# RED HAT FORUM 2018 ZURICH



### PRODUCTION READY INFRASTRUCTURE SOLUTIONS FOR RUNNING OPENSHIFT IN EFFICIENT, SECURE & SUPPORTED MANNER

KIRIL PETSEVARCHITECT SOFTWARE DEFINE INFRA HPEPETER MATTEIMASTER TECHNOLOGY CONSULTANT HPEJENS GERLACHBUSINESS DEVELOPMENT MGR RED HAT

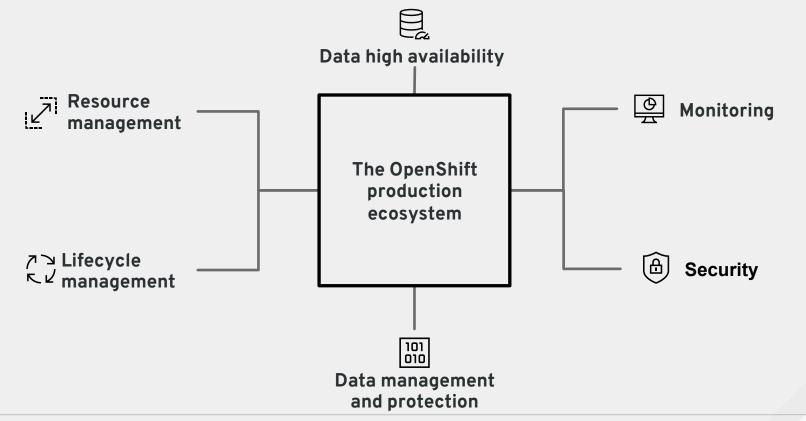
Hewlett Packard Enterprise

### Agenda

- Infrastructure considerations for OpenShift
- HPE and Red Hat solution for OpenShift on premise
- Data high availability, management and protection
- Wrap-up
- Q&A



# **OpenShift in production**





# Infrastructure consideration for on premise OpenShift Container Platfrom

#### **Resource Management**

Complex and slow provisioning and even more complex to scale dynamically

#### Lifecycle Management

Hard to automate, involving manual dependency checking

#### Monitoring

Not consolidated across all layers

#### Security

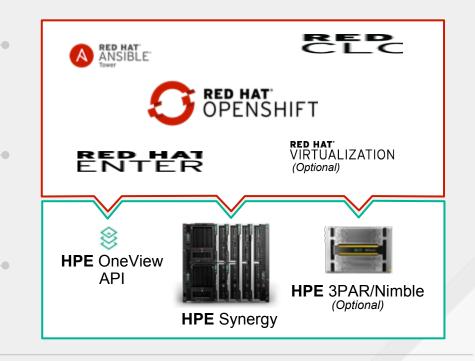
- Not fully secure lifecycle
- Challenges with access segregation and multitenancy



# What is the answer from HPE and Red Hat?

### **EFFICIENT, SECURE & SUPPORTED SOLUTION**

- Centralized Management, Monitoring and Automation
- Containers Apps Build and Deploy platform
- Composable Infrastructure





# How HPE Composable Platforms help?



Simplify deployment Accelerate time to value



Reduce update time Optimize operations



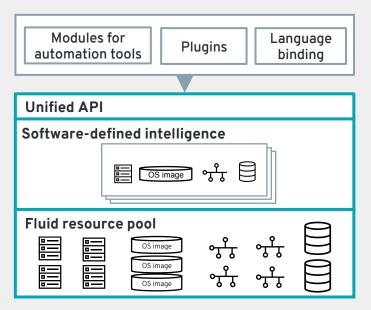






# HPE Composable Infrastructure

#### **Automation & Orchestration**



#### Broad Technology Partners Ecosystem

API abstractions for seamless integration without lock-in.

