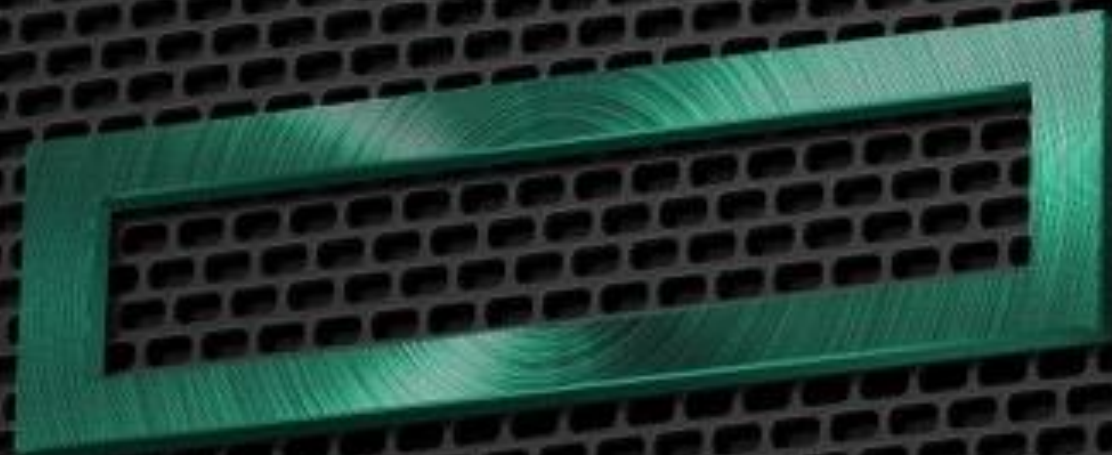# Accelerating DevOps with Red Hat Ansible and HPE OneView

May 2018

Presenters

FRANCES GUIDA
Group Manager, HPE OneView
Automation and Ecosystem

KEN BELL
Red Hat Partner Engineer

Agenda

– DevOps and physical infrastructure – Bringing together two worlds

– Automating physical infrastructure with Red Hat Ansible and HPE OneView

– Building a full OpenShift solution using Red Hat Ansible and HPE OneView
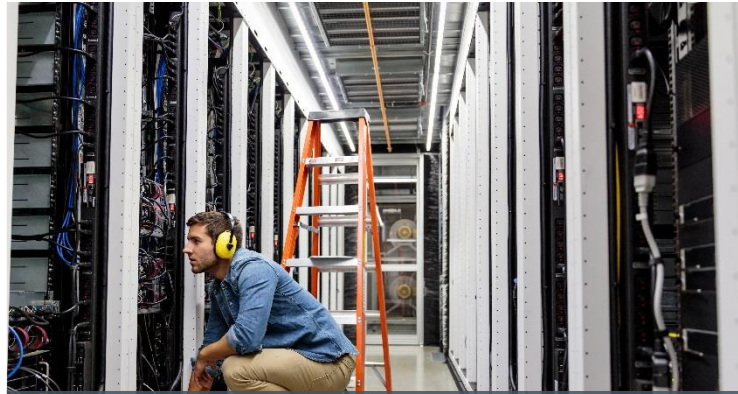
– Getting started

