

The logo consists of a red rectangle with the words "RED HAT" in white, uppercase letters above the word "SUMMIT" in a larger, bold, white, uppercase font.

RED HAT
SUMMIT

RED HAT CLOUDFORMS: TURBOCHARGE YOUR OPENSTACK

Enhancing Capabilities of a Private Cloud

Jason Ritenour
Cloud Domain Architect - Red Hat CloudForms

Kevin Jones
Cloud Domain Architect - Red Hat OpenStack Platform



WHO WE ARE



Jason Ritenour is widely regarded as Red Hat's foremost expert on dinosaurs



Kevin Jones is the strongest employee at Red Hat, and can deadlift well over 1,000 lbs

TODAYS THEMES



ENHANCED USER EXPERIENCE



INCREASED VISIBILITY



GRANULAR SECURITY

WE START WITH OPENSTACK

WHAT IS OPENSTACK?



OPENSTACK POWERS DIGITAL BUSINESS



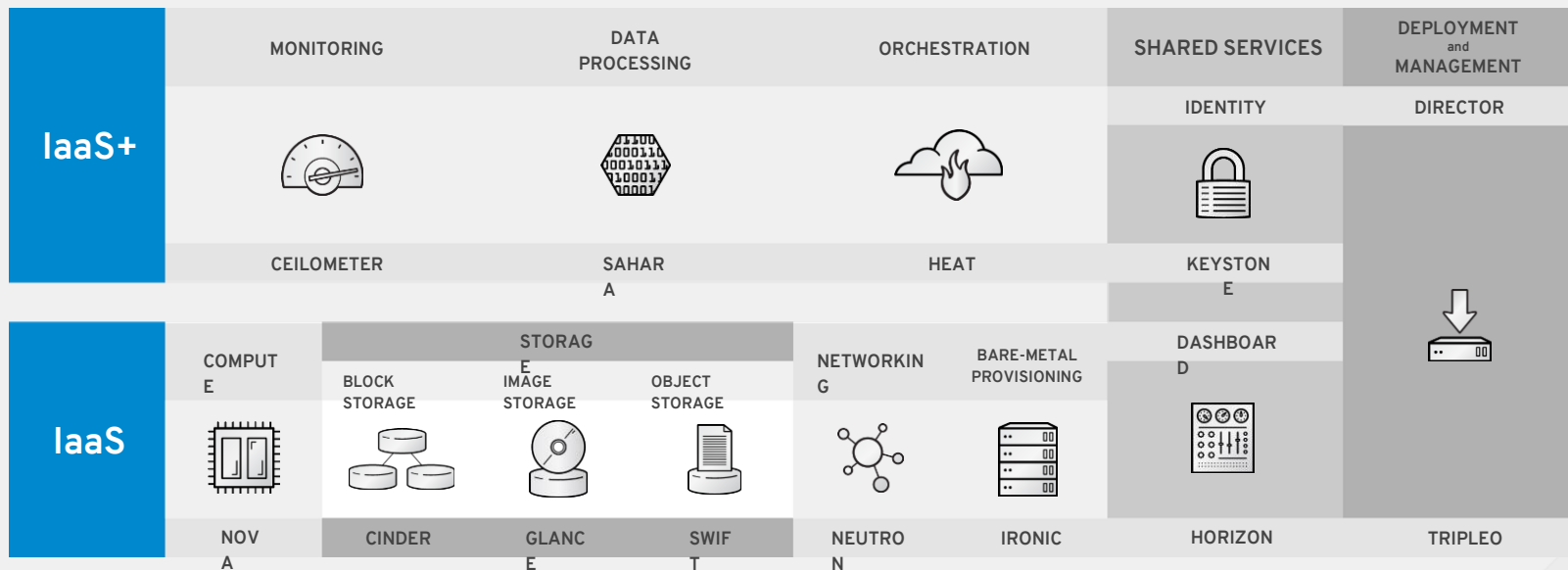
- Brings public cloud capabilities into your datacenter
- Open source removes vendor lock-in
- Provides high-degree of flexibility
- Greater automation, resource provisioning, and scaling

