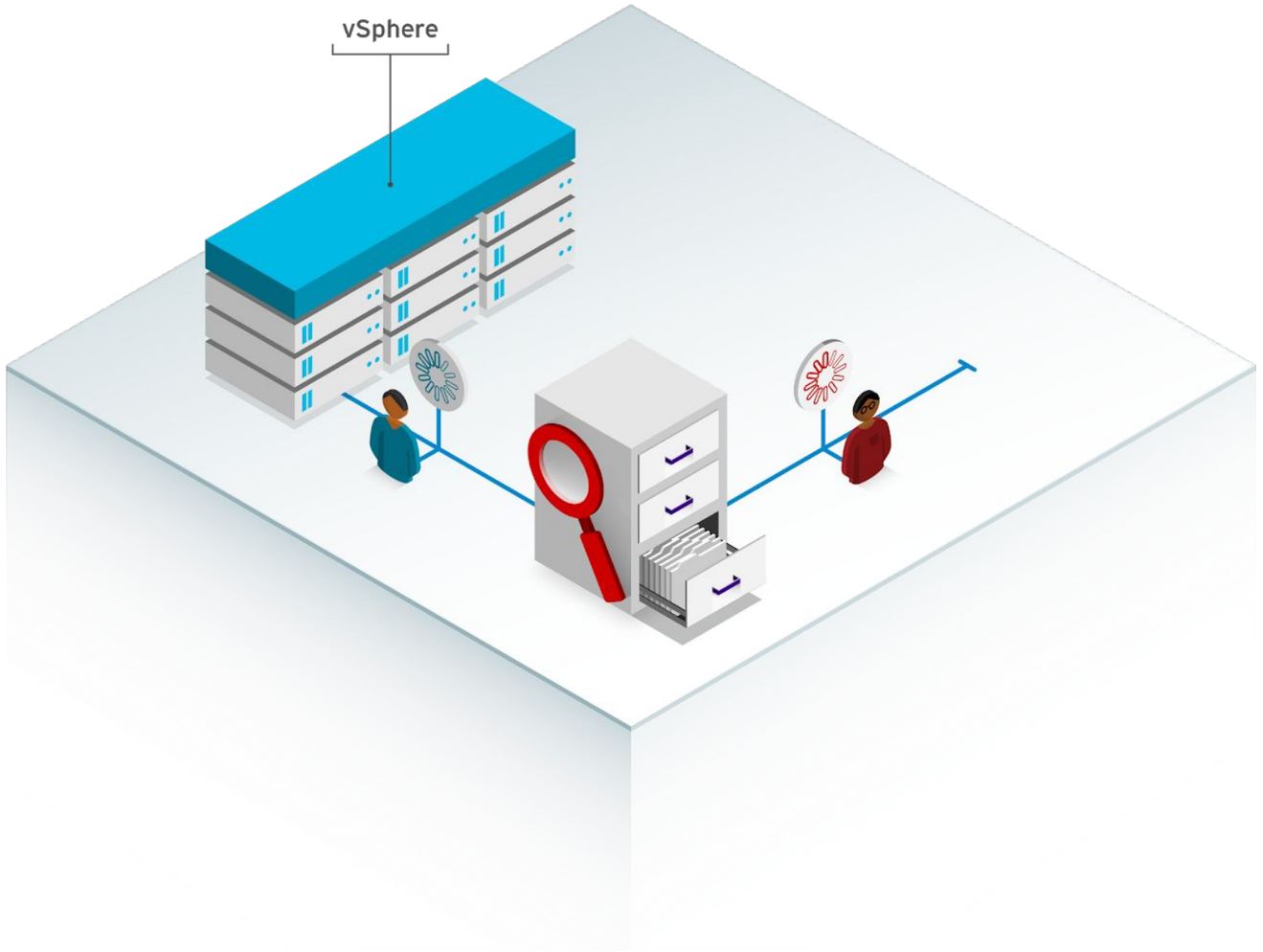
IDEAL CUSTOMER PROFILE

- Customers interested in building cloud native capabilities.
- Customers where VMware Enterprise License Agreement (ELA) is ending within the next 12-18 months.
- VMware Installed base:
  - Medium to Large
- Not heavily invested in VMware ecosystem
  - Not satisfied with NSX
  - Not satisfied with vSAN
  - Not *heavily* utilizing SRM
  - Not *heavily* utilizing vRealize Suite
- Other positives
  - Account has a technical account manager
  - Account has been and is open to purchasing consulting services
  - Account has a pro open source strategy

HIGH-LEVEL OVERVIEW:
HOW DOES IMS WORK?