Bringing together two worlds

What if your physical infrastructure could

Eliminate admin silos

Reduce manual tasks and inconsistent results

Be as agile as your developers
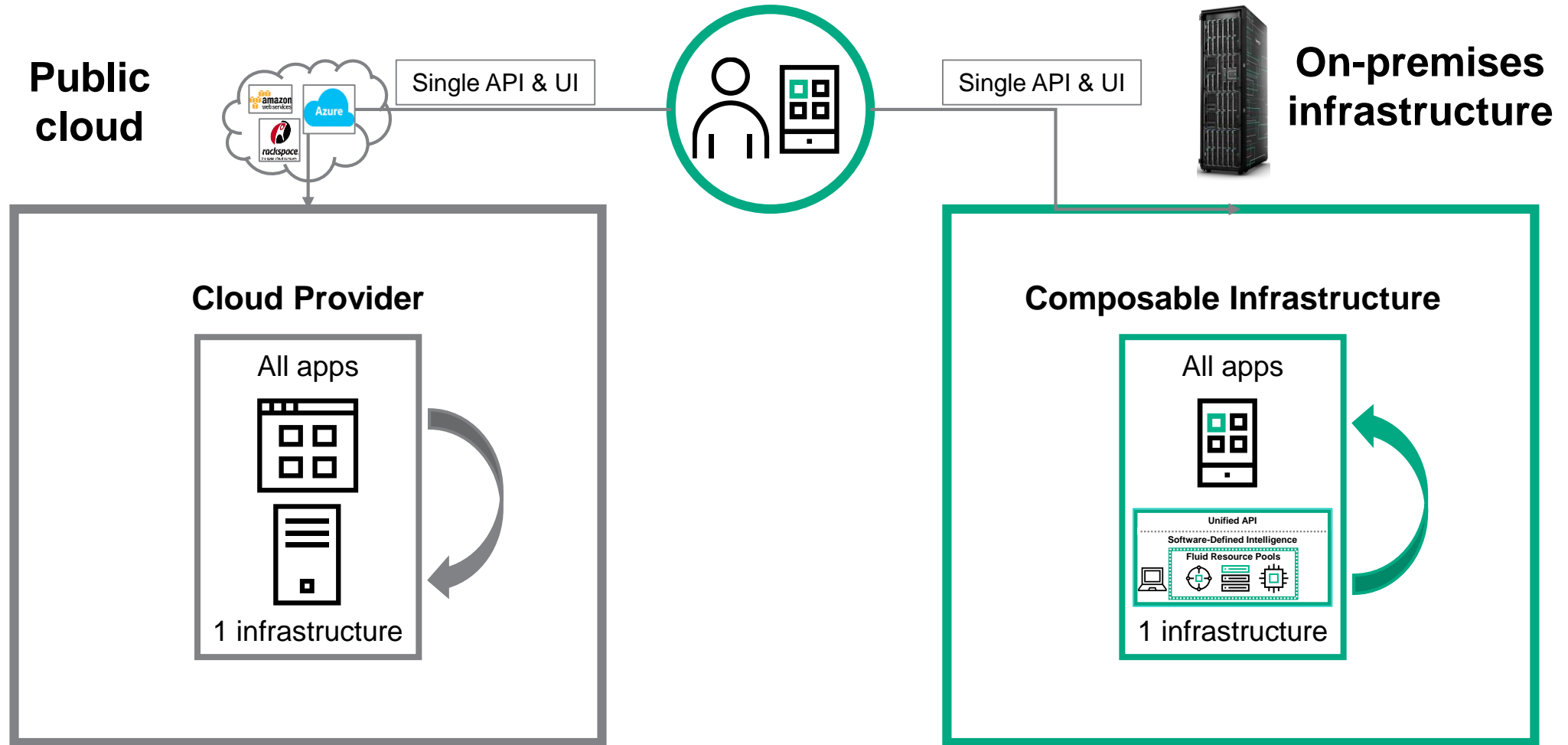

Manage and organize of all your resources

Use fluid resource pools of compute, storage, and fabric

Connect seamlessly with broad and open ecosystem
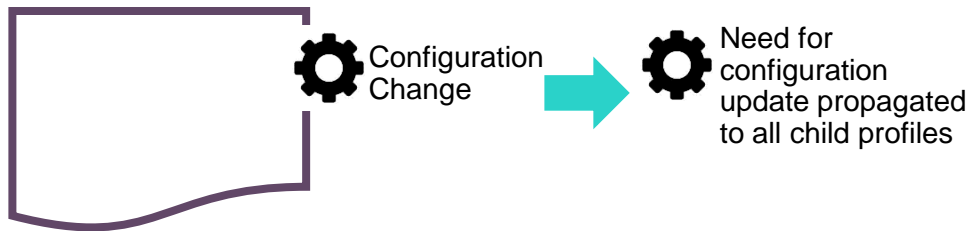
Composable Infrastructure for DevOps

Bringing the programmability of the cloud to on-premises infrastructure

Server profile templates
Physical infrastructure configurations defined in code

Server Profile Template

Configuration Change

Need for configuration update propagated to all child profiles

- Firmware baseline
- BIOS settings
- Local RAID settings
- Boot order
- Network configuration
- Shared storage configuration
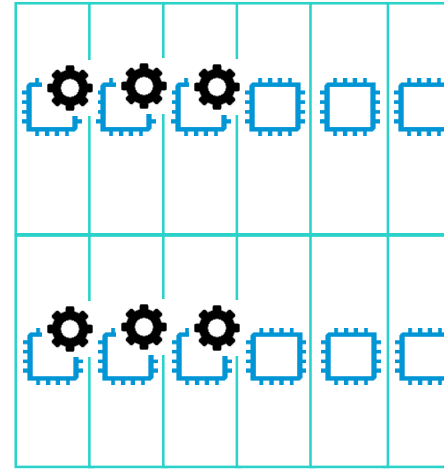
- Can bring individual profile into compliance with template from HP OneView GUI
- Can script changes to multiple systems using REST API, PowerShell or Python
- Note: some configuration changes may require server restart

Hewlett Packard Enterprise | redhat.

