Meet Your New Managed Private Cloud from Red Hat and IBM

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AGENDA

- IBM Bluemix Private Cloud Overview

- IBM Bluemix Private Cloud Overview with Red Hat Overview

- Architecture Overview

- Deploying Enterprise Solutions on Bluemix Private Cloud with Red Hat

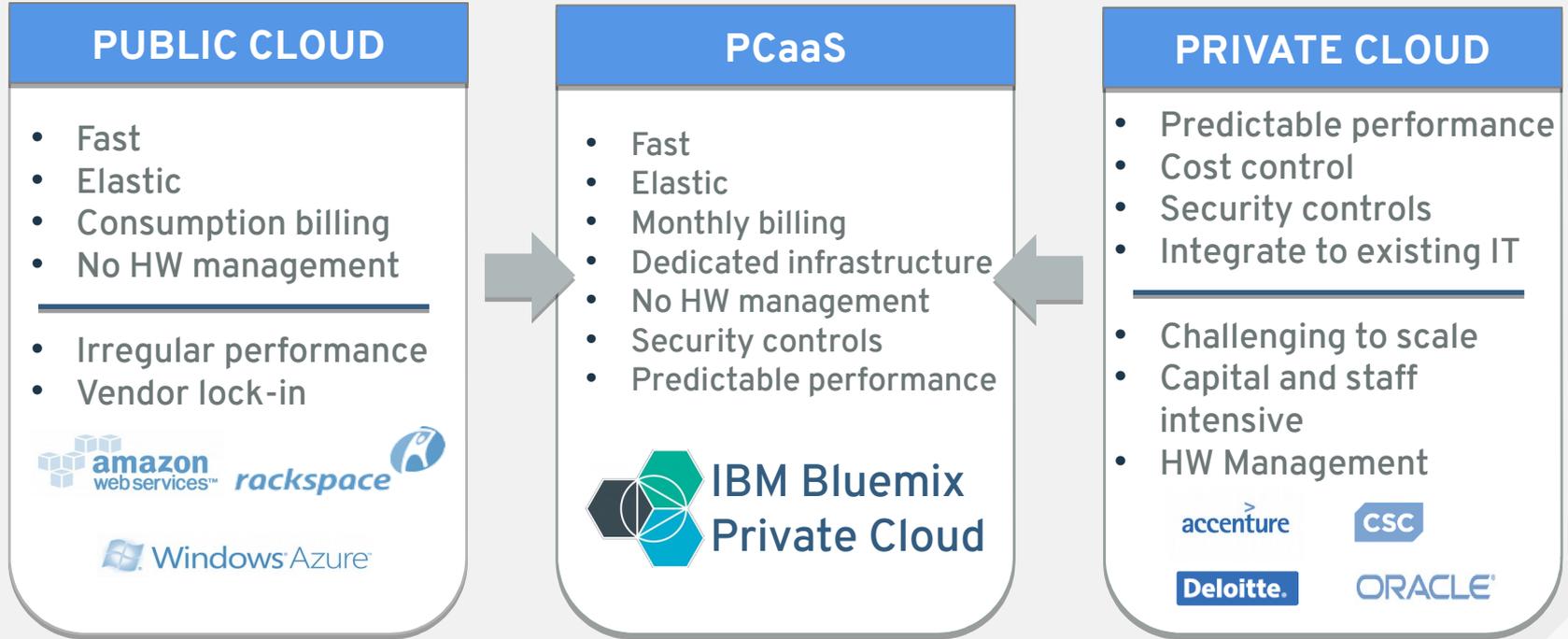- Composable [Hybrid] Infrastructure with Openstack and Ansible

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IBM Bluemix Private Cloud Overview

Private cloud is a type of cloud computing that delivers **similar advantages** to public cloud, including **scalability** and **self-service**. Unlike public clouds, a private cloud is dedicated to a **single** organization and provides a greater degree of **control**, **predictability**, and **security.**

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IBM Bluemix Private Cloud extends on the private cloud model, offering Private Cloud as a Service (PCaaS). With PCaaS, customers completely avoid the burden of buying hardware, building cloud ops expertise and cloud technology lifecycle management, creating the simplest on-ramp to private cloud available.

IBM Bluemix Private Cloud

Private Cloud as a Service (PCaaS)

PUBLIC CLOUD

- Fast
- Elastic
- Consumption billing
- No HW management

- Irregular performance
- Vendor lock-in

PCaaS

- Fast
- Elastic
- Monthly billing
- Dedicated infrastructure
- No HW management
- Security controls
- Predictable performance

IBM Bluemix Private Cloud

PRIVATE CLOUD

- Predictable performance
- Cost control
- Security controls
- Integrate to existing IT

- Challenging to scale
- Capital and staff intensive
- HW Management

IBM Bluemix Private Cloud with Red Hat

IBM Bluemix Private Cloud as a Service

Red Hat OpenStack Platform

Dedicated

Pure OpEx

IBM Global Data Center

- IBM Bluemix Private Cloud with Red Hat is a certified and managed deployment of Red Hat OpenStack Platform.

- IBM Bluemix Private Cloud's PCaaS model supports the enterprise value of Red Hat OSP by removing the burden of deploying and managing OpenStack.