CLOUD INFRASTRUCTURE INGREDIENTS

Modular architecture

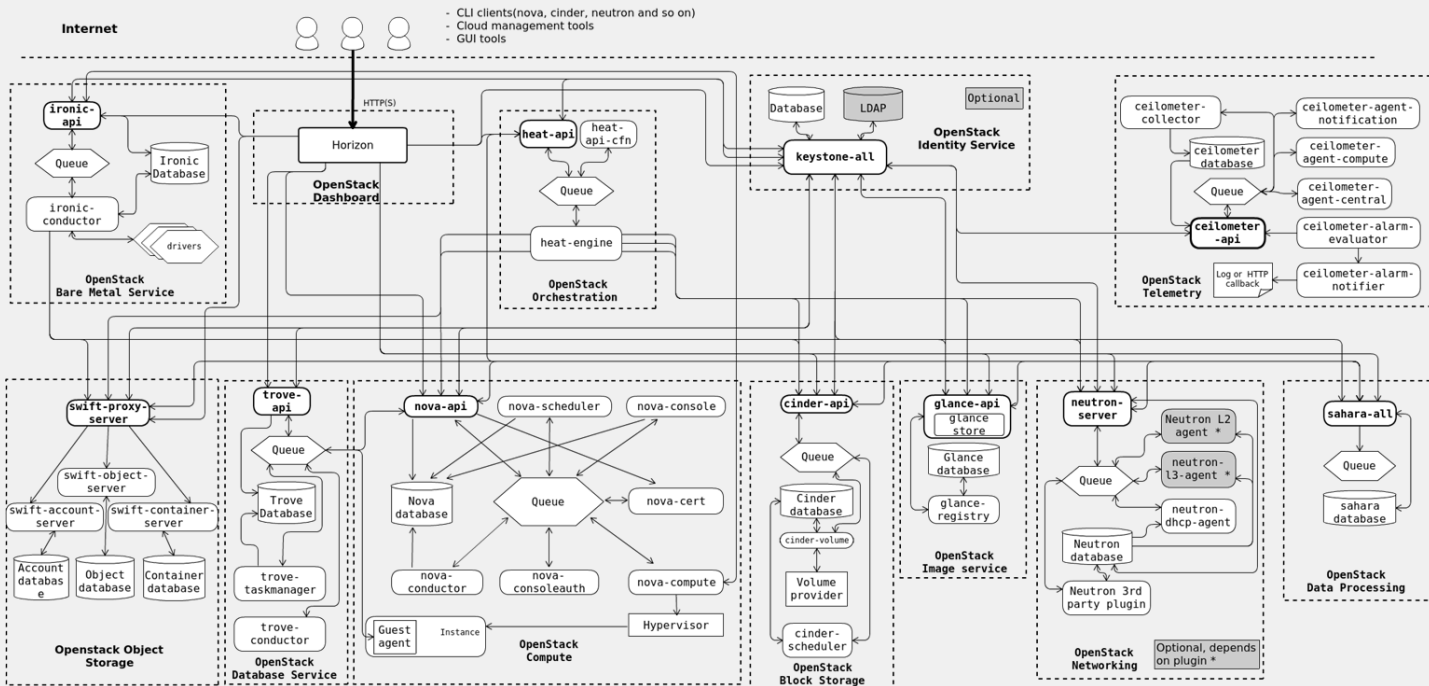
Designed to scale out

Based on core services



UNDER THE COVERS

Yep it looks like this



RED HAT OPENSTACK PLATFORM DIRECTOR



PLANNING

- Network topology
- Service parameters
- Resource capacity

DEPLOYMENT

- Deployment orchestration
- Service configuration
- Sanity checks

OPERATIONS

- Updates and upgrades
- Scaling up and down
- Change management



Self-Service &
Service Management



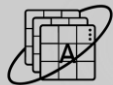
Compliance &
Governance



Efficiency &
Optimization

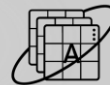


Automation



