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HPE Synergy

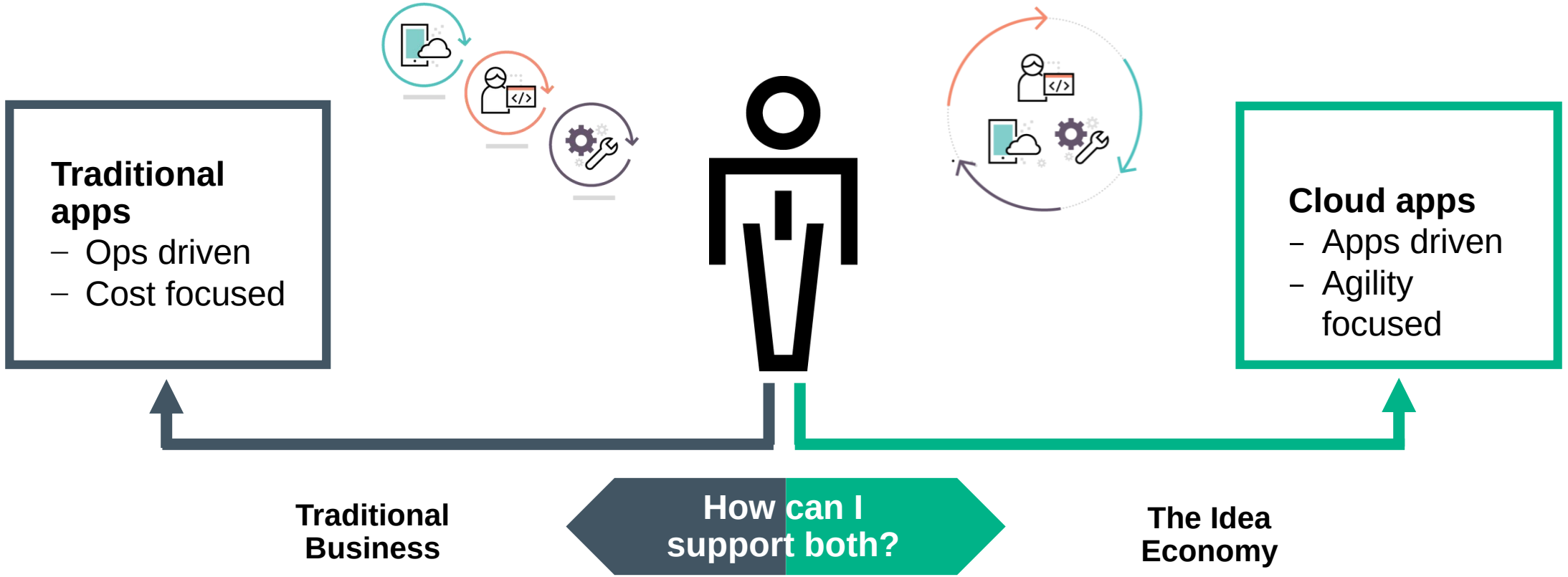
composable infrastructure ecosystem & HPE OneView