Full infrastructure programmability and Secure Perimeter Control \*

Simplified provisioning and lifecycle management operations

Pool of compute, storage, network and OS Images for flexible resources assignment



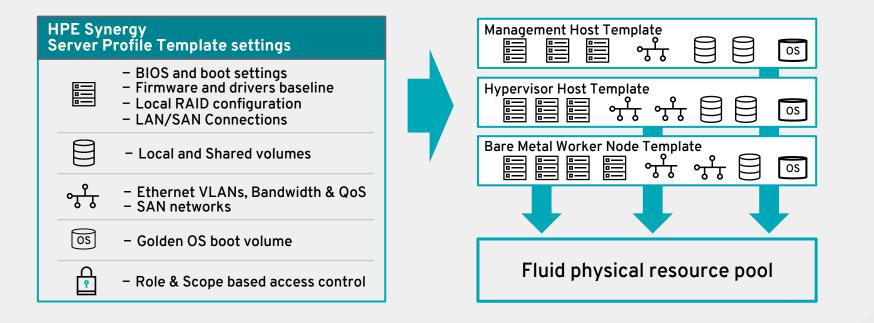
### HPE Synergy - The platform for Composable Infrastructure

Synergy Composer (Powered by OneView

#### **Composable Fabric** and Image Streamer) **Composable Frame** UI / API **Unified API** Manage up to x21 Frames Software Define Intelligence **Composable Compute** Fluid Resource **Composable Storage** Pools



# Manage physical infrastructure with Software Defined Intelligence



#### Intelligent unified templates ensure fast & consistent deployments



# Configure compute, storage and networking at one place from UI or API with HPE Synergy Unified Template

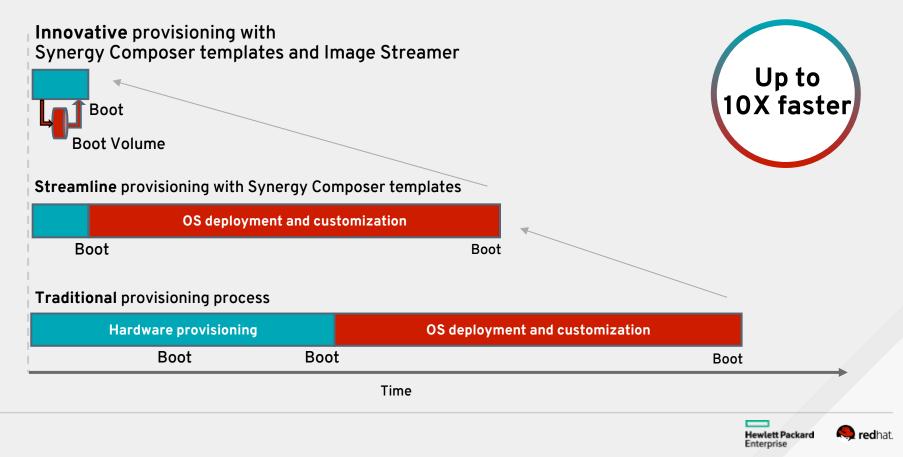
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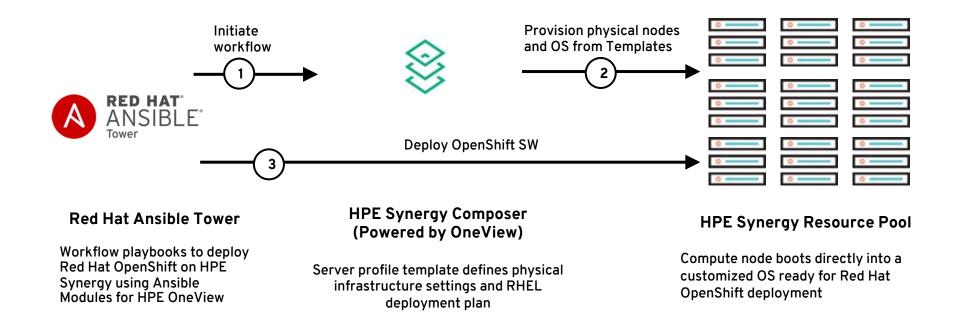
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#### Built-in interdependency dependency check