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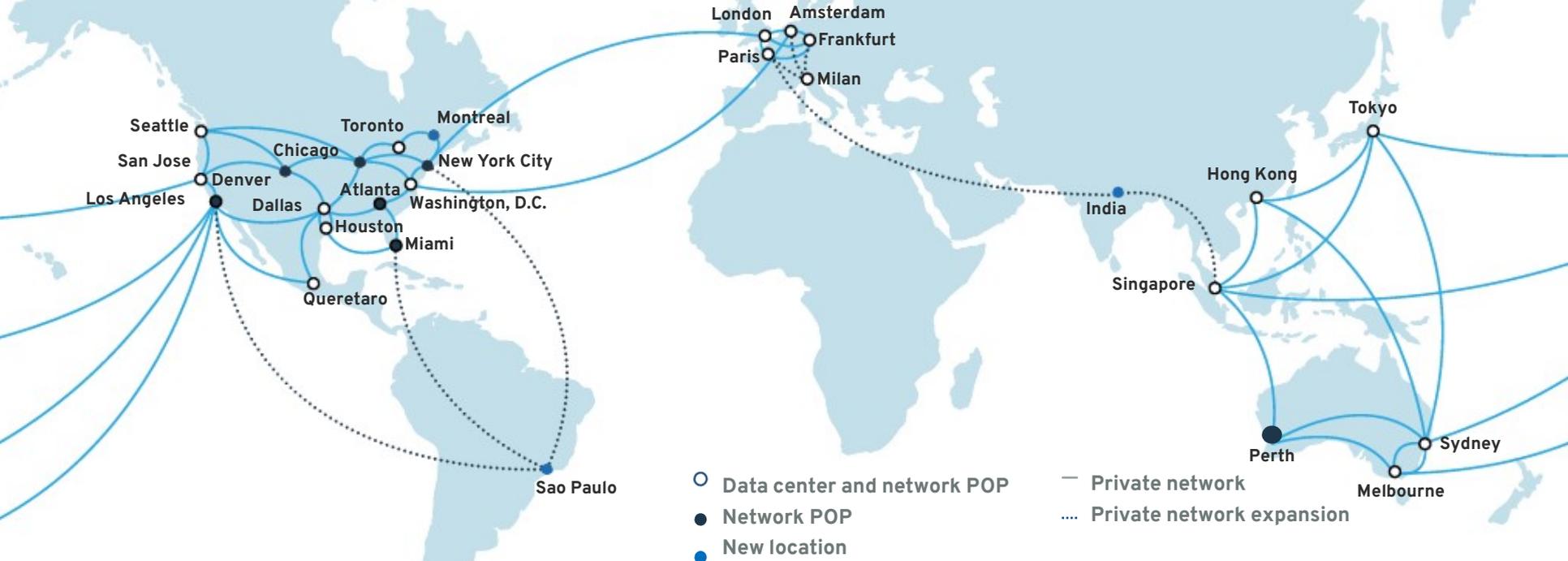
IBM Bluemix Private Cloud

IBM Bluemix Private Cloud + redhat

- Enterprise customer want enterprise support for their Red Hat workloads

- Red Hat has significant enterprise Linux marketshare

- Red Hat has a robust partner ecosystem, supports enterprise applications

- Expands private cloud choice with consistency
  - IBM Bluemix Private Cloud – Dedicated and Local
  - IBM Bluemix Private Cloud with Red Hat (Dedicated Only)

IBM Bluemix Private Cloud with Red Hat

Technical Highlights

- OpenStack Release: Red Hat OSP10 (Newton)

- OpenStack API and Horizon console
  - OSP services configured for HA

- Secure access via VPN service

- Neutron/VxLAN (LinuxBridge) based

- Virtual Networking

- Scale Out Compute, Block Storage and Object Storage options

- Bring your own images (BYOI) and licenses (BYOL)

- Optionally, bring your own IP (BYOIP) for private IP address range

- SoftLayer Direct Link, Private Network

- Backed by 24x7 IBM Global Support

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IBM Bluemix Private Cloud with Red Hat is available in Global IBM Cloud data centers.

London
Amsterdam
Frankfurt
Paris
Milan

Tokyo
Hong Kong
India

Seattle
Toronto
Montreal
San Jose
Chicago
New York City
Denver
Atlanta
Los Angeles
Dallas
Washington, D.C.
Houston
Miami
Queretaro

Singapore

Sao Paulo

Perth
Sydney
Melbourne

○ Data center and network POP
● Network POP
● New location

— Private network
···· Private network expansion

IBM BPC with Red Hat Building Blocks and Architecture

IBM Bluemix Private Cloud with Red Hat

Deployment Model

The Bluemix Private Cloud deployment model is designed to enable a cost-effective, small footprint with scale-out capability.