Y. Mangum, Synergy compute principal product manager
Bob Fraser, Synergy composable ecosystem product manager

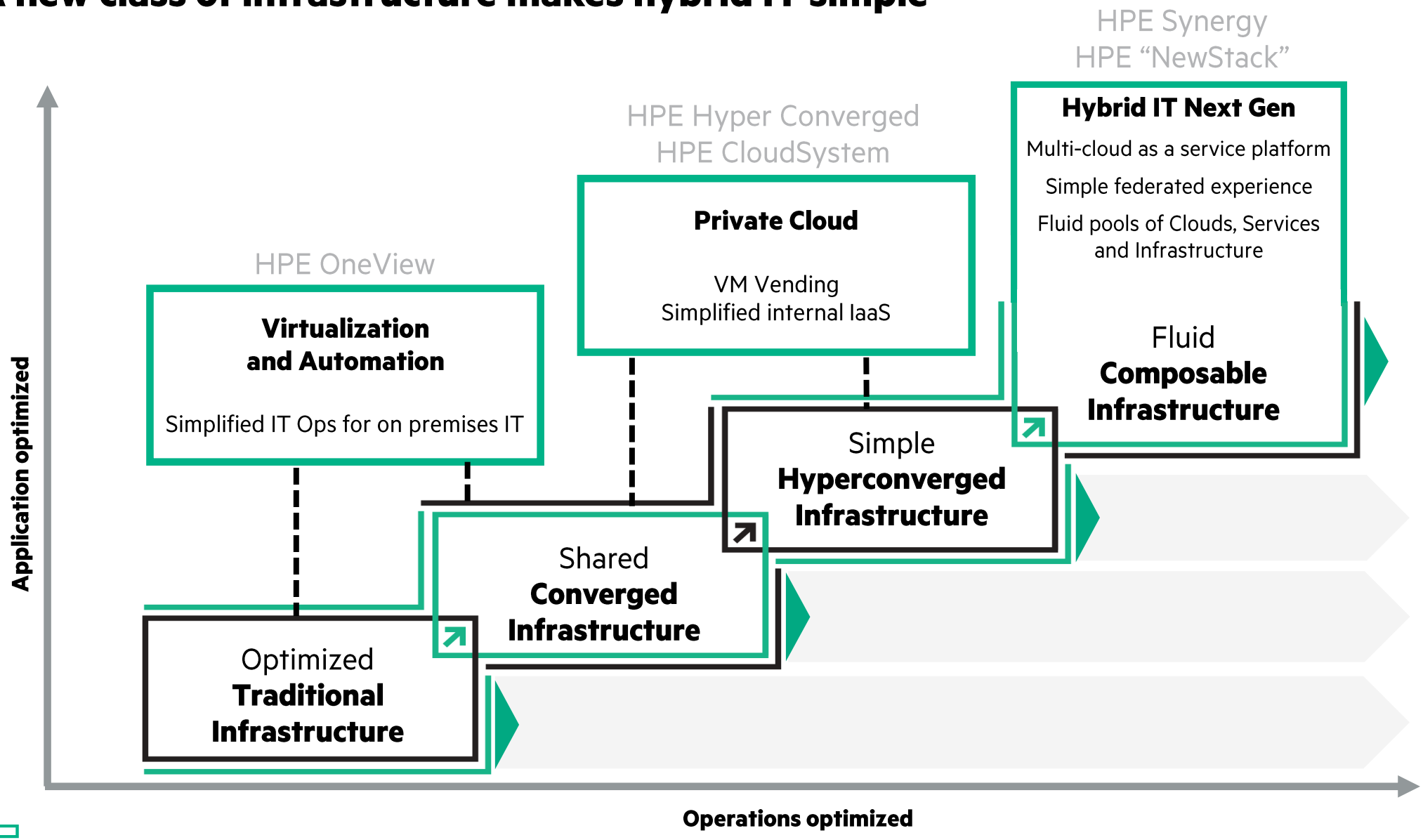
HPE Synergy ecosystem Abstract: HPE Synergy Composable infrastructure ecosystem & HPE OneView
Discover the value of composable infrastructure from execution to economics in today's hybrid world. Find out how HPE Synergy is future-proofing their data centers for today's workloads and tomorrow's disruptors. Does your ability to get infrastructure deployed quickly slow down your delivery of new apps and services? HPE OneView with its Unified API with single line of code accelerates your DevOps environments by automating provisioning and management of physical infrastructure with Red Hat-Ansible.

IT must now support hybrid delivery models

Two infrastructure models are not sustainable



A new class of infrastructure makes hybrid IT simple



HPE Journey to Composable Infrastructure

Traditional Compute	BladeSystem	Virtual Connect	OneView Virtual Connect FlexFabric Eth, FC, FCoE	HPE Synergy	The Machine Photonics
CPU Memory Local Storage LAN I/O SAN I/O Power Cooling	CPU Memory Local Storage LAN IO SAN IO	CPU Memory Local Storage SAN I/O	CPU Memory Local Storage	CPU Memory	CPU Memory Full LAN I/O Full SAN I/O Local Storage Power Cooling
	Power Cooling	Partial LAN I/O Power Cooling	Partial LAN I/O Partial SAN I/O Power Cooling	Local/Tier-1 Storage Full LAN I/O Full SAN I/O Local Storage Power Cooling	