Manage Physical Servers like Virtual Machines
## Accelerate Time-to-Service using HPE Synergy with Image Streamer

Virtual Machine Operation

- Create VM template with OS

- Deploy template to VM

- Update VM template

- Hibernate VM template

- Move VM template

- Delete VM template

Physical Server Equivalent

- Create logical server profile with OS

- Deploy server profile from template on compute

- Update server profile

- Unassign server profile

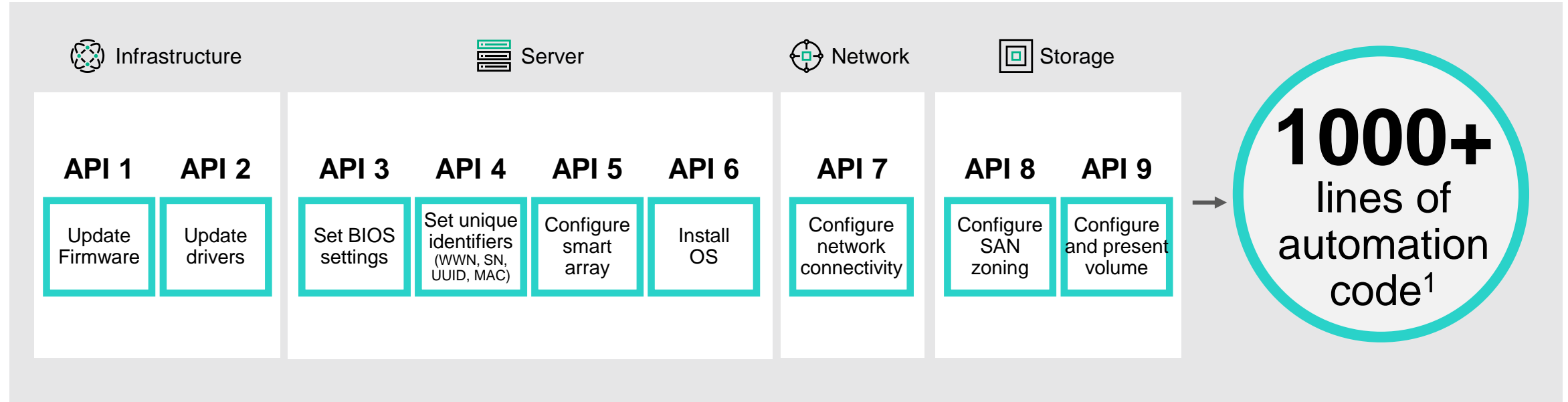- Move server profile

- Delete server profile

Server profiles manage stateless compute modules like VMs

Server profile

HW Config

OS Config

Hewlett Packard Enterprise | redhat.
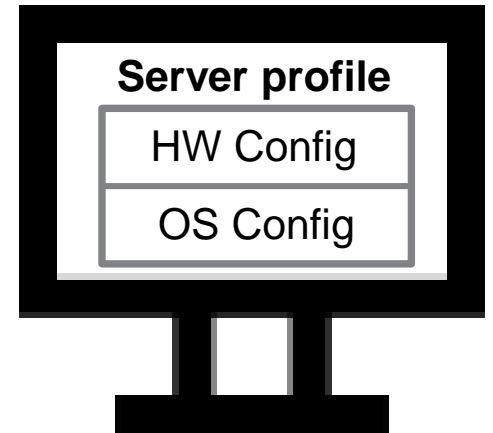
Traditional infrastructure automation can't meet DevOps requirements