- Start with Two (2) Dedicated Controllers and One (1) Three-Node Base Compute Cluster

- Dedicated gateways and firewalls by default

- 10 Gbps connetivity

- Add on compute nodes

- Add on SSD block storage, add on object storage

Firewalls

Minimum Configuration

Dedicated Controllers   Base Cluster

+

Add-ons

SSD Block Storage   Object Storage   Compute
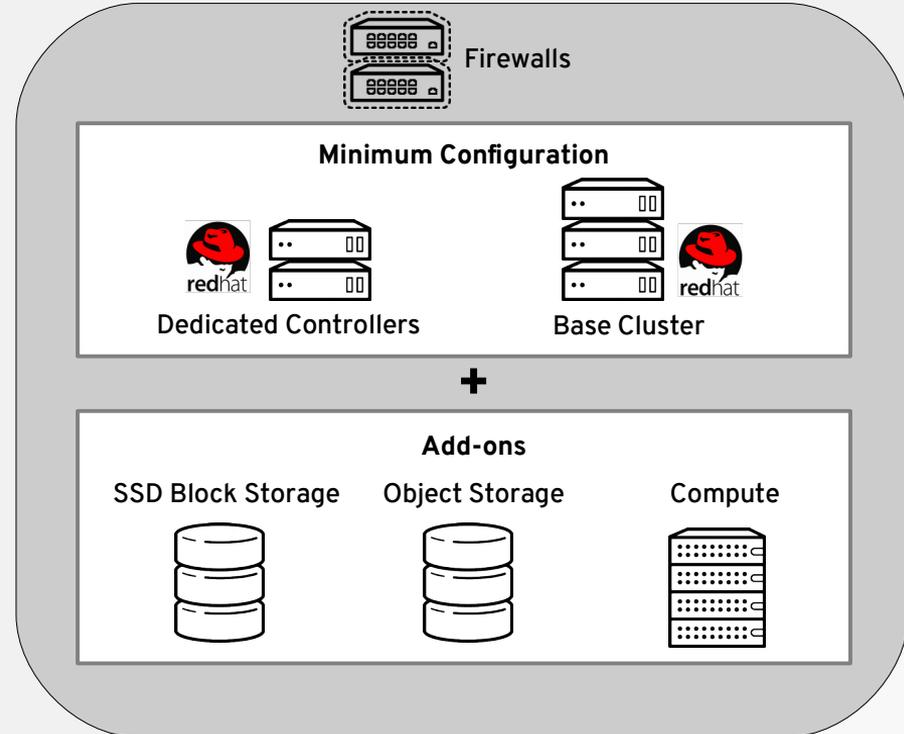
IBM Bluemix Private Cloud with Red Hat

Architecture Overview
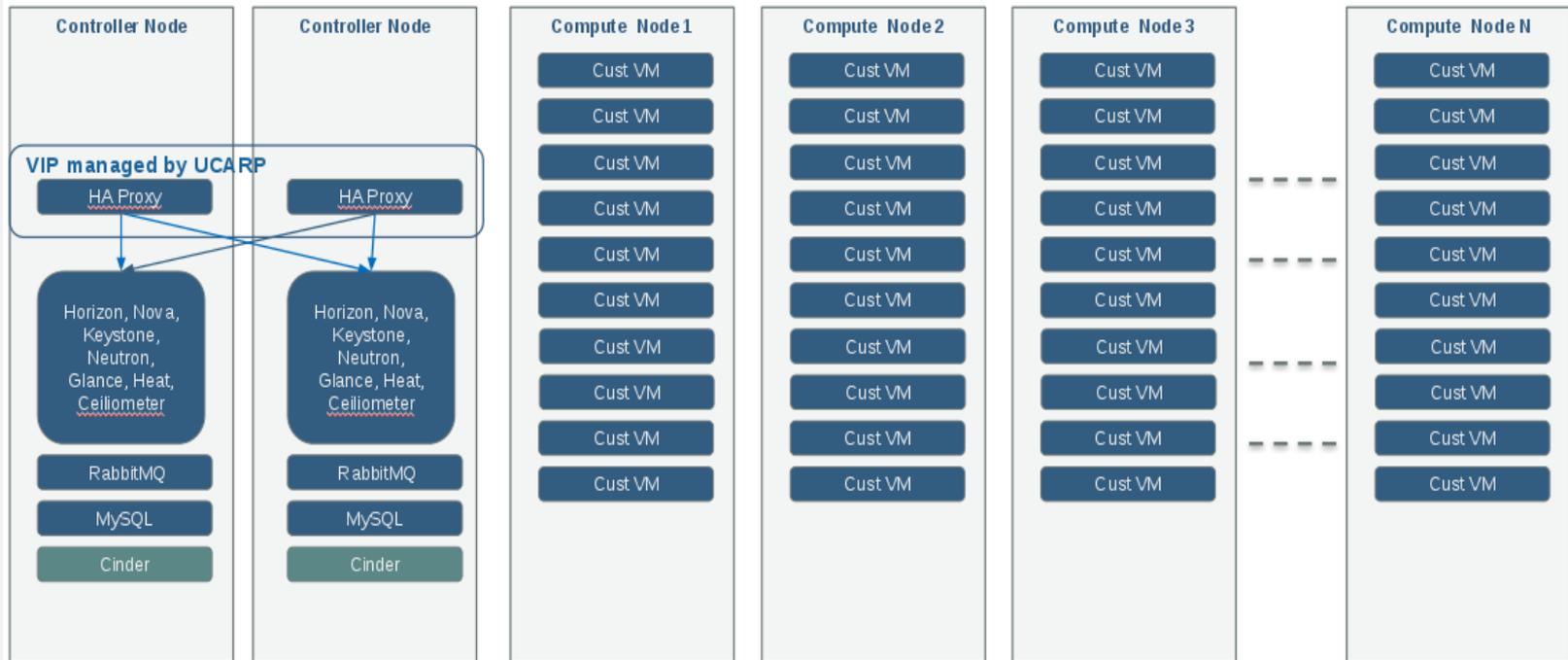
IBM Bluemix Private Cloud with Red Hat