# Accelerated provisioning with HPE Synergy

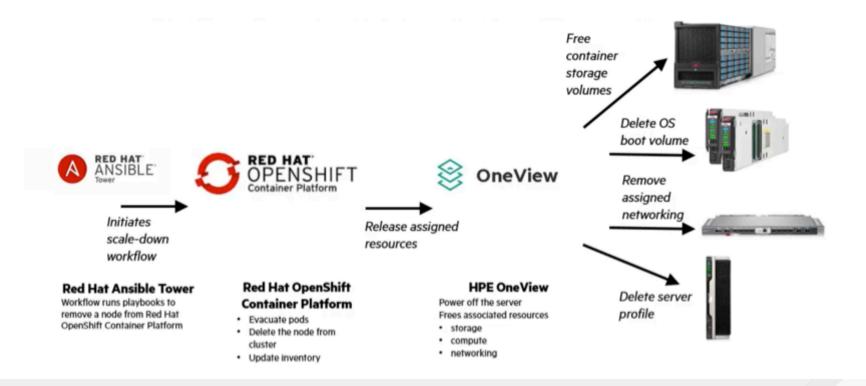


### Fast bare-metal OpenShift deployment and scale





### Fast Scale-down bare-metal worker cluster





### **Fast Start**



Add in Ansible Tower the git repositories "ocp-on-synergy" and "OpenShift-ansible"



Create Ansible **workload** and **job templates** from the playbooks



Deploy Red Hat OpenShift Container Platform and scale out/in physical nodes with one click

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Add in Synergy the RHEL OS deployment plans from **git** repository **"RC-RHEL-OpenShift**"

Reference config for Red Hat OpenShift on HPE Synergy - <u>hpe.com/V2/GetDocument.aspx?docname=a00038916enw</u> Ansible Playbooks - <u>github.com/RHsyseng/ocp-on-synergy</u> Image streamer artifacts - <u>github.com/HewlettPackard/image-streamer-reference-architectures/tree/master/RC-RHEL-OpenShift</u>



# Accelerate OpenShift adoption with HPE

**Reference architectures** 



HPE OpenShift solutions (ecosystem, deployment guide, automation playbooks)



**Operations optimized** 

**Maximize Resource Utilization** Fast Time to Value Mitigate Risk



# **STORAGE FOR OPENSHIFT**

#### Why Do Containers Need Storage?

• Containers are not persistent by default. App data is lost when containers die.

#### Why is container storage a pain point?

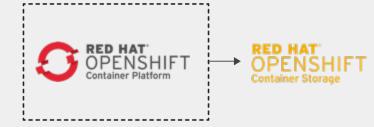
• Complex. Even more complicated when container orchestration is involved and applications need to be scaled out

#### Why Red Hat OpenShift Container Storage?

- Advanced storage capabilities, deeper integration with OpenShift, better price/ performance than traditional storage
- OpenShift Container Storage is open, scalable and has consistent user experience across the hybrid cloud (compliments the OpenShift value proposition).



## **TWO FLAVORS OF CONTAINER STORAGE**



#### OPENSHIFT CONTAINER STORAGE INDEPENDENT MODE

Use existing investment in traditional storage, managed by storage admin – attach to standalone storage

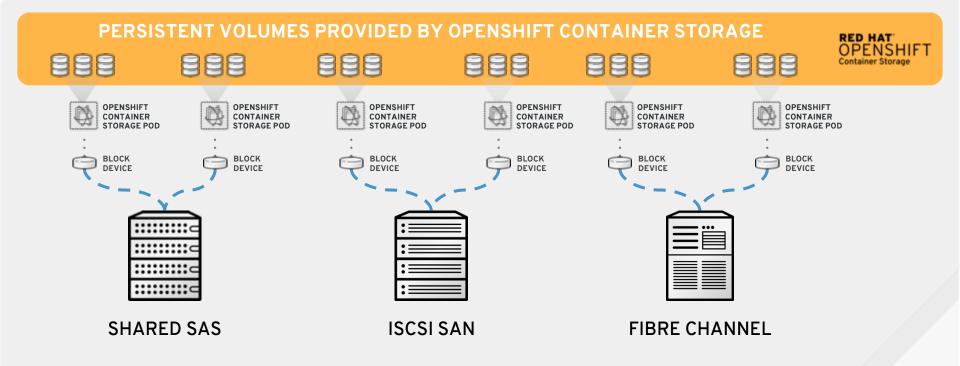


#### OPENSHIFT CONTAINER STORAGE <u>CONVERGED MODE</u>

Highly scalable, enterprise-grade storage, fully integrated into OpenShift Container Platform