OPERATING SYSTEMS & APPLICATIONS

Red Hat Satellite, Red Hat Insights, Ansible Tower



CONTAINERS

Red Hat® OpenShift Container Platform



VIRTUALIZATION

VMware®

Microsoft® Hyper-V

Red Hat Virtualization



PRIVATE CLOUD

Red Hat OpenStack® Platform



PUBLIC CLOUD

Amazon® Web Services

Microsoft Azure

Google® Cloud



PHYSICAL INFRASTRUCTURE

Lenovo XClarity



SOFTWARE DEFINED NETWORKING

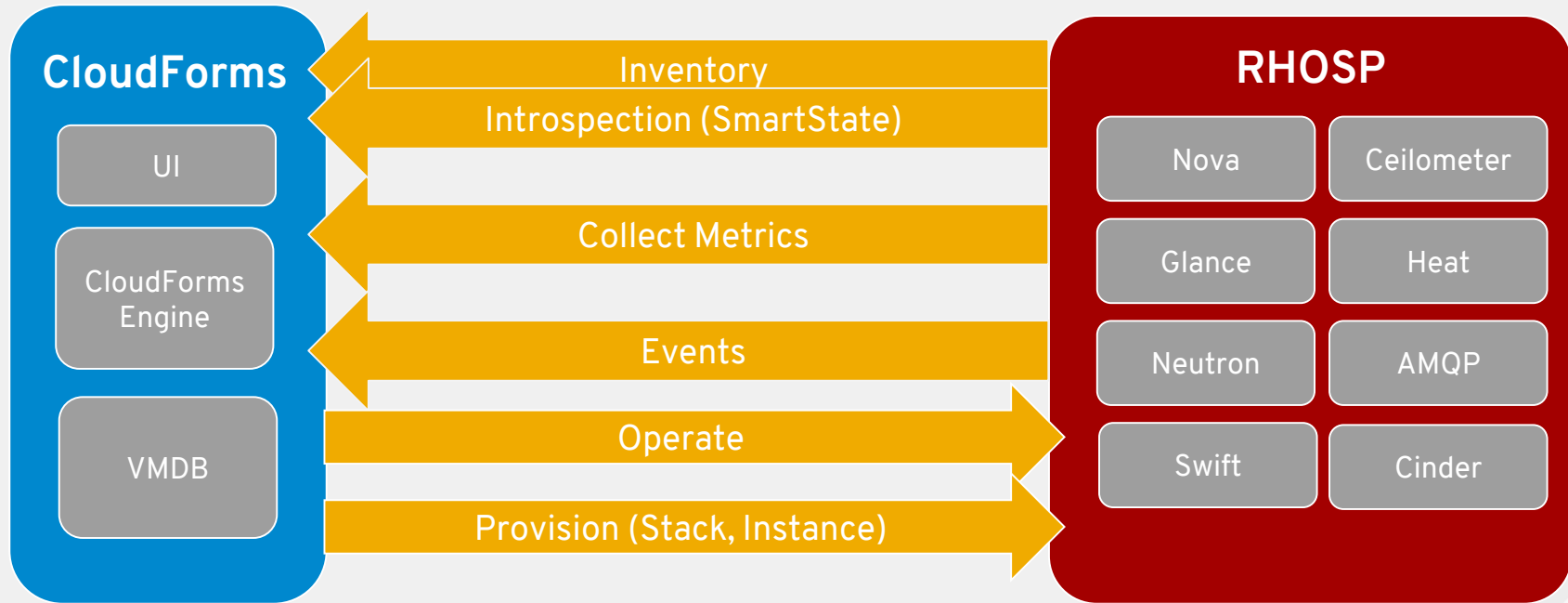


SOFTWARE DEFINED STORAGE



CF & RHOSP OVERCLOUD INTERACTION

Agentless. Leverage OpenStack upstream APIs



USER EXPERIENCE

OPENSTACK USER EXPERIENCE

RED HAT OPENSTACK PLATFORM

ProjectAdminIdentity

Project▼Helpoperator▼