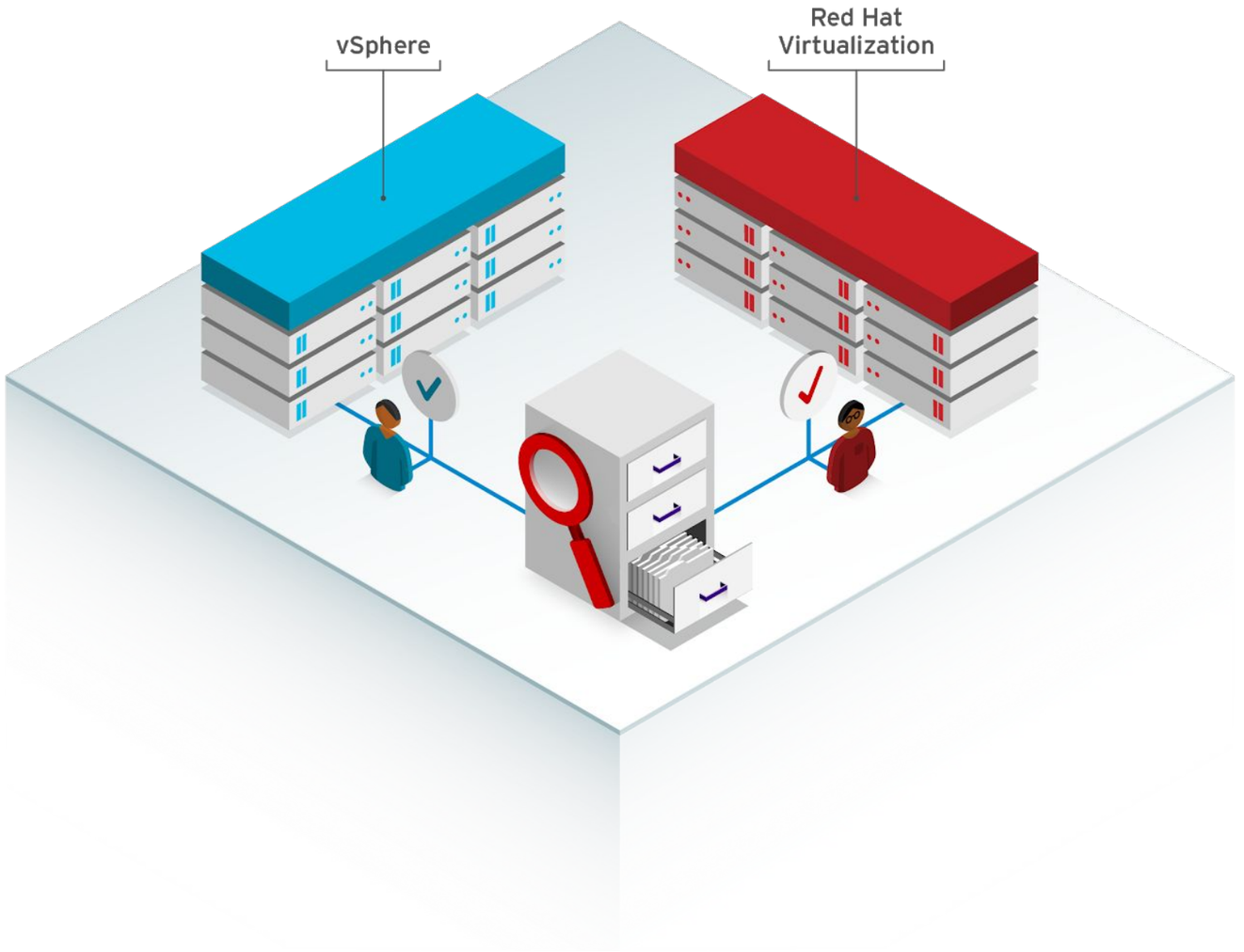
INFRASTRUCTURE MIGRATION SOLUTION

Discovery and assessment of your migration



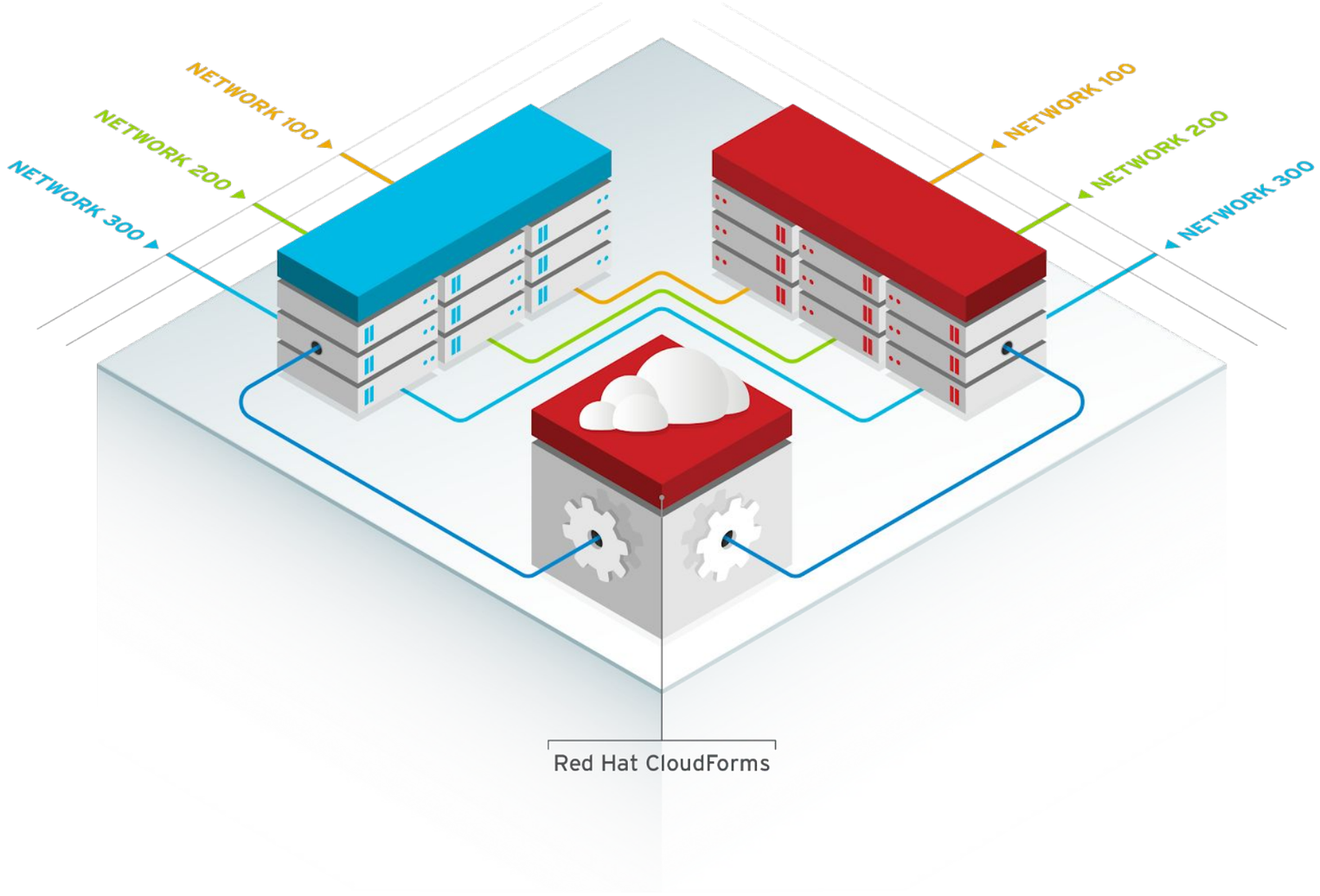
INFRASTRUCTURE MIGRATION SOLUTION

Setting up a Red Hat® Virtualization environment sized for your migration



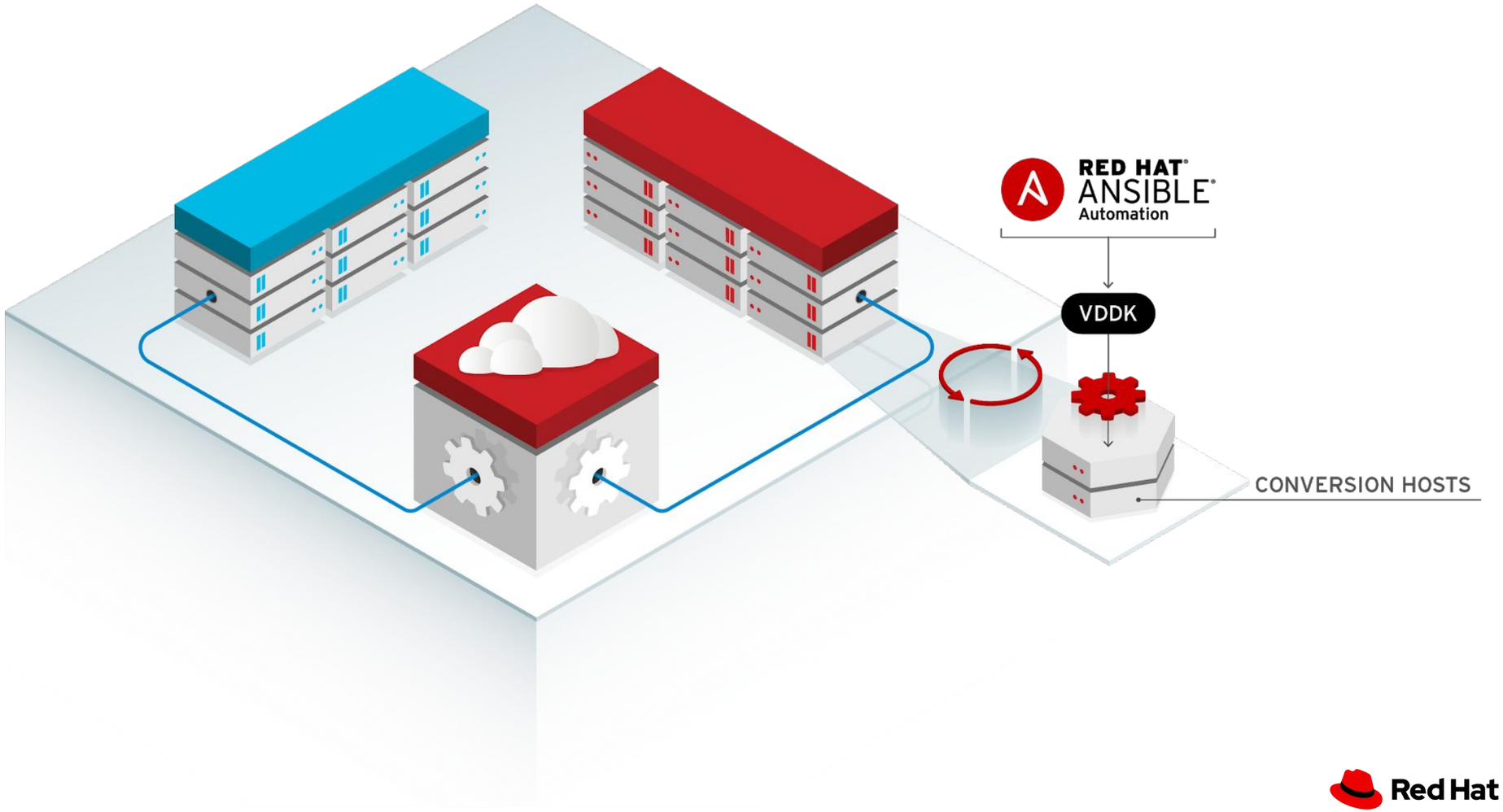
INFRASTRUCTURE MIGRATION SOLUTION

Install Red Hat CloudForms® and configure both providers



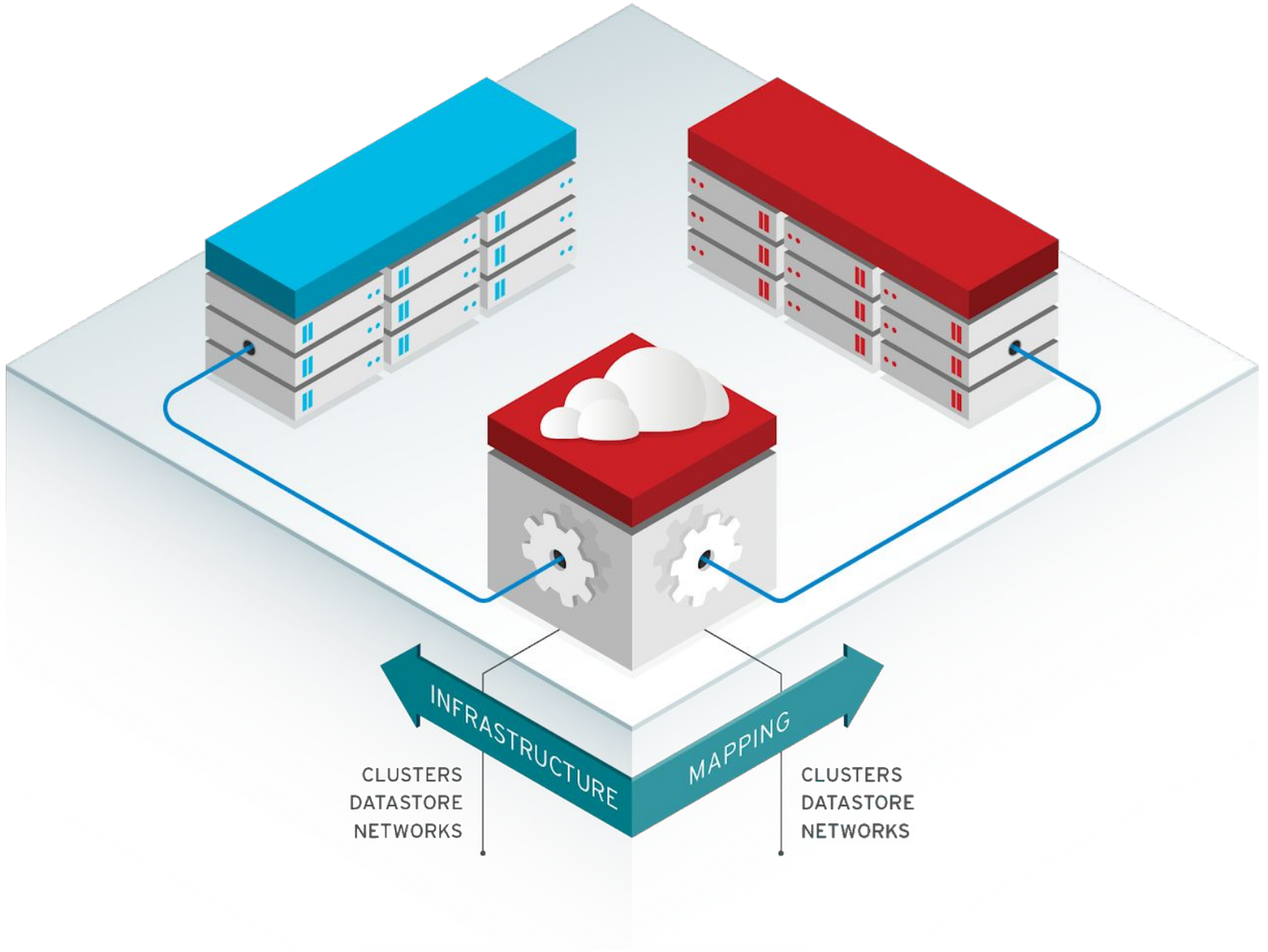
INFRASTRUCTURE MIGRATION SOLUTION