Automating physical infrastructure is complex and time consuming

Different tools and APIs for every task

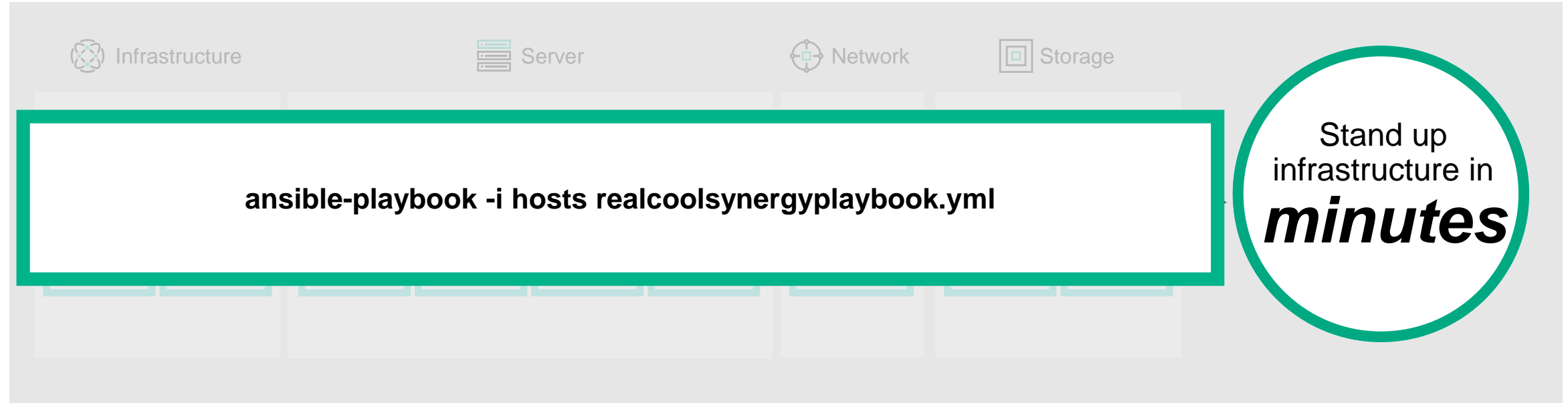| Infrastructure		Server				Network	Storage	
API 1	**API 2**	**API 3**	**API 4**	**API 5**	**API 6**	**API 7**	**API 8**	**API 9**
Update Firmware	Update drivers	Set BIOS settings	Set unique identifiers (WWN, SN, UUID, MAC)	Configure smart array	Install OS	Configure network connectivity	Configure SAN zoning	Configure and present volume

→ **1000+** lines of automation code[1]

[1] Based on data from a large retail customer using 3rd party servers who asked HPE to create equivalent configuration management scripts for HPE ProLiant servers.

Hewlett Packard Enterprise | redhat

Accelerate your business with a developer-friendly infrastructure

Deliver infrastructure and apps faster and smarter

Unified API

Infrastructure   Server   Network   Storage

ansible-playbook -i hosts realcoolsynergyplaybook.yml

Stand up infrastructure in *minutes*

Hewlett Packard Enterprise | redhat.

Automating physical infrastructure with Red Hat Ansible and HPE OneView

Provision bare metal infrastructure with Ansible and HPE OneView
Automate provisioning with Ansible playbooks and the Unified API
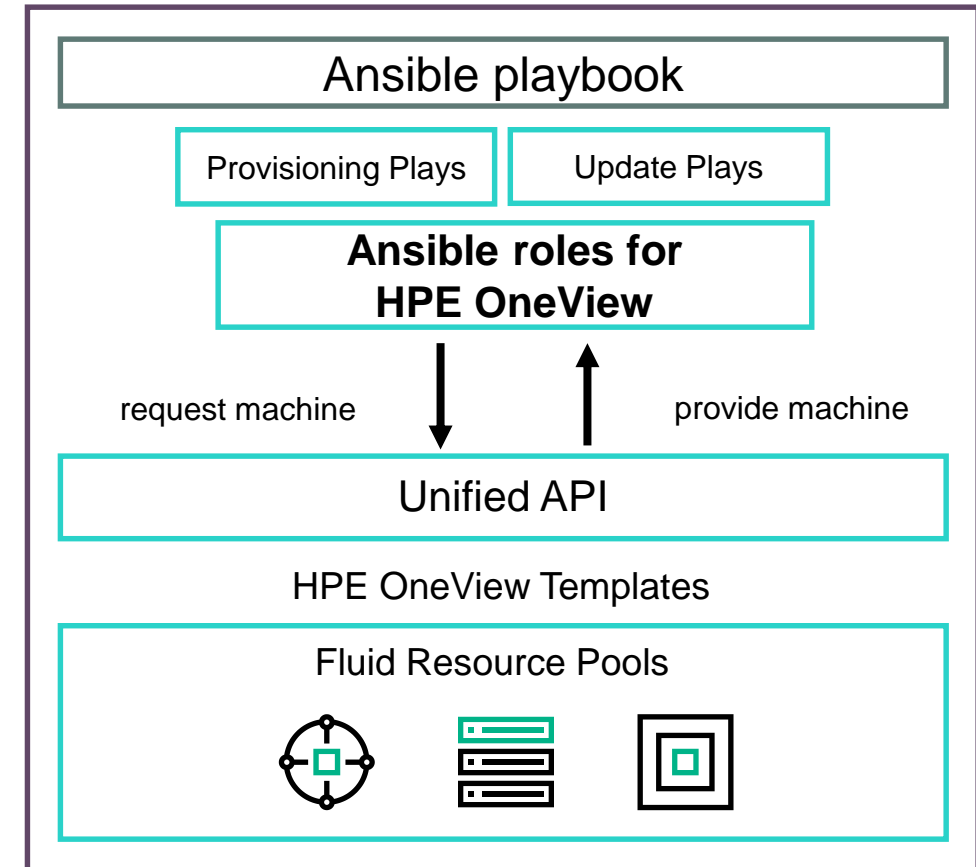
– **Accelerate time-to-value**
Automatically provision entire stack from bare metal through application in minutes