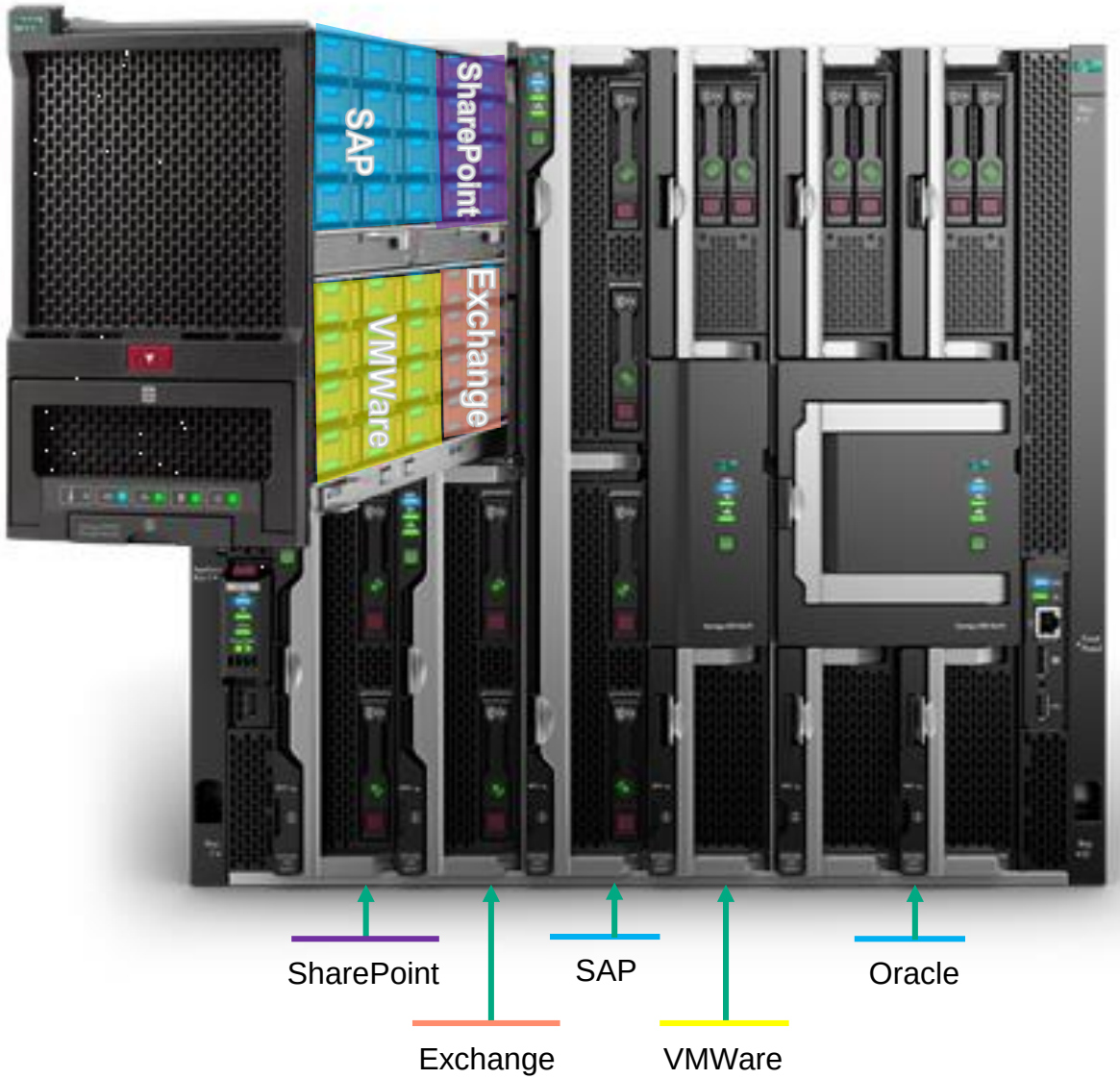



Different compute for different needs

General Purpose or **Mission Critical:**

- Virtualized
- Containerized
- Bare Metal

Different workloads and IT tiers...all within a single infrastructure



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HPE Synergy Image Streamer

Manage physical servers like virtual machines (VMs)

- Deploy and Update infrastructure rapidly
- Enable true stateless operation
  - Integrate your compute profiles with your golden images (OE and I/O driver) and your personalities (OS and application) for rapid implementation onto available hardware.
- Deploy bare-metal compute modules to boot directly into a running OS
- Updates to your golden images can be quickly re-created into bootable images for multiple compute modules.
- Ensure image quality and consistency by using your tested operating environments and personalities.
- Customize your images and environment using the provided tools
- Unified API (or GUI) access is available to applications and developers

HPE Synergy Image Streamer

Reduce complexity | **Accelerate changes** | **Simplify deployment** | **Efficient scaling**

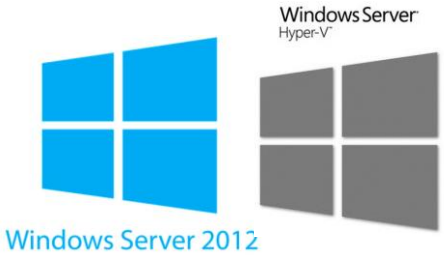
***Your* Infrastructure as Code**

Operating Systems supported – UPDATED 4/24/17

HPE Synergy Operating Systems and Hypervisors

Microsoft Windows Server

- Microsoft Windows Server 2012 R2 Datacenter and 2012 R2 Standard
- Microsoft Windows Server 2016 Datacenter AND Standard Edition (includes Hyper-V Server 2016)



Linux[1]

- Red Hat Enterprise Linux 6.9, 7.3 (with Errata), and 7.4 GA (64-bit) (includes KVM & RHEVH)
- SUSE Linux Enterprise Server 11 SP4, 12 SP2 and 12 SP3 (64-bit) (includes XEN & KVM)

Hypervisors

- Microsoft Hyper-V Server 2012 and 2012 R2
- Microsoft Hyper-V 2016
- VMware vSphere 6.0 U3 and 6.5
- VMWare vSphere 2016 (6.5) U1

Enabled Operating Systems (Not Supported or Certified by HPE)

- CentOS 6.9 and 7.4
- On SY480 with GPU Only:
  - Windows 10 Pro & Enterprise Client OS
  - RHEL Desktop/Workstation 7.3 and 8.0
  - SLES Desktop 12 SP2

Content Subject to change – please check the OS Support Matrix for the latest www.hp.com/go/ossupport

[1] Linux is now 64-bit only.