Setup multiple conversion hosts



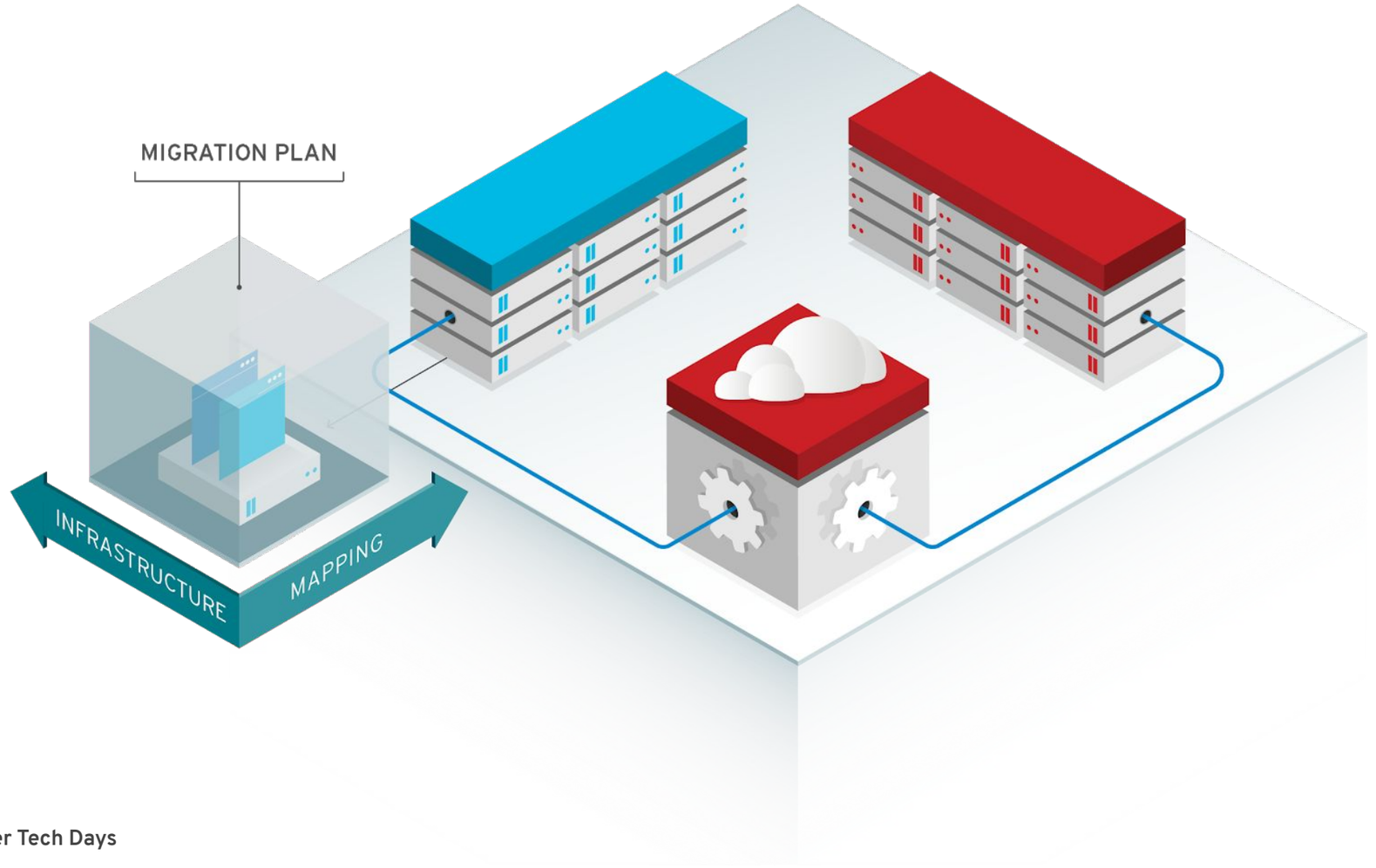
INFRASTRUCTURE MIGRATION SOLUTION

Use the infrastructure mapping wizard to map both solutions



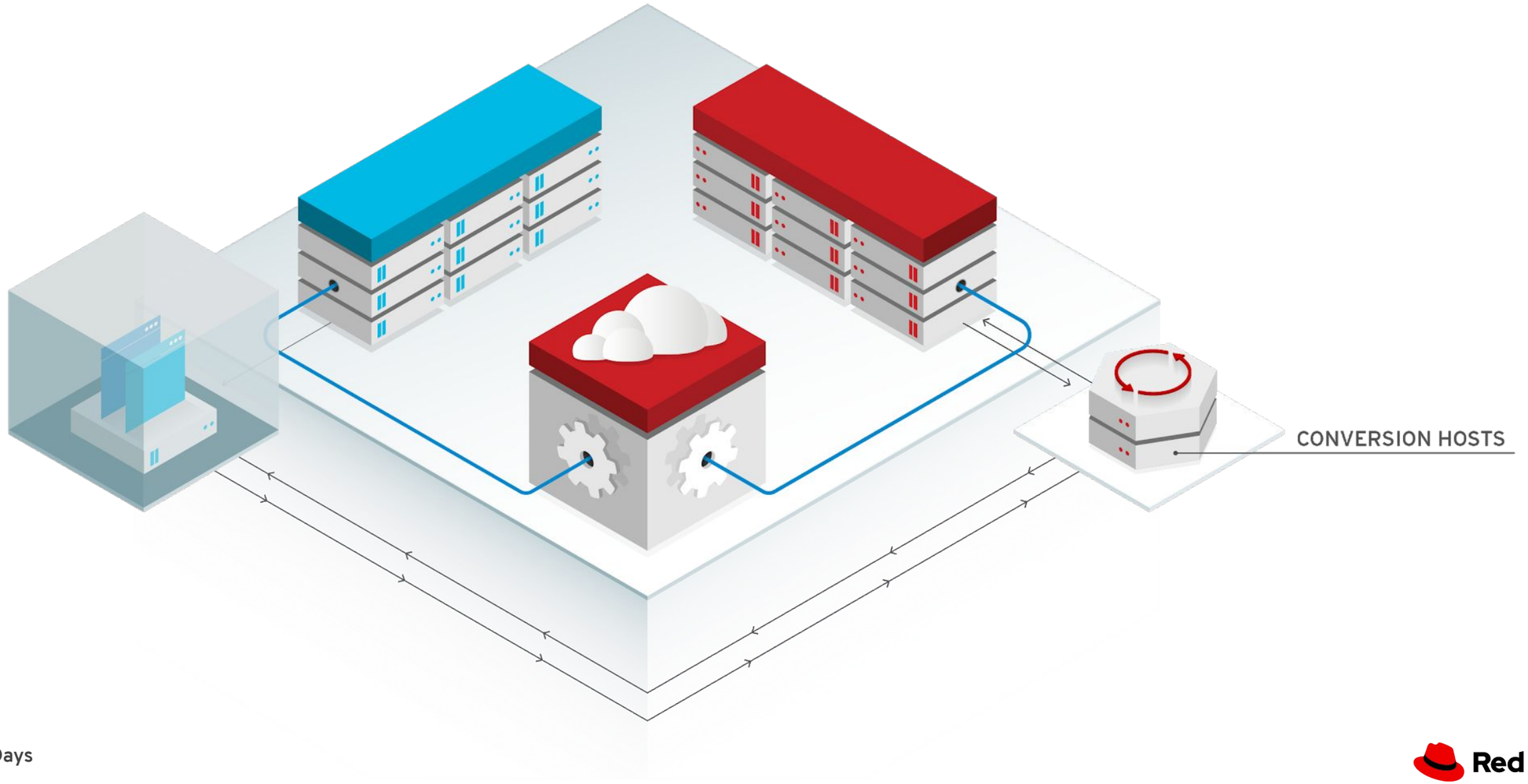
INFRASTRUCTURE MIGRATION SOLUTION

Create your migration plan attached to an infrastructure mapping



INFRASTRUCTURE MIGRATION SOLUTION

Launch your migration

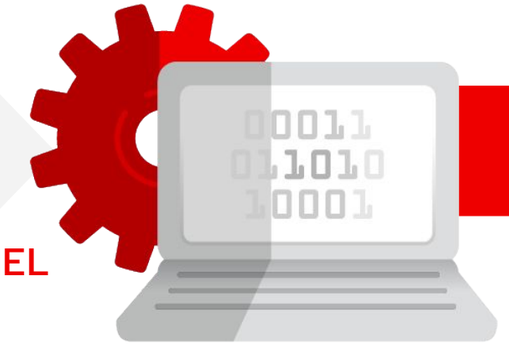


Optimizing the Operating System

ORACLE Linux