– **Increase reliability**
Maintain infrastructure compliance with automated rolling upgrades

– **Deliver deployment flexibility**
Provision and update bare metal with one line of code – in the same way as virtual and cloud resources

Live demonstration

Building a full OpenShift solution using Red Hat Ansible automation and HPE OneView

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Red Hat OpenShift on HPE Synergy
Provides containers on bare metal

Fully automate the deployment of complex systems, from bare metal to software installation

Significantly reduce overall deployment time

– Use golden images and plan scripts instead of manual processes or Kickstart files.

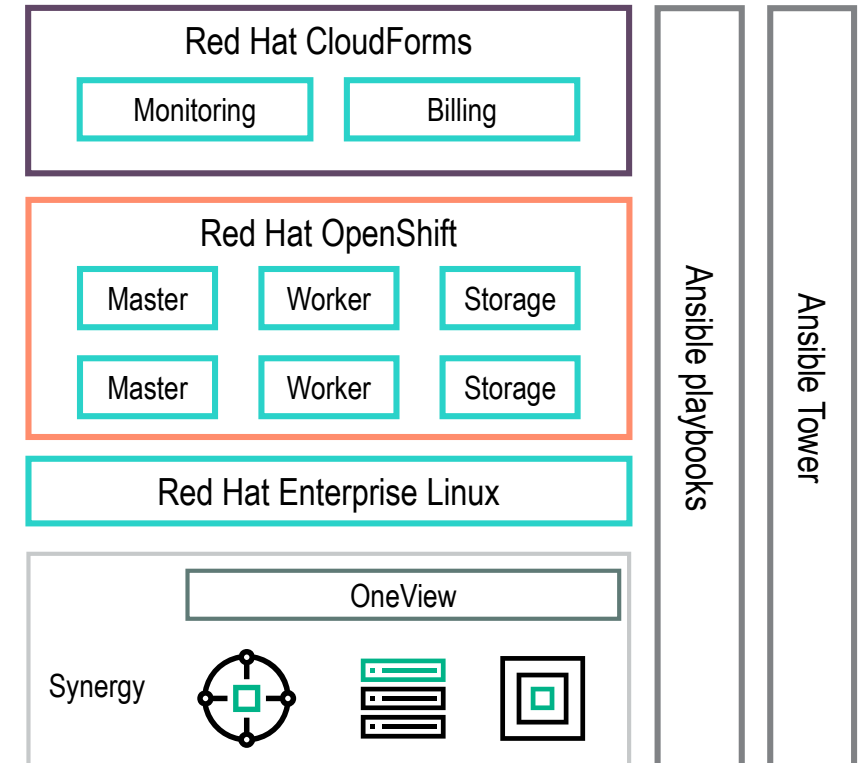– Clone a volume in **less than three minutes**.

Speed configuration time

– Configure and deploy the networking, storage, and OS for 13 nodes in only **40 minutes**.