## LEVERAGE EXISTING STORAGE...





### **3PAR Leadership - Security**



Management

IPv6 and SSH capabilities, WEB API, LDAP user authentication, Common Access Card (CAC) Two Factor Authentication (2FA) via LDAP



#### Data-at-rest Encryption

All data can securely be encrypted using AES256 Self-Encrypting FIPS drives to protected against theft and misuse

For more details see the HPE 3PAR Secure Service Architecture whitepaper: https://h20195.www2.hpe.com/V2/getpdf.aspx/4AA3-7592ENW.pdf



# HPE 3PAR Volume Plug-in for OpenShift



---

kind: StorageClass
apiVersion: storage.k8s.io/v1
metadata:

name: my-storage-class
provisioner: hpe.com/hpe
parameters:
 provisioning: "thin"

dedupe: "true"
virtualCopyOf: "Volume"
retentionHours: "24"

kind: PersistentVolumeClaim
apiVersion: v1
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spec:
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 storage: 500G

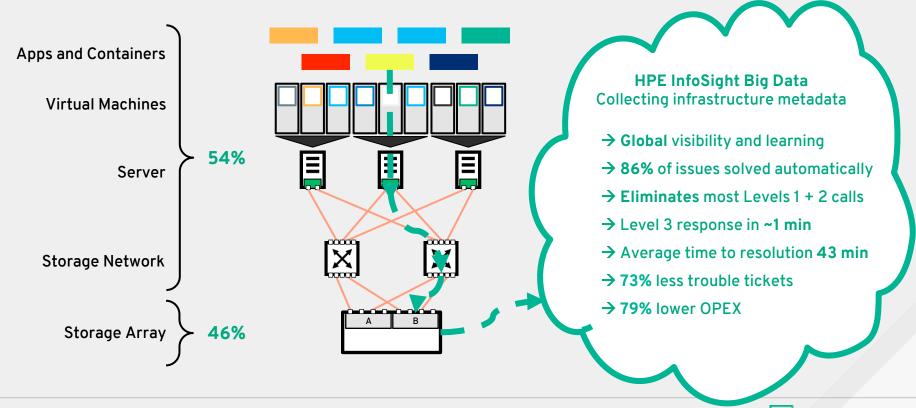
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	<pre>virtualCopyOf: "Volume" expirationHours: "8" retentionHours: "8"</pre>
	cloneOf: "Volume_Clone"
	Coming in the fall release: Remote Copy and Peer Persistence