No extended update support and less than 3-year life cycle for unbreakable enterprise kernel

Convert2RHEL



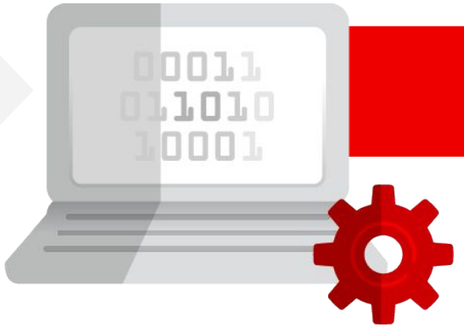
Red Hat Enterprise Linux

Extended update support and 10-year life-cycle promise

CentOS

No enterprise support

Convert2RHEL



Red Hat Enterprise Linux

Full enterprise support

Red Hat KB Article: [How to convert from CentOS or Oracle Linux to RHEL]

USING ANSIBLE FOR ADVANCED USE-CASES

Pre and Post migration automation

MIGRATION PLAN

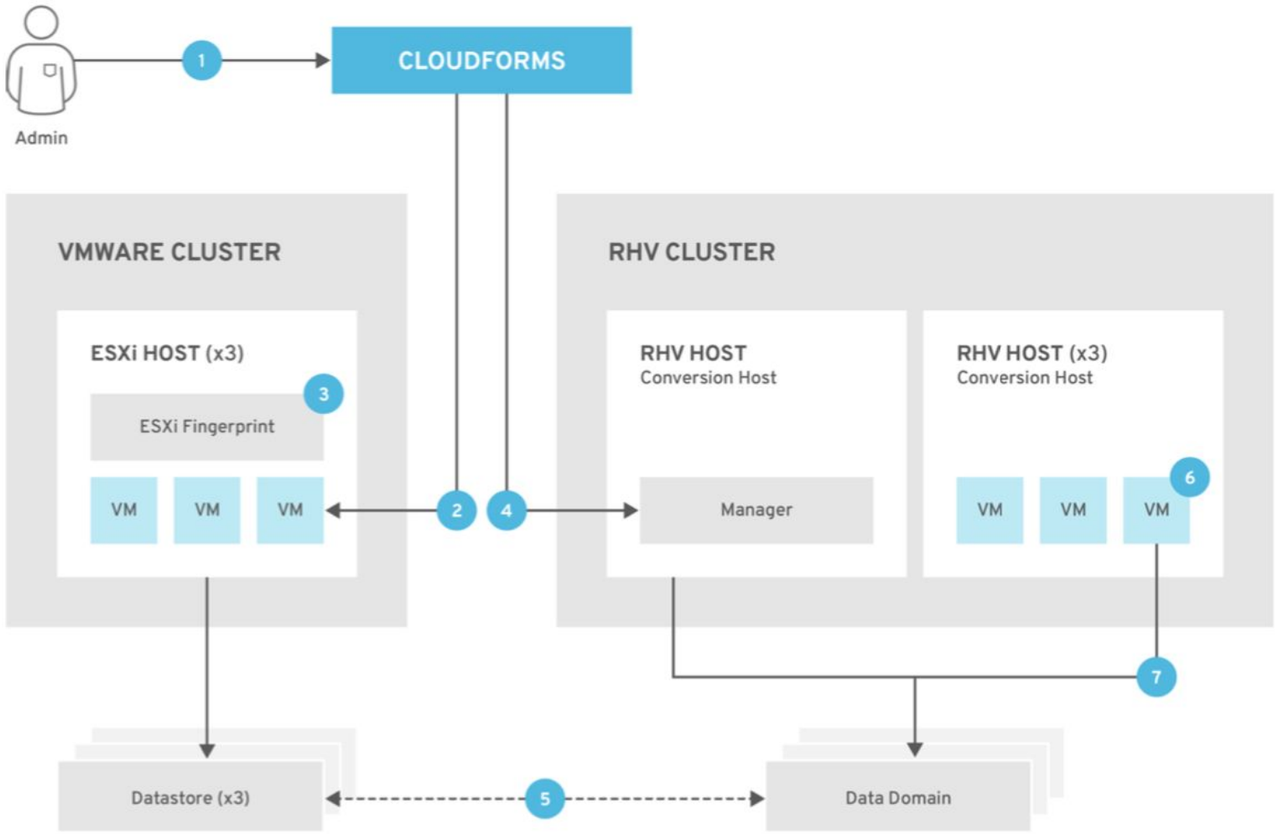
- WEB01
- WEB02
- APP01
- APP02
- DB01

Red Hat
Ansible Automation
Platform

Some use-case examples...

- Remove VM from load-balancer before the migration.
- Disable your monitoring during the migration
- Change VM configuration or install packages post-migration
- Automated testing post-migration
- Notify me when a migration is completed

Details: Migration to RHV Workflow



Overview: Cloudforms...