– Use automation to complete initial solution deployment in **less than two hours**, compared to several days required by a services organization.
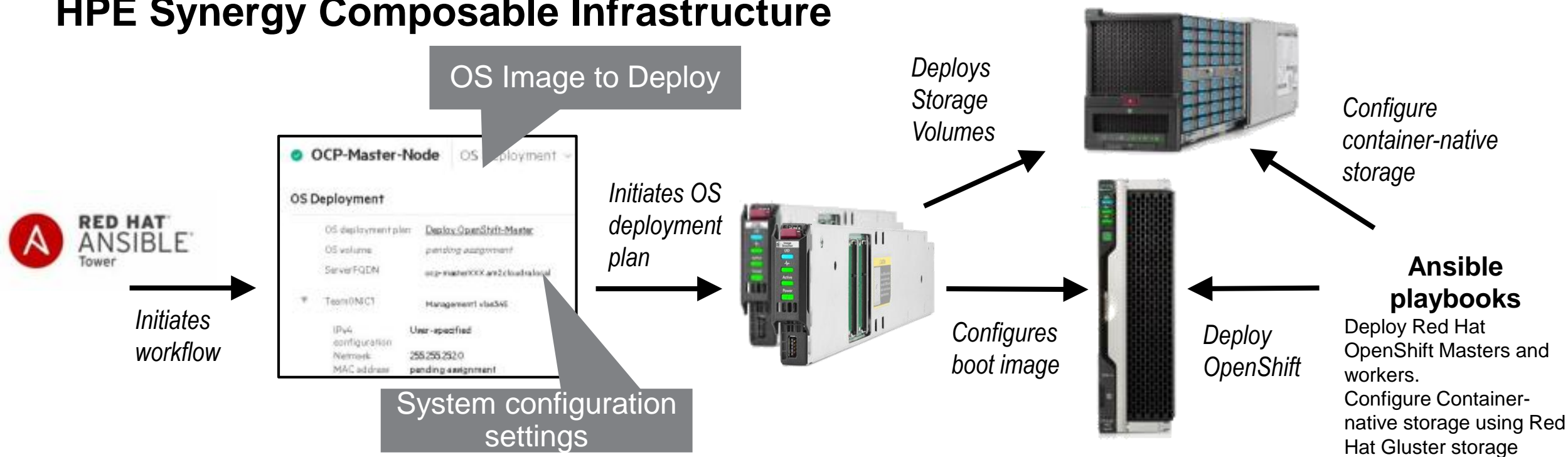
Enhance accuracy

– Use built-in best practices to reduce the chances of operator- or installer-introduced errors.

Respond to change

– Benefit from fast, easy, accurate, one-click solution deployment using Red Hat Ansible Tower and HPE Synergy composability.

– Seamlessly scale the solution to allow for deployment of additional services as needed.

Red Hat CloudForms		
Monitoring		Billing

Red Hat OpenShift		
Master	Worker	Storage
Master	Worker	Storage

Red Hat Enterprise Linux

	OneView
Synergy	

Ansible playbooks

Ansible Tower

Hewlett Packard Enterprise | redhat.

Automating the deployment of Red Hat OpenShift Container Platform on HPE Synergy Composable Infrastructure

OS Image to Deploy

Deploys Storage Volumes

Configure container-native storage

Initiates OS deployment plan

Initiates workflow

System configuration settings

Configures boot image

Deploy OpenShift

Ansible playbooks
Deploy Red Hat OpenShift Masters and workers. Configure Container-native storage using Red Hat Gluster storage

Red Hat Ansible Tower
Workflow runs playbooks to deploy OpenShift on Synergy using Ansible Modules for HPE OneView