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HPE Composable Infrastructure Ecosystem

Bob Fraser, Synergy composable ecosystem product manager

Composable Infrastructure

Architectural design principles

Unified API

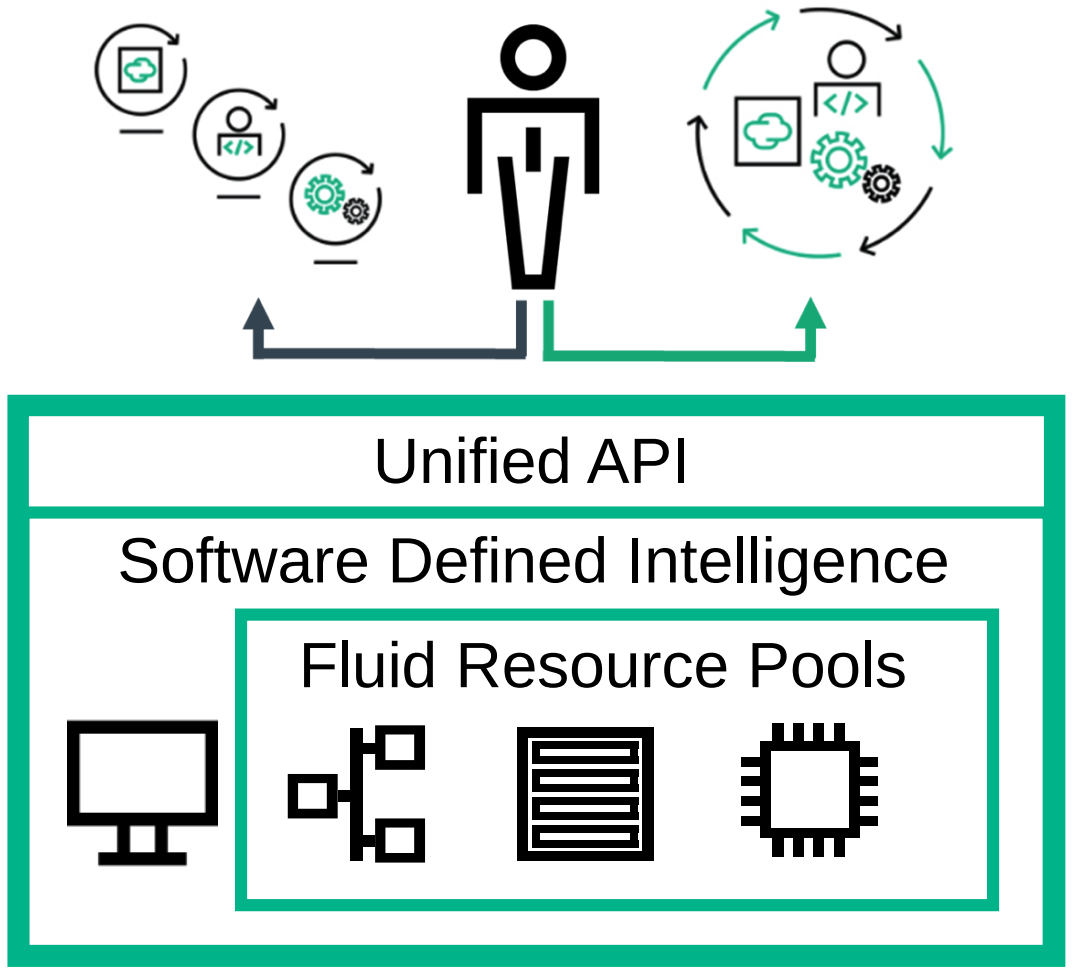
- Single line of code to abstract every element of infrastructure for full infrastructure programmability
- Bare-metal interface for Infrastructure as a Service

Software-Defined Intelligence

- Template-driven workload composition
- Frictionless operations

Fluid Resource Pools

- Single infrastructure of disaggregated pools
- Physical, virtual, and containers
- Auto-integrating of resource capacity