1. Build migration plan
2. Locate the source VM's
3. Capture the source authentication info to use during the VM conversion
4. Initiate communication with the RHV hosts (where `virt-v2v` and `virt-v2v-wrapper` tools are installed)
5. Connect to the source datastore and stream the source disks -> target data domain and convert the source disks
6. Create RHV VM using the source virtual machine's metadata (tags, power state, MAC address, CPU count, memory, etc.)
7. Attach the converted disks to the RHV VMs

Migration Journey

DISCOVERY SESSION
1-2 Days

MIGRATION PILOT
8 Weeks

MIGRATION AT SCALE
Ongoing

OUTCOMES

- Alternative platform and migration framework established
- VMs cataloged and prioritized
- Migration approach defined and tested
- Customer-led migration validated

CUSTOMER PARTICIPANTS

- Virtualization lead
- Migration team
- Ongoing support and maintenance by customer's operations team

RED HAT PARTICIPANTS

- Architect
- Principal consultant
- Project manager
- Red Hat Customer Experience and Engagement - customer support as needed

CUSTOMER SUCCESS

CorpFlex

A Cloud do seu negócio em boas mãos

REDUCED COST
AND INVESTED IN
DIGITAL TRANSFORMATION

INDUSTRY
IT Managed Services

COMPANY OVERVIEW
Major Brazilian cloud services company, with medium-to-large-sized customers operating nationally and globally.

MIGRATION
Red Hat Infrastructure Migration Solution, Red Hat CloudForms, Red Hat Virtualization, and Red Hat OpenShift

NET RESULT
CorpFlex successfully used the Red Hat infrastructure migration solution to reduce the cost and complexity of its IT infrastructure by 87% The savings were then used to adopt and deploy Red Hat OpenShift..

“

As our customers begin to digitally transform, it’s critical that we are able to support them in these initiatives and not be bogged down by poorly-performing and costly legacy infrastructure. With Red Hat Virtualization, we’ve not only seen cost-saving in terms of licensing per virtual machine but we’ve also been able to enhance our own team’s performance through Red Hat’s extensive expertise and training. We expect Red Hat Virtualization to also help us build the foundation for future solutions, including offering Red Hat OpenShift as-a-service, to meet our evolving customer needs."

DIOGO SANTOS
CTO
CORPFLEX

Red Hat

Intermountain® Healthcare

REDUCED COST
AND INVESTED IN
DIGITAL TRANSFORMATION

INDUSTRY
Healthcare

SIZE
22 hospitals and 1,400 physicians
at 185 clinics.

MIGRATION
Red Hat CloudForms® and Red Hat Ansible® Automation provide the tools needed to help migrate to Red Hat Virtualization

PROBLEM
Enterprise license agreement (ELA) posed significant price increases with little additional value.

“As we look to the future, it was imperative that we be able to bring IT automation to all aspects of our business, and that our infrastructure was flexible enough to do so. After many considerations, an open source environment was the best option to support our needs. Red Hat has helped us in this transition, providing solutions with an automation-centric approach in mind that have helped to streamline operations and cut costs.”

BRET LAWSON
DIRECTOR
INFRASTRUCTURE AND OPERATIONS, INTERMOUNTAIN HEALTHCARE

Red Hat

IN CLOSING...

Additional Resources

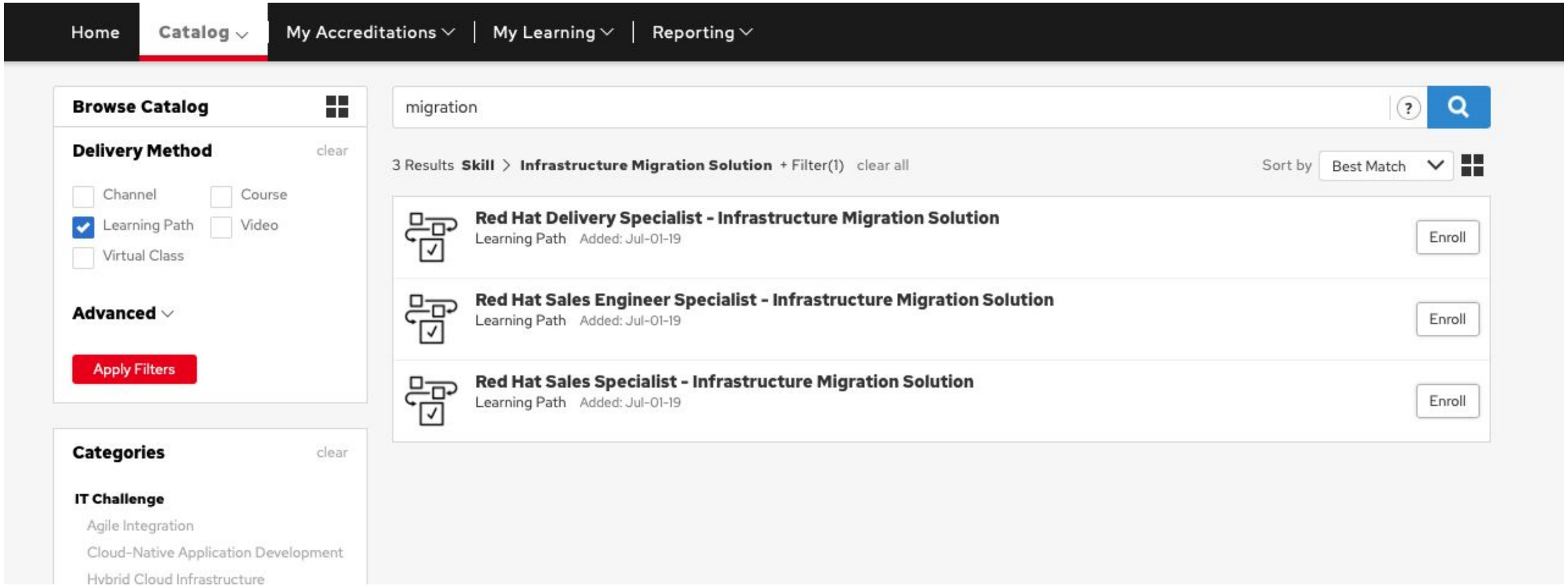
Converting virtual machines from other hypervisors to KVM with virt-v2v in RHEL 7 and RHEL 8
https://access.redhat.com/articles/1351473

CloudForms Statement of Direction Frequently Asked Questions (FAQ)
https://access.redhat.com/articles/4647061

> *"...We will continue to embed CloudForms technology within Red Hat Virtualization Suite (RHVS), Red Hat OpenStack Platform (OSP), Red Hat Cloud Suite (RHCS), and Red Hat Infrastructure Migration Solution (IMS).*

CloudForms updated Statement of Direction
https://access.redhat.com/articles/4639821

OPEN Partner Training



Best Practices

- Currently, IMS supports only cold migration
  - Virtual machines are powered off gracefully as part of the migration process
  - Allow for 1 of both environments to be active

- Plan for migration to take time
  - Create migration groups, so that you are not migrating all of your VM's at the same time (parallel)..which is default behavior

- Size your RHV or OpenStack environment carefully
  - Create multiple conversion hosts for load-balancing