HPE OneView
Server profile template identifies the networks, storage, and deployment plan
Sets personalization parameters
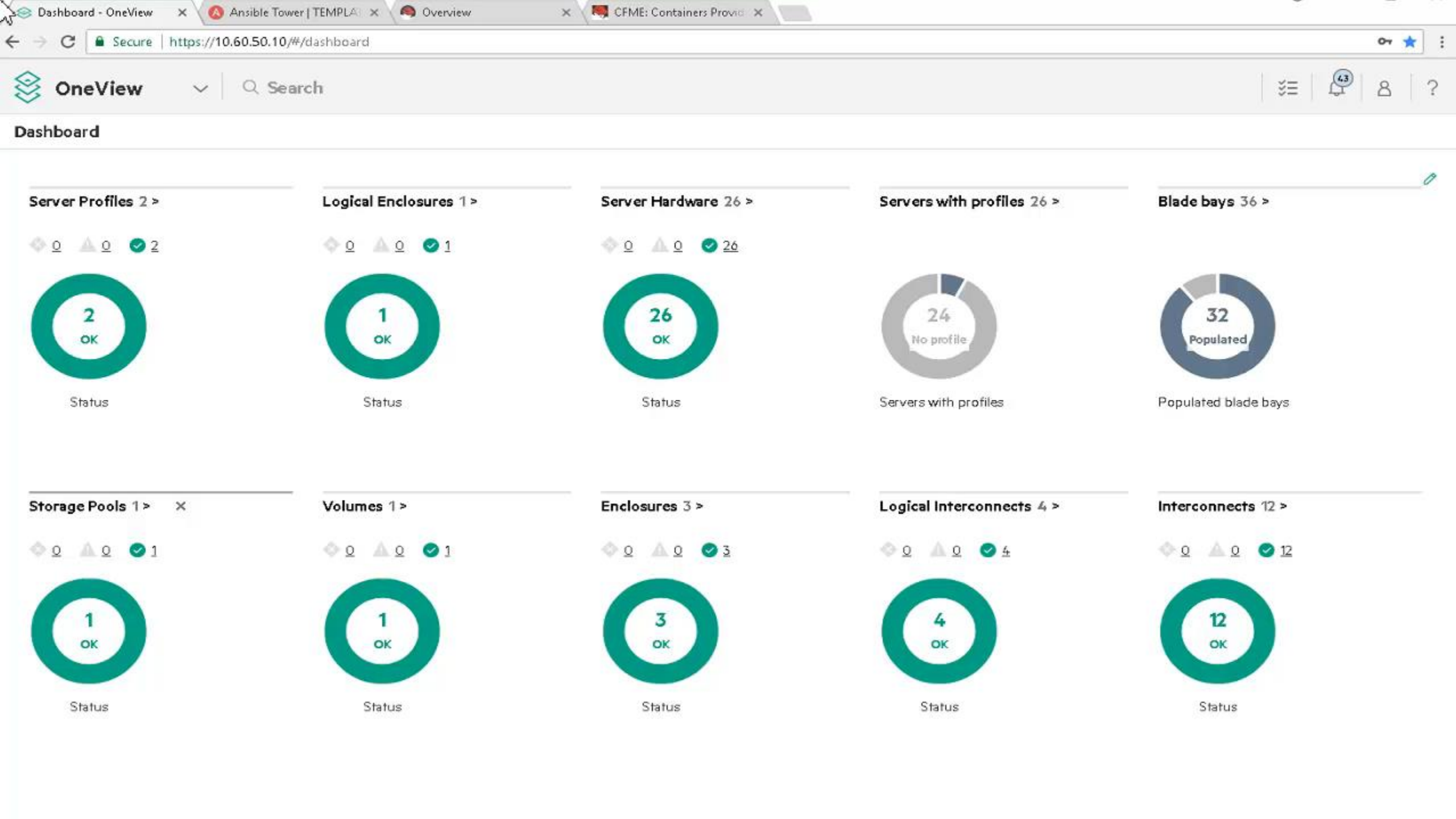Provisions physical infrastructure

HPE Synergy Image Streamer
Creates RHEL 7.4 bootable OS Personalizes OS and prepares for OpenShift per deployment plan

HPE Synergy Compute and Storage
Compute node boots directly into a customized running OS ready for OpenShift deployment

Demonstration

← → C 🔒 Secure | https://10.60.50.10/#/dashboard

OneView ⌄ | 🔍 Search | ≣ 🔔43 👤 ?