Benefits of HPE Composable Infrastructure

Your infrastructure as code

REDUCE
over-provisioning and CapEx

DEPLOY
at cloud-like speed

SIMPLIFY
with frictionless updates

DEVELOP
more apps, faster

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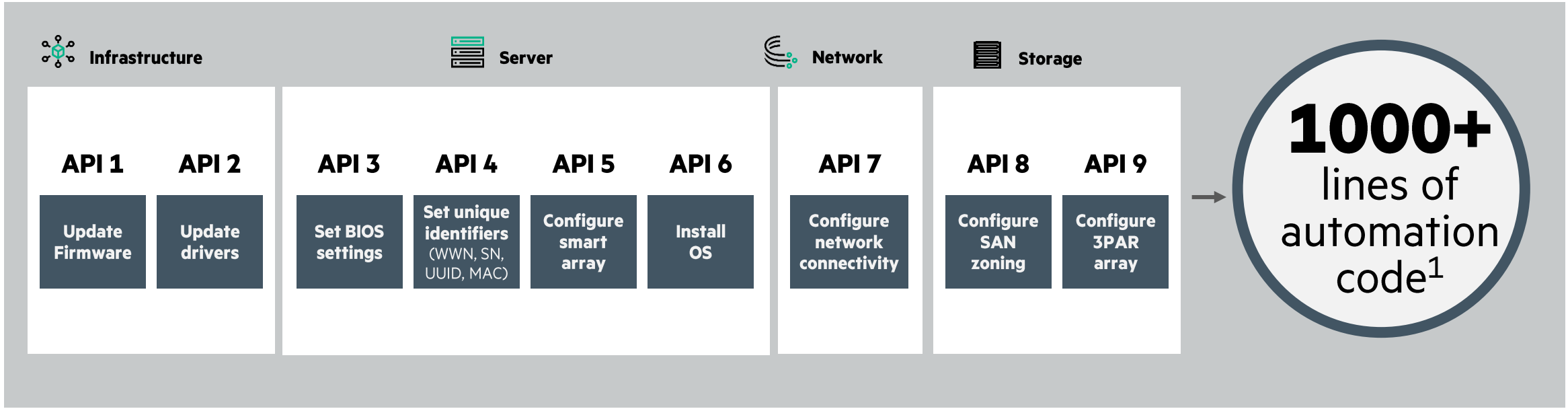
Automating physical infrastructure is complex and time consuming

Different tools and APIs for every tasks



[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.

Only HPE delivers a Composable Infrastructure API

Transforms physical infrastructure into a single line of code

Only HPE

```
New-HPOVProfile -name myCloud -template SynergyCloud
```

Unified API.

DevOps Friendly.

Makes bare metal as simple as the public cloud.

Reduce time to stand up infrastructure from

hours

to

minutes

* Clutch Cost to Build a Mobile App: A Survey + HPE internal tests.

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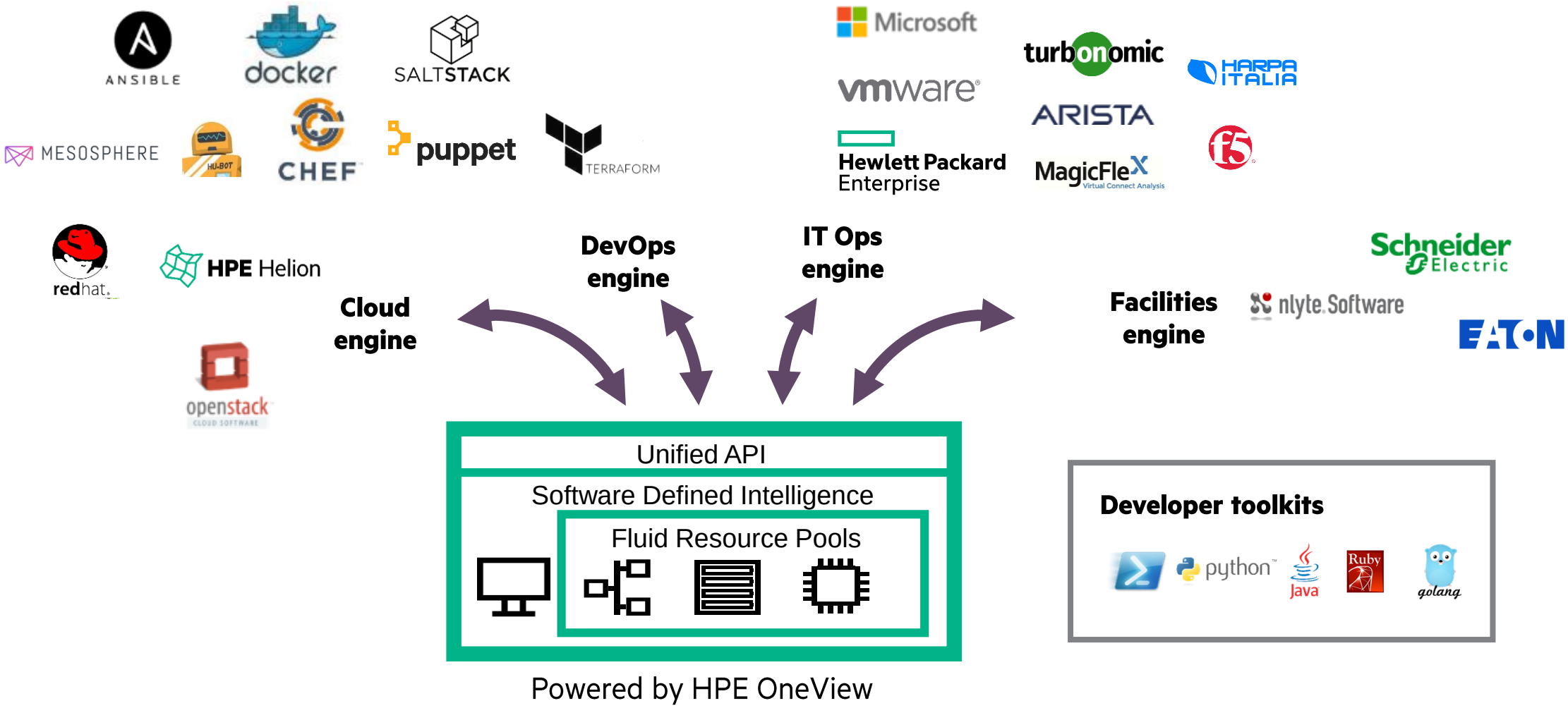
Composable ecosystem helps deliver apps and services faster and easier