- Need network and storage teams on-board

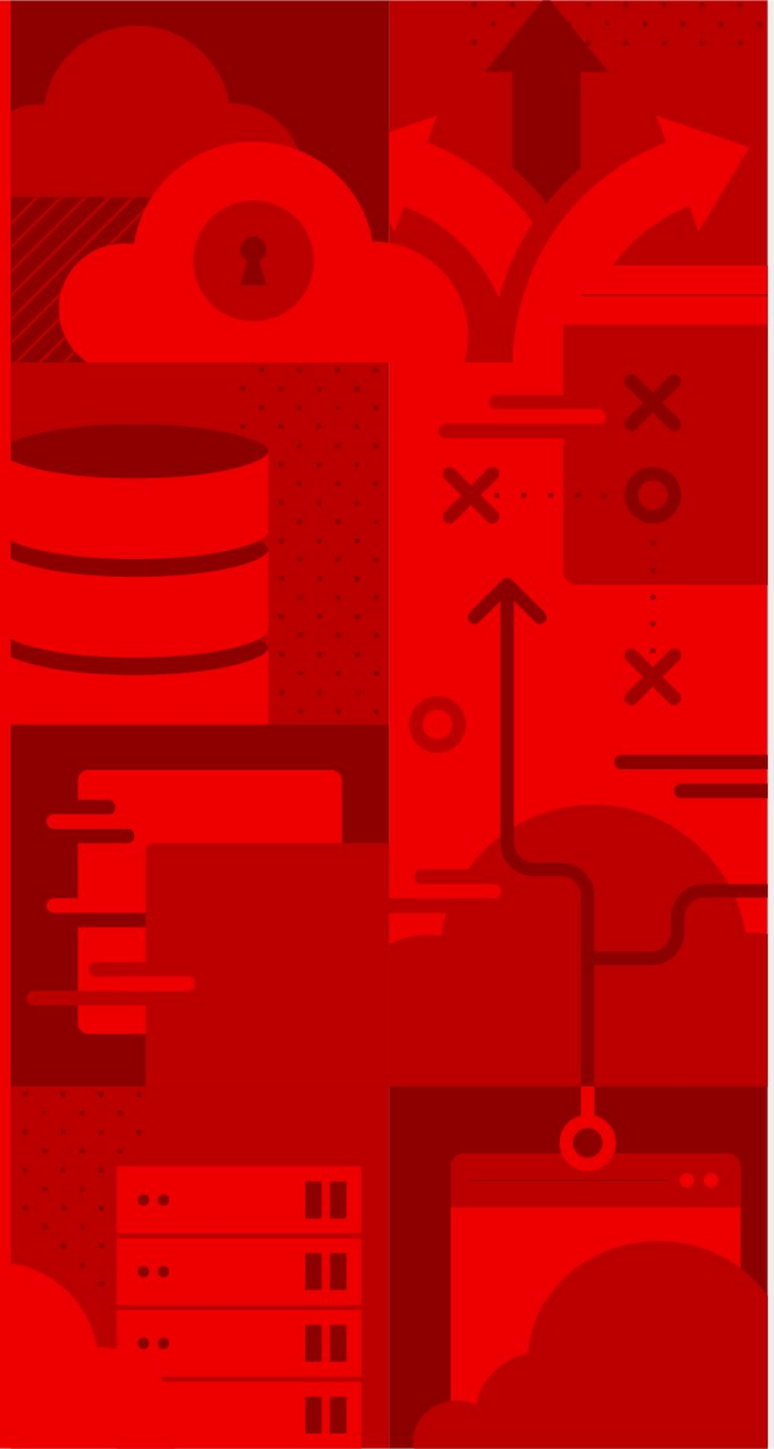
Things to consider...

Questions and Planning

- What am I migrating? Create a clear plan
- What is the maximum number of disks or virtual machines that I can migrate?
- What operating systems can I migrate?
- What impact will the migration have on my users?
- How long will the migration take?
- How many conversion hosts do I need?
- Should I migrate my virtual machines with VDDK?
- Network requirements?
  - VMware and RHV/OSP network need same access

IMS Open Lab

- Each user will have their own environment
- Lab takes approximately 30 mins to complete
- Lab Overview
  - Create an Infrastructure Mapping (vSphere to RHV)
  - Migrate VMs to RHV with a Migration Plan
  - The actual migration of VM’s will take approximately 60-90 mins to complete



Thank you

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

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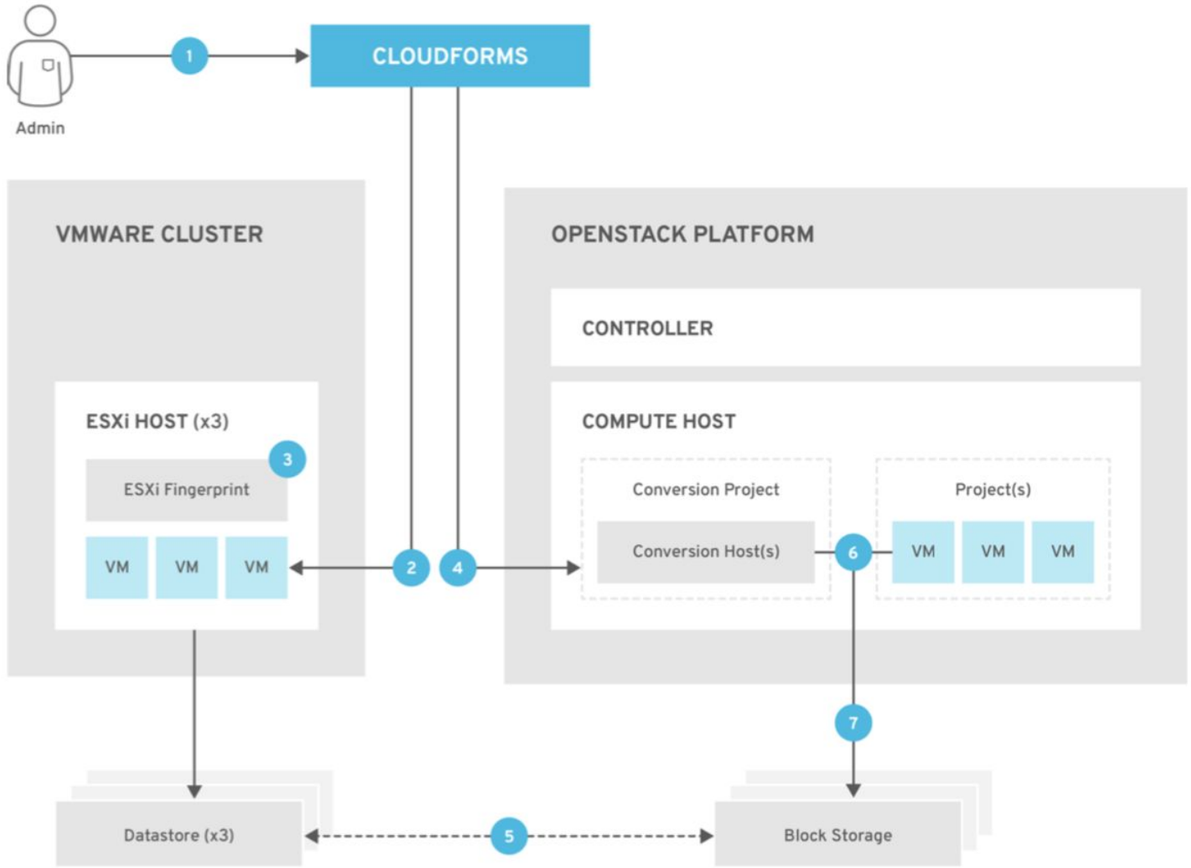
Red Hat