Dashboard

Server Profiles 2 >

◇ 0 ⚠ 0 ✅ 2

2
OK

Status

Logical Enclosures 1 >

◇ 0 ⚠ 0 ✅ 1

1
OK

Status

Server Hardware 26 >

◇ 0 ⚠ 0 ✅ 26

26
OK

Status

Servers with profiles 26 >

24
No profile

Servers with profiles

Blade bays 36 >

32
Populated

Populated blade bays

Storage Pools 1 > ✕

◇ 0 ⚠ 0 ✅ 1

1
OK

Status

Volumes 1 >

◇ 0 ⚠ 0 ✅ 1

1
OK

Status

Enclosures 3 >

◇ 0 ⚠ 0 ✅ 3

3
OK

Status

Logical Interconnects 4 >

◇ 0 ⚠ 0 ✅ 4

4
OK

Status

Interconnects 12 >

◇ 0 ⚠ 0 ✅ 12

12
OK

Status

Getting started

Red Hat OpenShift on HPE Synergy Reference Architecture

Reference Architecture Whitepaper	Red Hat OpenShift Container Platform on HPE Synergy Composable Infrastructure
Data Sheet	Accelerate Container Application Delivery With Red Hat and HPE
GitHub Repository	github.com/RHsyseng/ocp-on-synergy
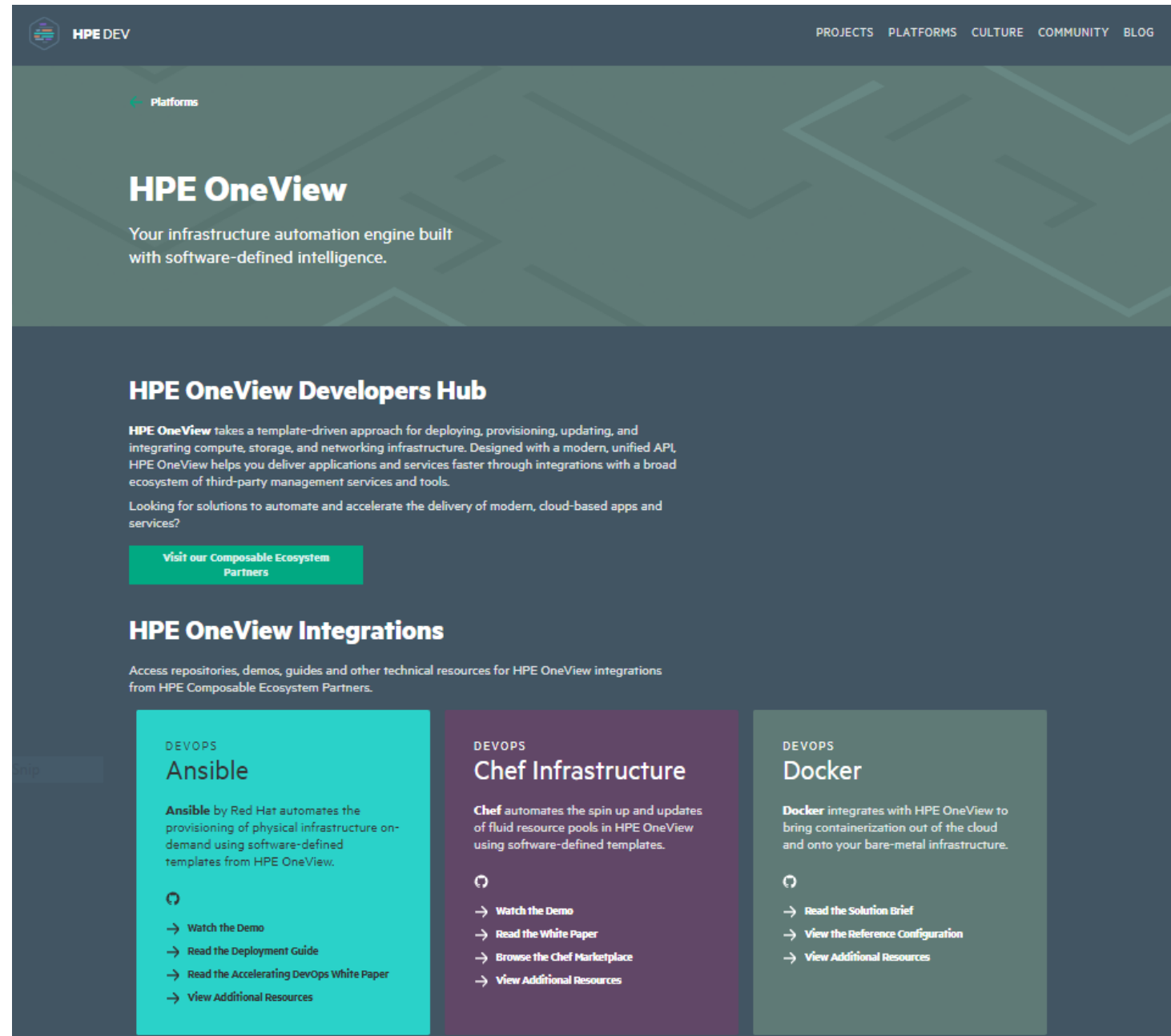
HPE OneView on HPE DEV

hpe.com/developers/oneview

– SDK's and language bindings

– Open source integrations

– Code samples

– Reference architectures and technical white papers

– Developer blogs and news

Composable infrastructure: Your infrastructure as code, backed by the industry's broadest partner ecosystem

Cloud engine

redhat, HPE OneSphere, MESOSPHERE, MORPHEUS, INCONTINUUM, CANCOM, SUSE, openstack CLOUD SOFTWARE

IT Ops engine

Microsoft, vmware, densify, Hewlett Packard Enterprise, turbonomic, HARPA ITALIA, MICRO FOCUS, f5, servicenow, MagicFleX, ARISTA

DevOps engine

ANSIBLE, CHEF, docker, TERRAFORM, HPE DEV, SALTSTACK, puppet

Facilities engine

Schneider Electric, EATON, ABB, nlyte Software

Unified API

Compute Storage Network

Powered by HPE OneView

Developer toolkits

python, Java, Ruby, golang

www.hpe.com/info/composableprogram

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22

Composable Infrastructure ecosystem
Resources for decision makers and developers

hpe.com/info/composableprogram

30+
HPE OneView
integrations
&
tools

HPE DEV

SDKs and
language
bindings

hpe.com/developers/oneview

Thank you

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