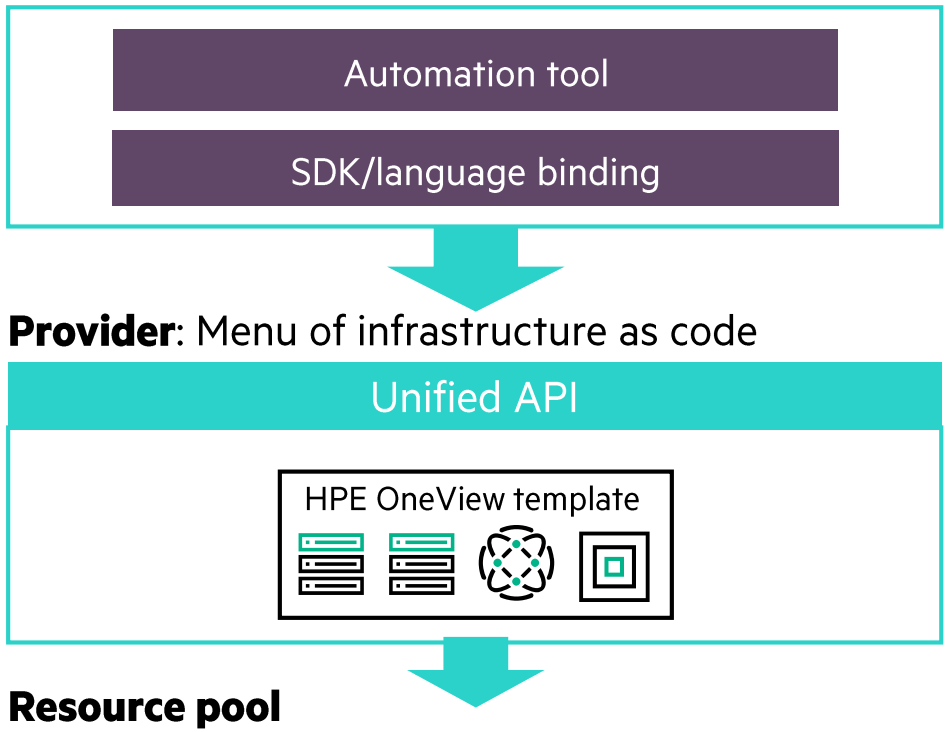
www.hpe.com/info/composableprogram

Automating infrastructure deployment

Bringing infrastructure as code to physical infrastructure

Automating infrastructure deployment with HPE OneView

Consumer: Orders resources from the menu



1. Define infrastructure template in HPE OneView
2. Deploy infrastructure with automation tool
3. Provision application with automation tool
4. Done!