Values: Min and max IOPS Min and max MB/s Latency goal ms



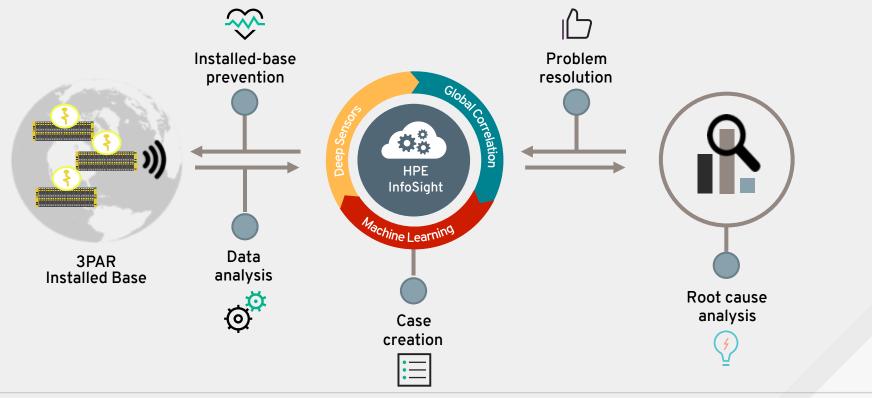
# **HPE InfoSight – what's the point?**



Hewlett Packard



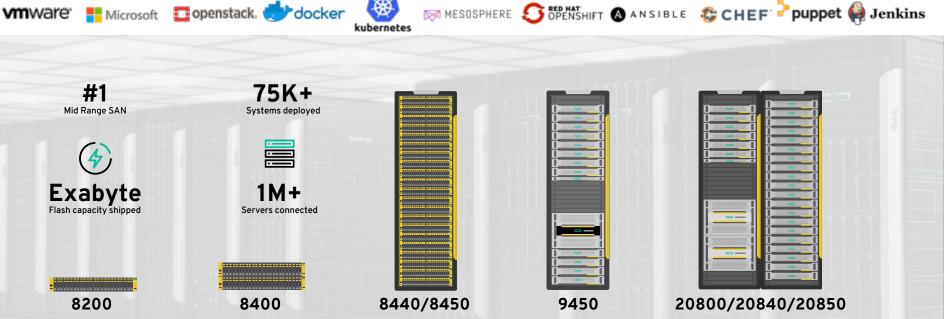
## HPE InfoSight - See Once, Prevent for All Learning from the 3PAR installed base





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# HPE 3PAR delivers a cloud-ready foundation for Hybrid IT



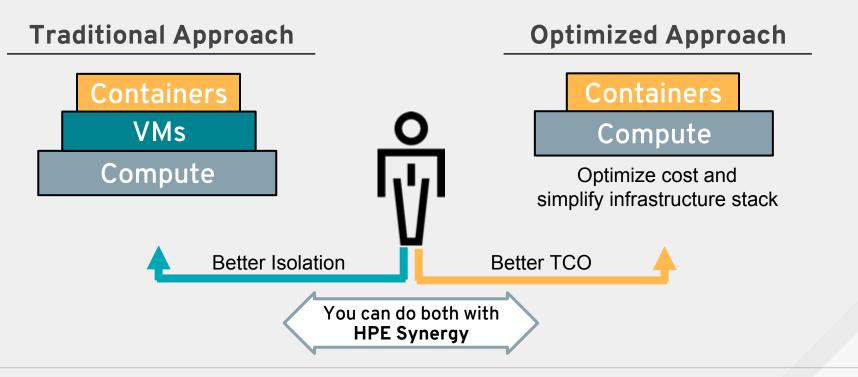
#### Guaranteed 99.9999% Availability





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### Two worker node flavors





### HPE Composable Systems: the ideal Solution for on premise OpenShift Platform deployment



**Deploy infra at cloud-like speed** Improve application time to value



Flex resources out/in and up/down Efficient resource allocation by business demands



**Centralize life cycle management** Reduce updates from hours to minutes



Advanced container data management Data protection and storage efficiency for containers



HPE Synergy and 3PAR/Nimble





### Flexible HPE offerings - 3 configurations

#### For small and midsize Businesses (SMB)



### All nodes on virtual machines (VM)

- 3 HPE Synergy physical nodes
- Red Hat OpenShift
- Red Hat Hyperconverged Infrastructure (RHHI)

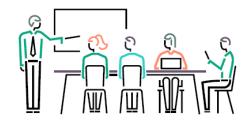
#### For mid-range



#### VM or bare-metal workers with persistent storage

- 6+ HPE Synergy physical nodes
- Red Hat OpenShift
- Red Hat Virtualization or RHHI
- HPE 3PAR or Nimble storage

#### For enterprise



### All services, masters, workers on bare metal

- 8+ HPE Synergy physical nodes
- Red Hat OpenShift
- Red Hat Enterprise Linux
- HPE 3PAR or Nimble Storage





### Move to production - Key success factors

- **Plan** whether to do it yourself or partner
- Implement best practices
- Have a complete OpenShift ecosystem in place



Accelerate this path with

#### HPE + Red Hat



### **Resources and key contacts**

#### **Reference configuration**

Reference configuration for Red Hat OpenShift Container Platform on HPE Synergy Composable Infrastructure

<u>hpe.com/V2/GetDocument.aspx?docname=a00038916enw</u>

#### **GitHub repositories**

Ansible Playbooks

<u>github.com/RHsyseng/ocp-on-synergy</u>

Image streamer artifacts

• <u>github.com/HewlettPackard/image-streamer-reference-architectures/</u> <u>tree/master/RC-RHEL-OpenShift</u>

#### Contacts

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