Architecture Overview

Service	Version	Port	Endpoint
Keystone	3.0	5000	External Only
Nova	2.1	8774	External Only
Cinder	3.0	8776	External Only
Neutron & LBaaS	2.0	9696	External Only
Glance	2.2	9292	External & Internal (for compute node)
Heat	1.0	8004	External Only
Ceilometer	2.0	8777	External Only
Swift	1.0	8080	External & Internal (for cinder & glance)
Horizon	N/A		

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IBM Bluemix Private Cloud with Red Hat

Architecture Overview

Area	Technology	Notes
Openstack Database	MySQL / Percona MongoDB for Ceilometer	2 Nodes + Arbiter
Deployment Automation	Ursula / Ansible	
Networking	Neutron / VxLAN	Linux Bridge
Object Storage	OpenStack Swift	Add-on option
Block Storage	Red Hat Ceph	Add-on option
Hypervisor	KVM from RHEL version 7.3 LTS	
Network Security	Vyatta Firewall & VPN with BYOIP for Private Networks	

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IBM Bluemix Private Cloud with Red Hat

Architecture Overview
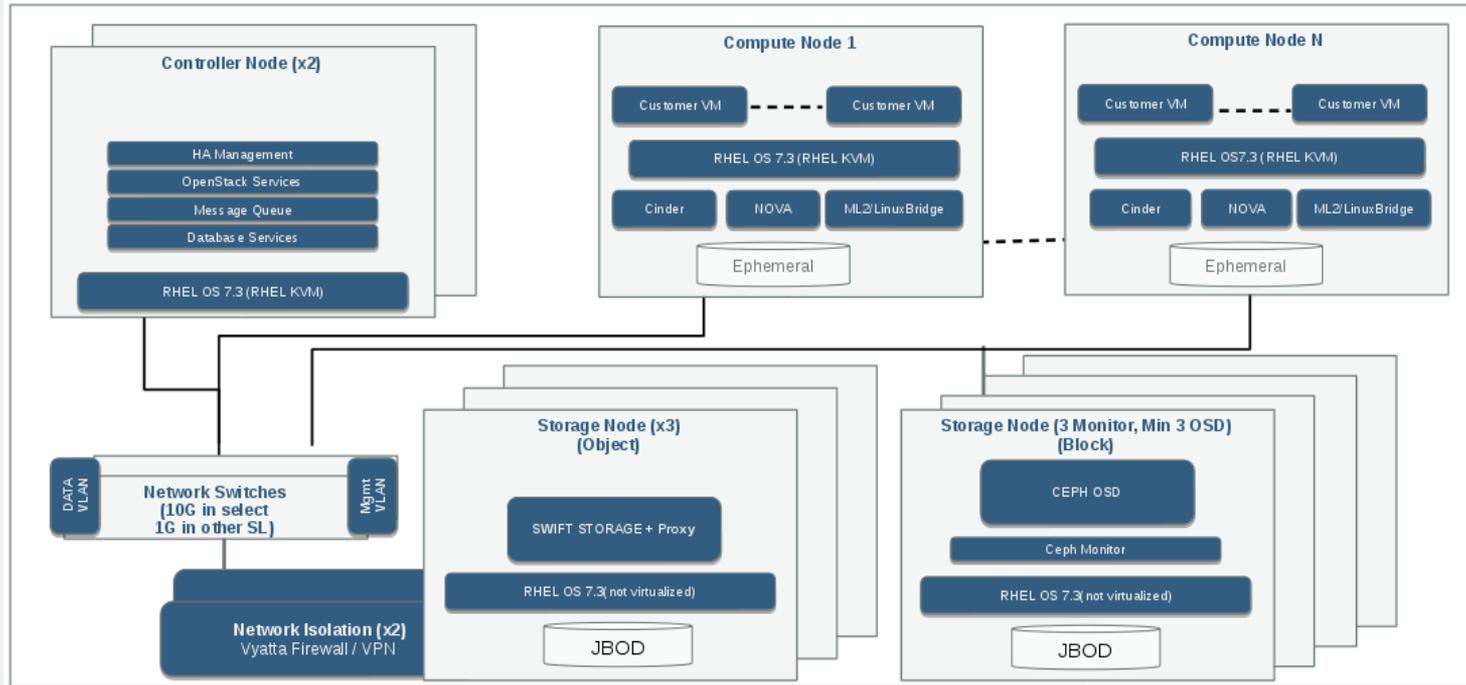
Deploying Enterprise Solutions on BPC

Development Process	Application Architecture	Deployment & Packaging	Application Infrastructure
Waterfall	Monolithic	Physical Servers	Datacenter
Agile	N-Tier	Virtual Servers	Hosted
DevOps	**Microservices**	**Containers**	**Cloud**
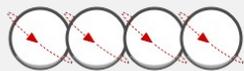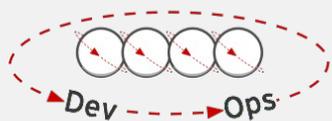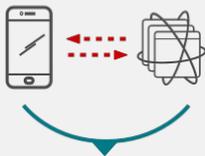
Dev → Ops
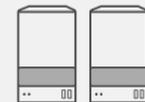
IBM Bluemix Private Cloud with Red Hat

OpenShift on OpenStack

- Built for both traditional and cloud-native applications.