Details: Migration to OpenStack Workflow



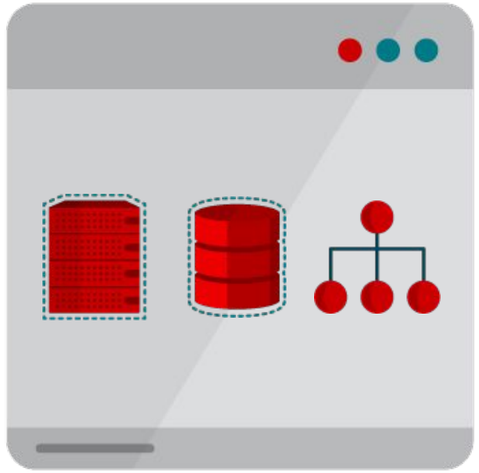
Demo (6 mins)

Overview: Cloudforms…

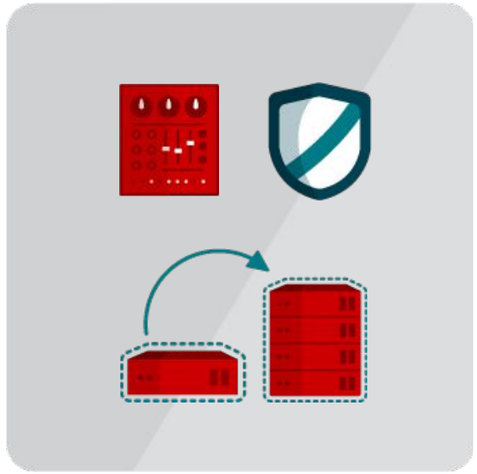
1. Builds and runs the migration plan
2. Locates the source VM's
3. Captures the source authentication info to use during the VM conversion
4. Initiates communication with the OpenStack hosts, where virt tools are installed
5. Red Hat virt tools connect to the source datastore and streams the source disks -> target data domain
6. Converts the source disks and maps/creates network ports
7. Creates OpenStack instance using the source VM's info (security group, etc.) then attached the converted disks to the OpenStack instances

RED HAT VIRTUALIZATION

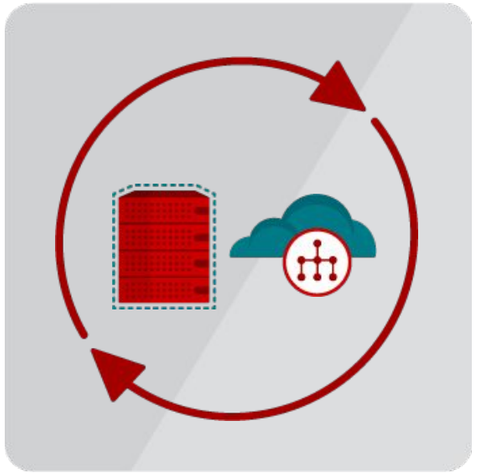
Red Hat Virtualization is an easy-to-use software-defined platform for virtualized Linux and Windows, built on Red Hat Enterprise Linux and KVM technologies.



CENTRALIZED MANAGEMENT
Virtualized compute, network, and storage resources using the open source KVM hypervisor



AUTOMATED WORKLOAD
Management, scalability, and security features for virtualized applications

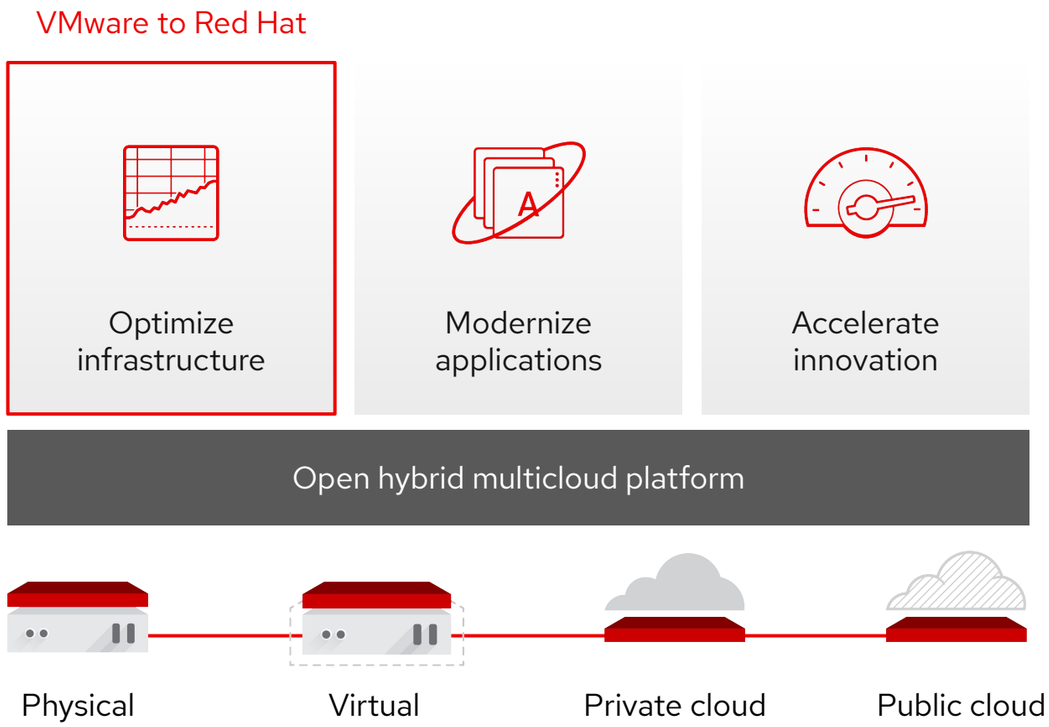


I.T. OPTIMIZATION
Integrates with future technologies using RESTful application programming interface (API)

EASY TO OPERATIONALIZE, EASY TO AUTOMATE, EASY ON THE BUDGET, NO VENDOR LOCK-IN

Red Hat Modernization and Migration Solutions

Analytics service | Migration tooling | Open Practice Library | Consulting residencies



Establish platforms for the future.

Accelerate adoption of next-generation technologies.

Reduce cost of existing applications and infrastructure.

Transform development and operations practices and culture.