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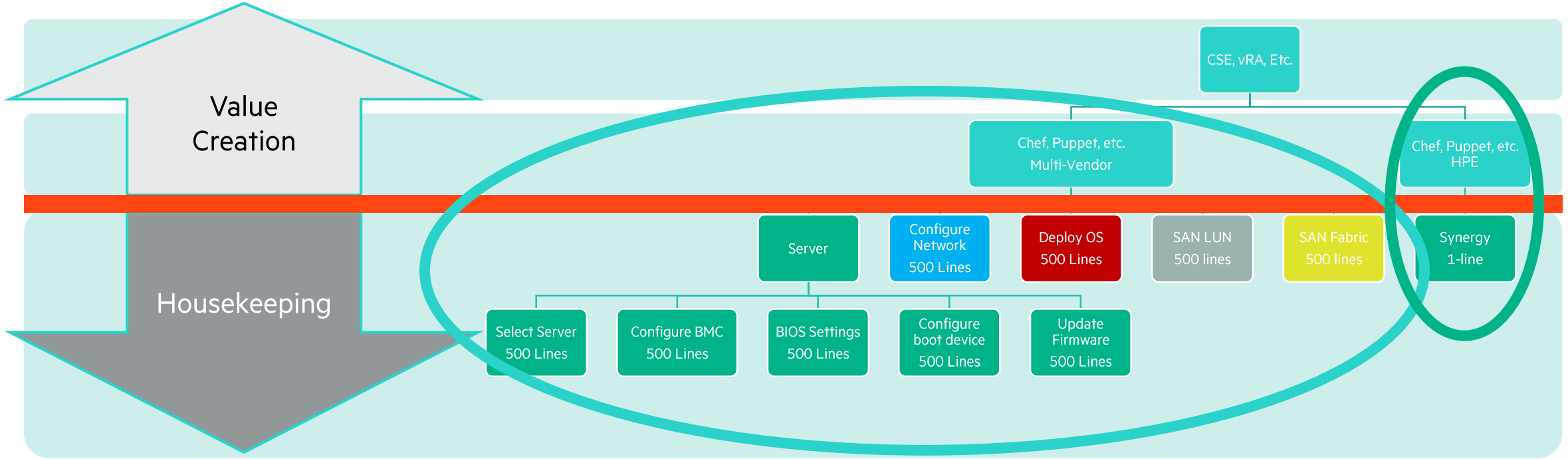
Spend less time on plumbing, more time on service delivery



- Orchestration and Automation layers are where commonality is defined
- Multi-Vendor stack requires thousands of lines of code to develop and maintain
- HPE stack can accomplish the same thing with a single line of code
- Less code = more reliable product

Automation example: Ansible

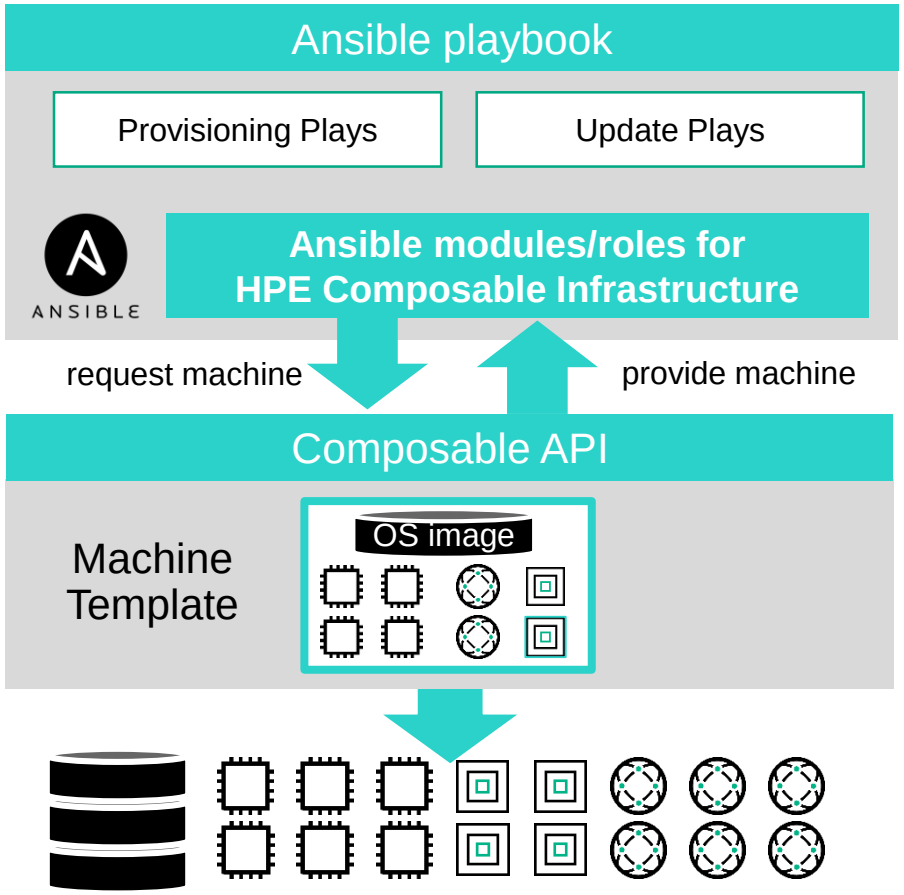
Provision and update bare metal infrastructure with Ansible and HPE Synergy Composer

Ansible playbook (Consumer)

Automatically provision entire stack from bare metal through application in minutes

HPE Composable API (Provider)

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



Delivering on the Composable Infrastructure vision

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Ansible playbooks automate application stack install

Playbook

```
# Configure and deploy the web servers.
- hosts: webservers
  remote_user: root
  roles:
  - base-apache
  - web

# Configure and deploy the load balancer.
- hosts: lbservers
  remote_user: root
  roles:
  - haproxy
```

Inventory

```
[webservers]
demo-web1
demo-web2

[lbservers]
demo-lb
```

```
[all-servers:children]
webservers
lbservers
```

Sample playbook.
Assumes servers ready to land the application stack with hardware configured and OS installed