- An integrated hybrid cloud application platform for application development and deployment

- Develop, build, and manage container based applications

- Easily turn source code into running applications with source-to-image capabilities
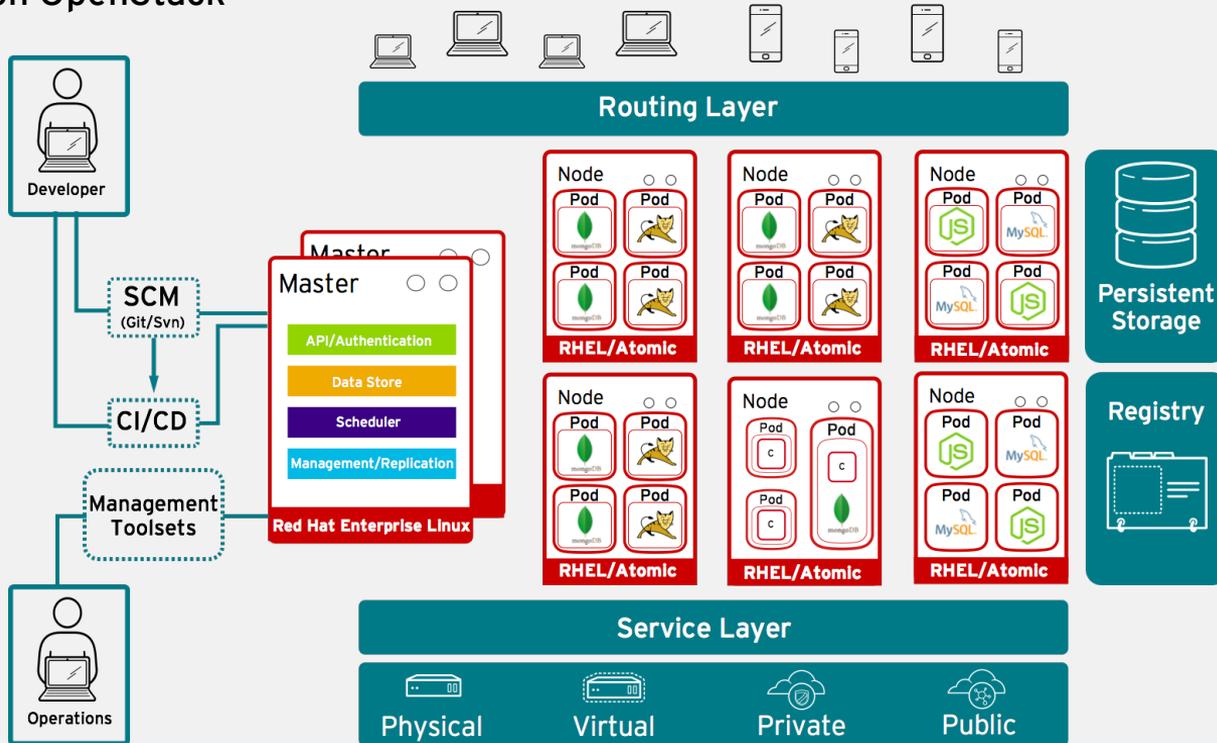
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IBM Bluemix Private Cloud with Red Hat