ComputeNetwork▼Orchestration▼Data Processing▼Object Store▼

OverviewInstancesVolumesImagesAccess & Security

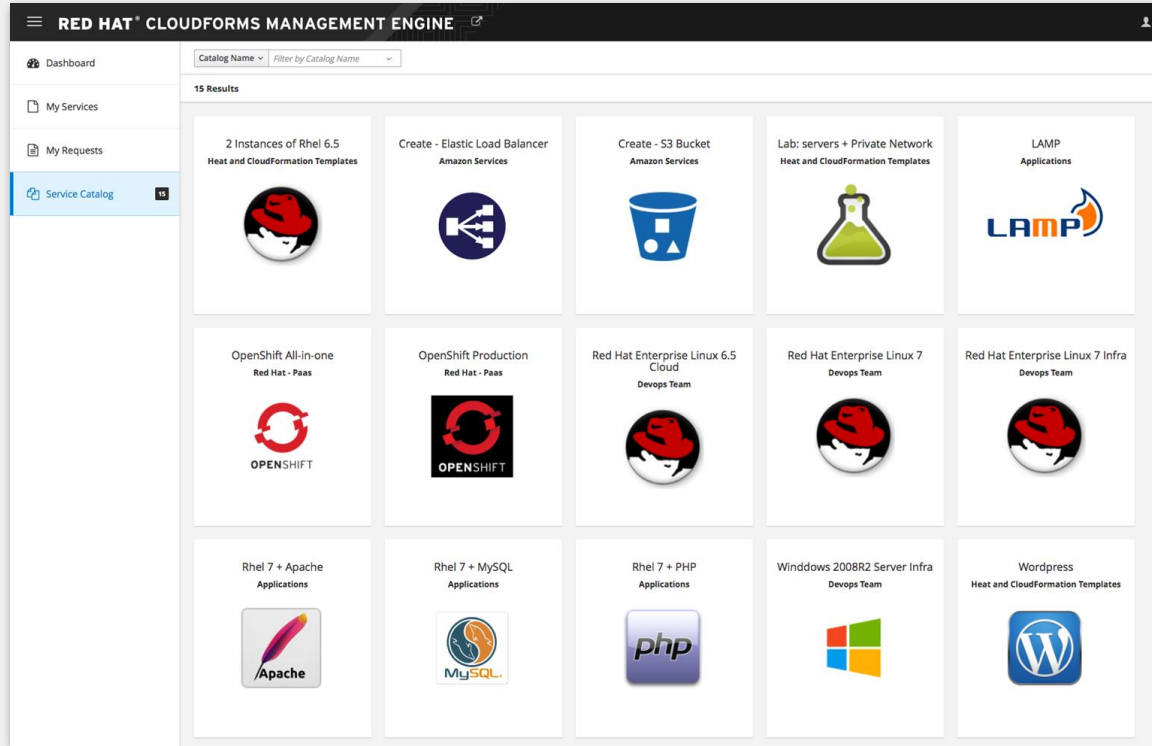
Project / Compute / Instances

Instances

Instance Name = FilterLaunch InstanceDelete InstancesMore Actions▼

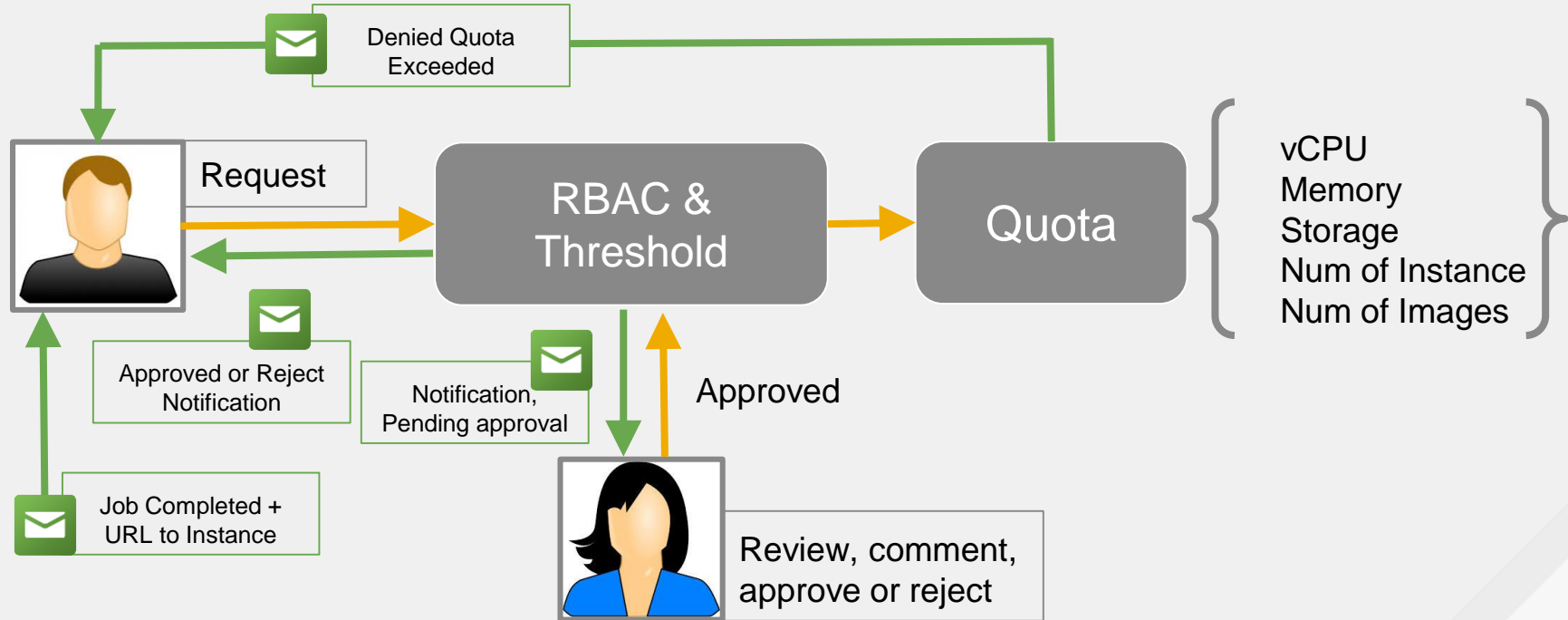
<input type="checkbox"/>	Instance Name	Image Name	IP Address	Size	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/>	ocp-node-711b	ocpv2	<div>• 172.16.0.15</div> Floating IPs: <div>• 192.168.1.122</div>	m1.ocpnode	ansible1	Active	nova	None	Running	22 hours, 57 minutes	Create Snapshot▼
<input type="checkbox"/>	ocp-node-14e4	ocpv2	<div>• 172.16.0.6</div> Floating IPs: <div>• 192.168.1.124</div>	m1.ocpnode	ansible1	Active	nova	None	Running	23 hours, 16 minutes	Create Snapshot▼
<input type="checkbox"/>	ocp-node-fd9b	ocpv2	<div>• 172.16.0.4</div> Floating IPs:	m1.ocpnode	ansible1	Active	nova	None	Running	1 month	Create Snapshot▼

CLOUDFORMS SERVICE CATALOG



PROVISIONING WORKFLOW

Approval Workflow, Quota Validation, Email Notification



DEMO: PROVISION AN INSTANCE

VISIBILITY

OPENSTACK VISIBILITY

Overview

Log

Console

Action Log

Name

ID

Status

Availability Zone

Created

Time Since Created

Host

ansible-shade

11f349cd-5285-4da1-9361-59b15f072f5c

Active

nova

Nov. 27, 2017, 8:50 p.m.