Ansible modules for HPE OneView add infrastructure provisioning into your Ansible playbooks

```
# Deploy physical servers with an OS
- hosts: all-servers
  gather_facts: no
  roles:
    - hpe-oneview-server
```

Provision servers from bare metal, configure networks, storage, BIOS, firmware and install an OS

```
# Configure and deploy the web servers
- hosts: webservers
  remote_user: root
  roles:
  - base-apache
  - web

# Configure and deploy the load balancer.
- hosts: lbservers
  remote_user: root
  roles:
  - haproxy
```

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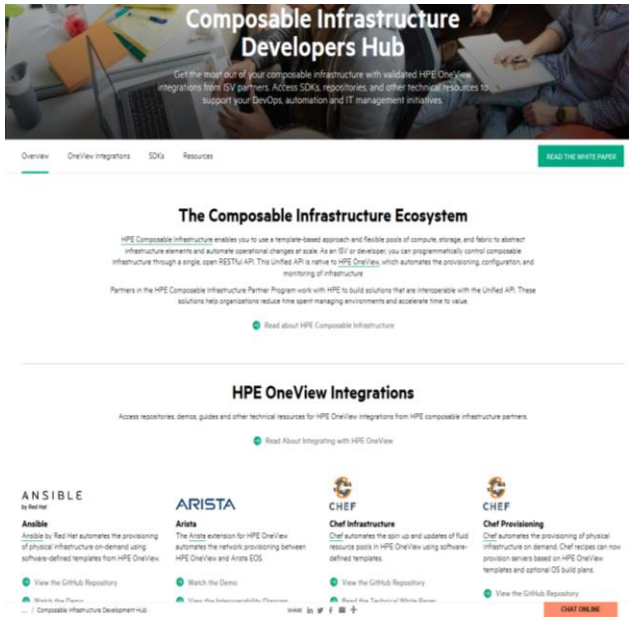
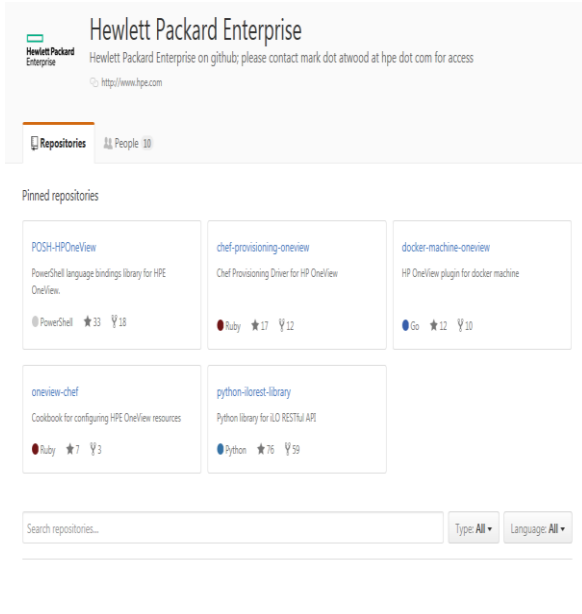
Demo: HPE OneView and Ansible

Ecosystem Resources Now Available

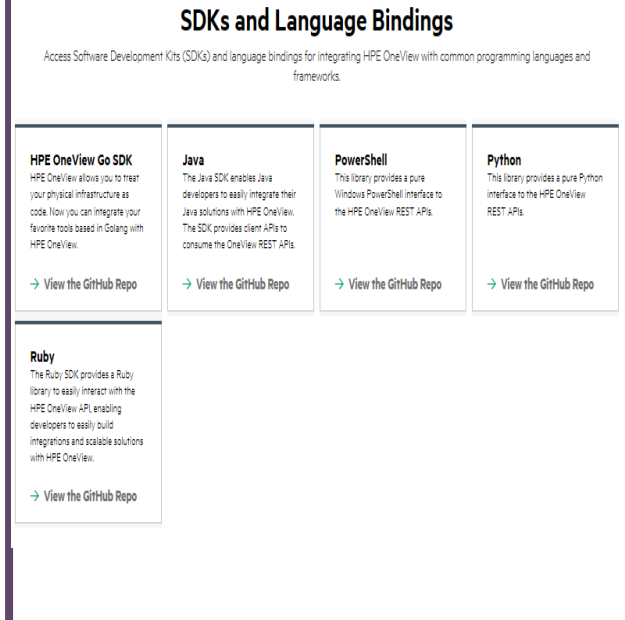
www.hpe.com/Info/composableprogram



Developers Hub
https://www.hpe.com/us/en/solutions/developers/composable.html



Integration repositories
https://github.com/HewlettPackard



SDKs and language bindings
https://www.hpe.com/us/en/solutions/developers/composable.html#SDKs

Contact HPE

Program info: ComposableAPIprogram@hpe.com

Technical support: ComposableAPIsupport@hpe.com

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Thank you