JBoss Middleware Services on OpenShift

Application Container Services

- JBoss EAP
- JBoss Web Server / Tomcat
- JBoss Developer Studio

Integration Services

- Fuse
- A-MQ
- Data Virtualization

Business Process Services

- Business Process Management
- Business Rules Management System

Mobile Services
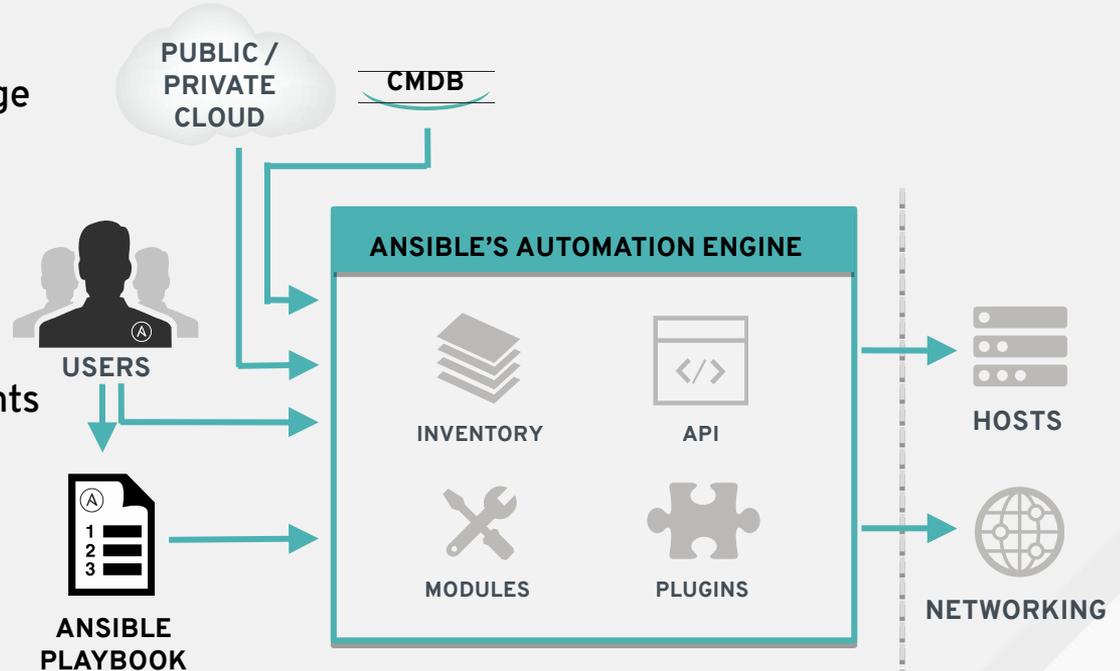
- Red Hat Mobile / FeedHenry *

* Coming Soon

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IBM Bluemix Private Cloud with Red Hat

Deploying Workloads with Ansible

Ansible is simple automation language that can perfectly describe an IT application infrastructure in human-readable playbooks.

- No special coding skills required

- Designed for multi-tier deployments

- Agentless architecture

- Community driven

PUBLIC / PRIVATE CLOUD

CMDB

USERS

ANSIBLE PLAYBOOK

ANSIBLE'S AUTOMATION ENGINE

INVENTORY

API

MODULES

PLUGINS

HOSTS

NETWORKING

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IBM Bluemix Private Cloud with Red Hat

Deploying Workloads with Ansible

Ansible tower is an enterprise framework for controlling, securing and managing your Ansible automation with a UI and restful API.

- Role-based access control keeps environments secure and teams efficient.

- All Ansible automations are centrally logged, ensuring complete auditability and compliance.

- Non-privileged users can safely deploy entire applications with push-button deployment access.
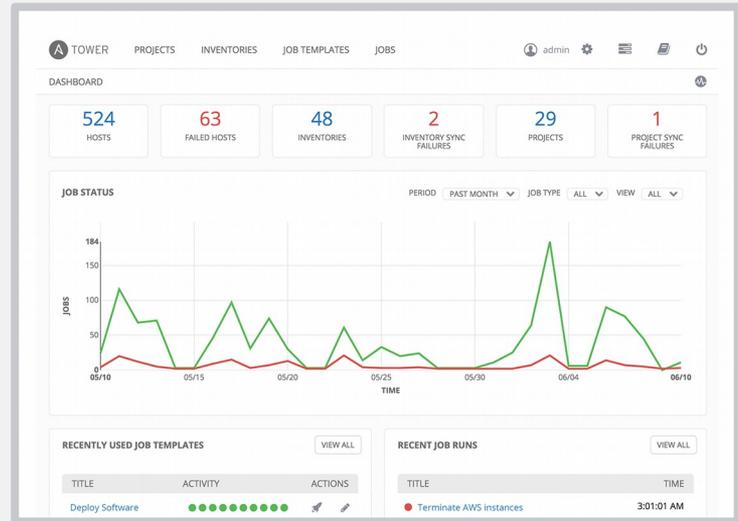
IBM Bluemix Private Cloud with Red Hat

What's Coming Down the Pipe?

- CloudForms integration to extend our customers hybrid cloud capabilities

- Working with SAP to get RHEL for SAP HANA approved for deployment on BPC with Red Hat