4 months, 3 weeks

overcloud-compute-1.rhshadowbox.com

Specs

Flavor Name

Flavor ID

RAM

VCPUs

Disk

m1.small

2

1GB

1 VCPU

10GB

After Image Creation

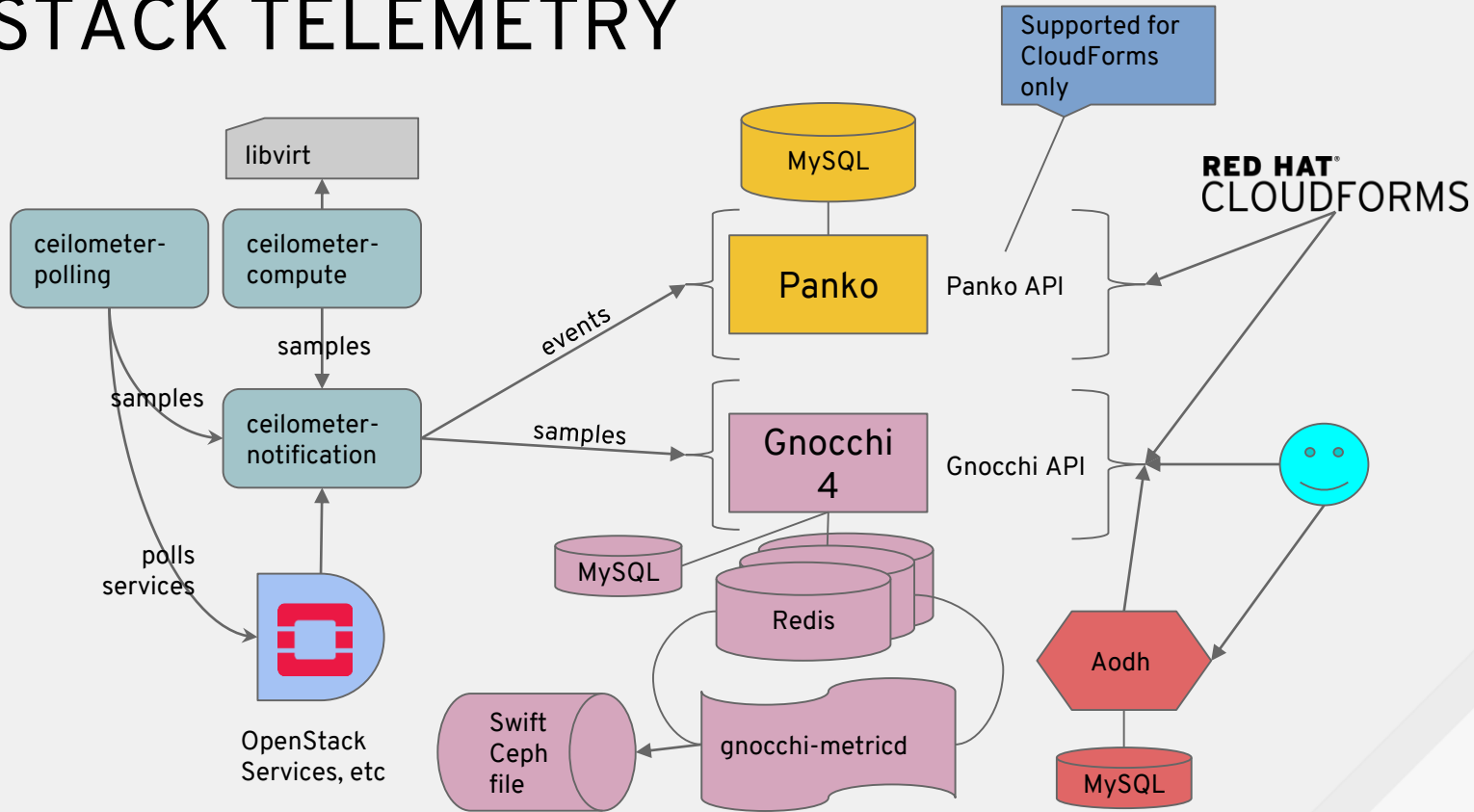
No control over

- Users
- Packages
- Security

Ability to See

- Flavor size and specs
- Base image used
- Volumes attached
- IP addresses assigned