- Upgrades to future releases of RH OSP

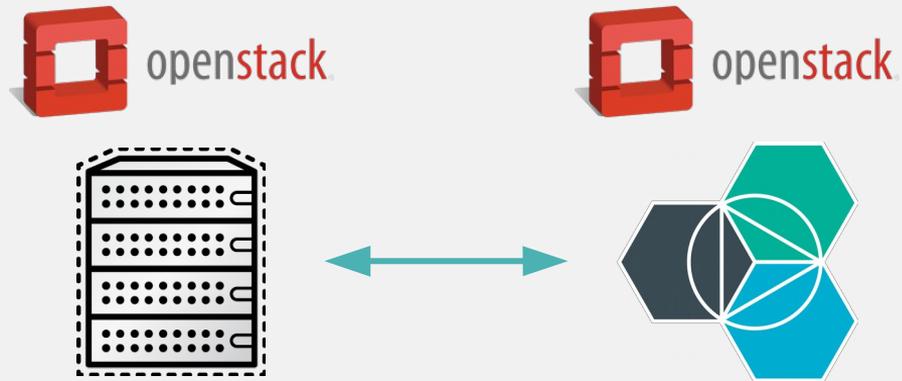- Bluemix Private Cloud with Red Hat Local
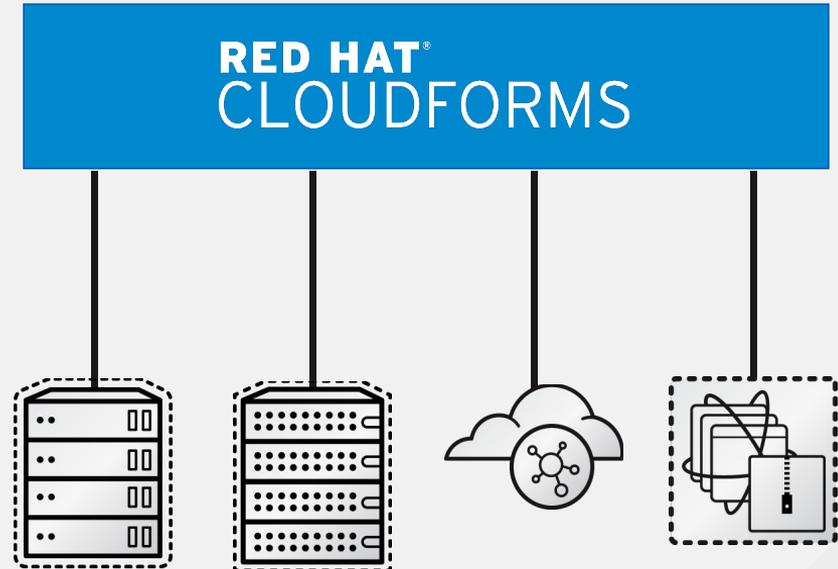
Composable [Hybrid] Infrastructure with Openstack and Ansible

Composable Infrastructure

Hybrid!!!!

- **Openstack in your Data Center**

- **Openstack in our Data Center**

- Bluemix
  - Applications
  - Container Services (k8s)
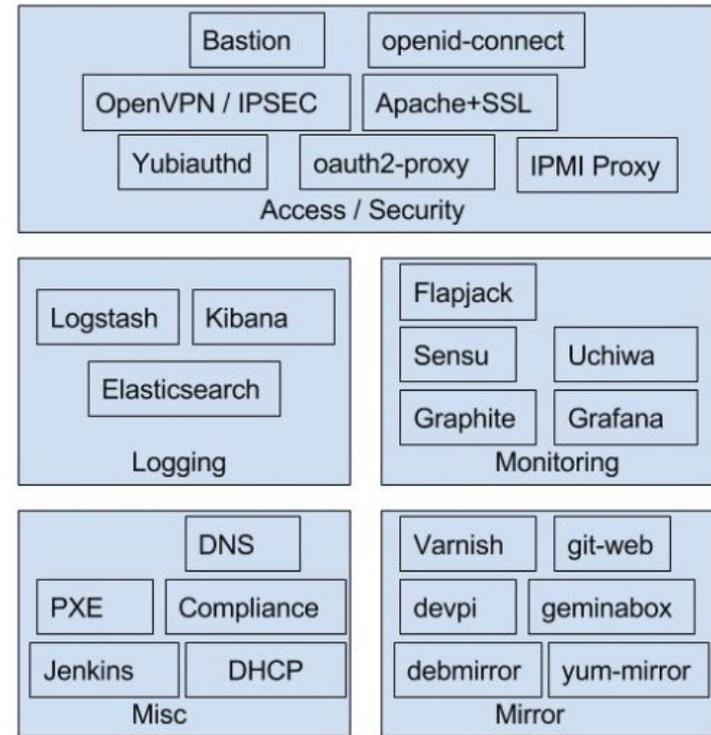
Composable Infrastructure

Hybrid!!!!

- Ansible
  - Monolithic repo
  - Dynamic inventory

- Openstack [Heat]
  - Native cloud orchestration

- Softlayer
  - SL CLI / APIs to deploy resources
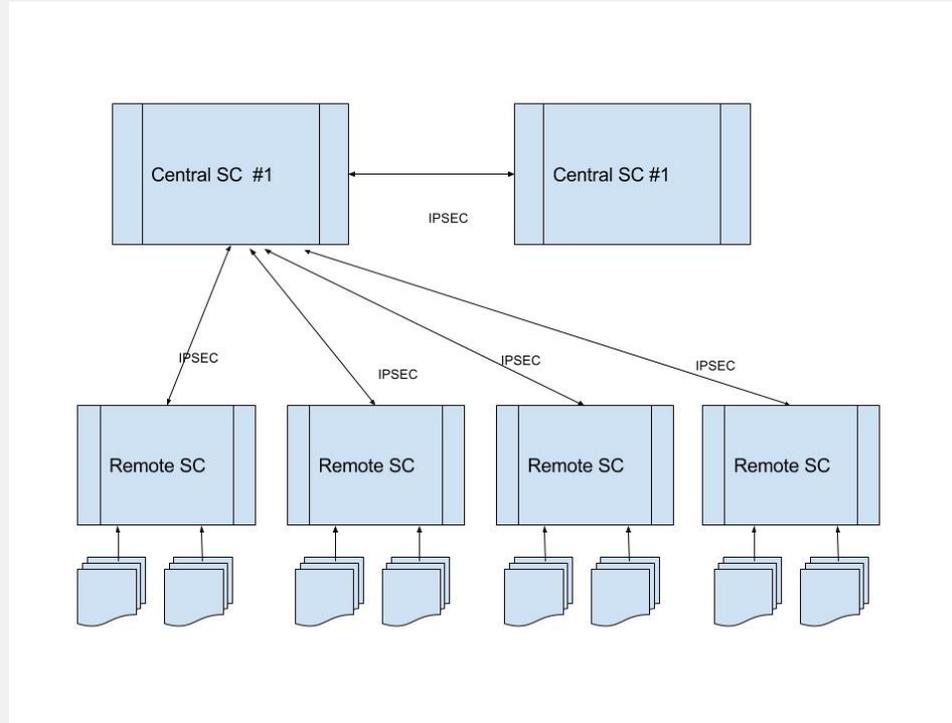
- Vagrant
  - Local Dev / Test / etc
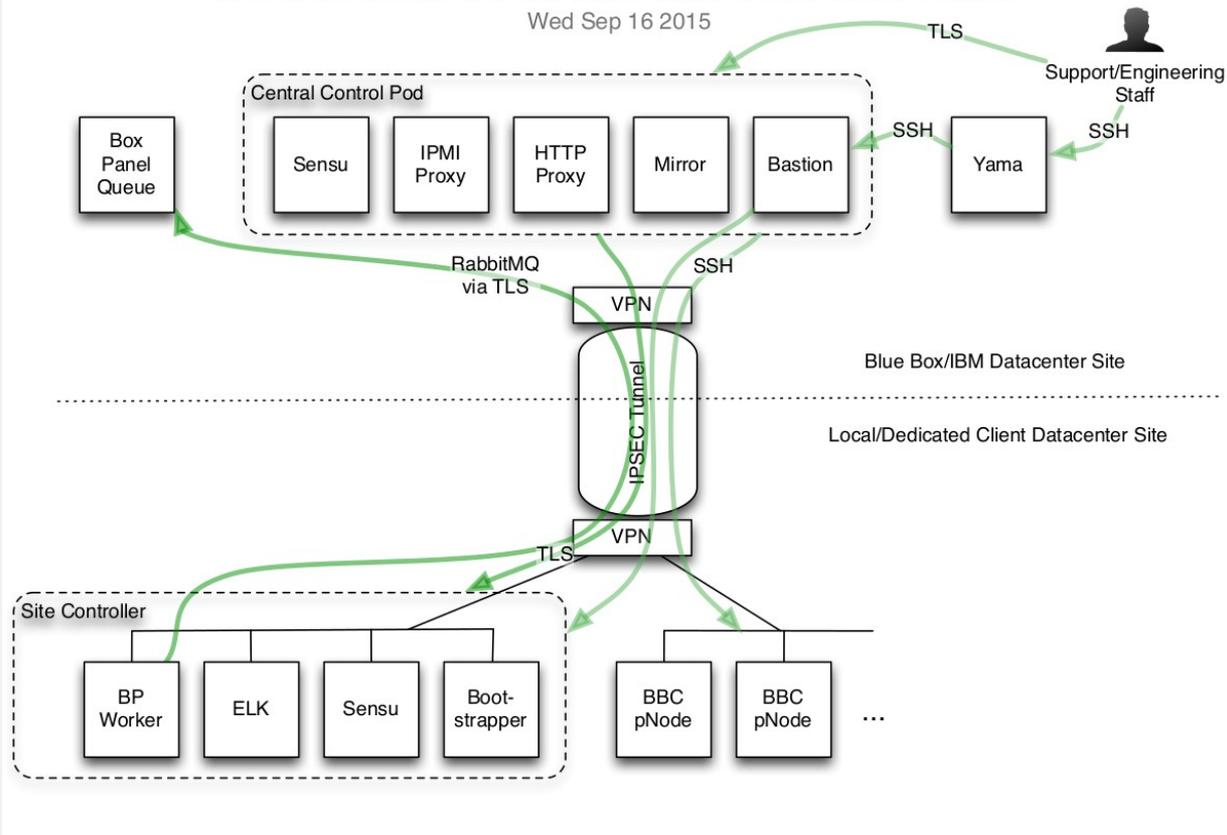
Composable Infrastructure

Ansible – Monolithic Repo

Composable Infrastructure

Composable!!!!

Q&A/Next Steps

- **Reach out to your IBM/Red Hat account teams**

- **Reach out to technical product owners from IBM and Red Hat**
  - Andre Bearfield (bearfield@us.ibm.com)
  - Azmir Mohamed (azmir.mohamed@us.ibm.com)
  - Joe Mann (jmann@redhat.com)

- **Check out the press releases and blogs on the solution:**
  - Press Release: https://goo.gl/ejbSjm
  - IBM Blog: https://goo.gl/4ocIDf

- **Check out the IBM sponsored track on the solution:**
  "How Companies of All Sizes Leverage OpenStack Based Private Clouds"
  MR208 – Tuesday, 3:40 – 4:20PM

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