OPENSTACK TELEMETRY



CLOUDFORMS VISIBILITY INTO INSTANCES

Security	
Users	20
Groups	38
Configuration	
Packages	344
Init Processes	153
Files	30

"Guest Applications" for Virtual Machine "demorhel7"

	Name	Vendor	Version	Release	Description
<input type="checkbox"/>	iw7265-firmware		22.0.7.0	58.el7_4	This package contains the firmware required by the iw7265 driver for Linux. Usage of the firmware is subject to the terms and conditions contained inside the provided LICENSE file. Please read it carefully.
<input type="checkbox"/>	jansson		2.10	1.el7	Small library for parsing and writing JSON documents.
<input type="checkbox"/>	katello-ca-consumer-sat6.local.lab		1.0	1	Consumer certificate and post installation script that configures rhsm.
<input type="checkbox"/>	kbd		1.15.5	13.el7	The kbd package contains tools for managing a Linux system's console's behavior, including the keyboard, the screen fonts, the virtual terminals and font files.
<input type="checkbox"/>	kbd-legacy		1.15.5	13.el7	The kbd-legacy package contains original keymaps for kbd package. Please note that kbd-legacy is not helpful without kbd.
<input type="checkbox"/>	kbd-misc		1.15.5	13.el7	The kbd-misc package contains data for kbd package - console fonts, keymaps etc. Please note that kbd-misc is not helpful without kbd.
<input type="checkbox"/>	kernel		3.10.0	693.21.1.el7	The kernel package contains the Linux kernel (vmlinux), the core of any Linux operating system. The kernel handles the basic functions of the operating system: memory allocation, process allocation, device input and output, etc.
<input type="checkbox"/>	kernel-tools		3.10.0	693.21.1.el7	This package contains the tools/ directory from the kernel source and the supporting documentation.
<input type="checkbox"/>	kernel-tools-		3.10.0	693.21.1.el7	This package contains the libraries built from the tools/ directory from the kernel source.

ANSIBLE INSIDE CLOUDFORMS

Provisioning

Retirement

Repository

Jason's Linux Playbooks

Playbook

sat6-reg/sat6-reg.yml

Machine Credential

CF Ansible

Cloud Type

Nothing selected

Hosts

☒ Localhost

☐ Specify host values

Max TTL (mins)

15

Logging Output

On Error

Escalate Privilege

Yes







Verbosity

1 (Verbose)

Variables & Default Values

Variable

Default value

Variable	Default value	Actions
sat_server	sat6.hatrick2.local	 
activation_key	baserhel7	 
org_id	2	 

Dialog

☐ Use Existing

☒ Create New

sat6reg

METRICS: RIGHT SIZE RECOMMENDATION

Right Size Recommendation for Instance "cf-db-1"

Normal Operating Ranges (up to 30 days' data)

	Max	High	Average
CPU	744.49 MHz	347.47 MHz	132.37 MHz
CPU Usage	22.46%	5.66%	4.69%
Memory	6.97 GB	7.03 GB	6.13 GB
Memory Usage	58.12%	60.40%	53.39%

Right-Sizing (Conservative - derived from Absolute Maximum)

	Current	Recommended	% Savings
Processors	4	1	75.0%
Memory	12288 MB	7144 MB	41.9%

METRICS: CAPACITY PLANNING & TRENDS

Basic Information

Utilization Trend Summa...	Cluster / Deployment Role [overcloud-Controller-smnmvsqodgj3]
Trend Interval	2018-04-13 - 2018-04-16
Selected Day	2018-04-16
Time Profile	UTC
Time Zone	UTC

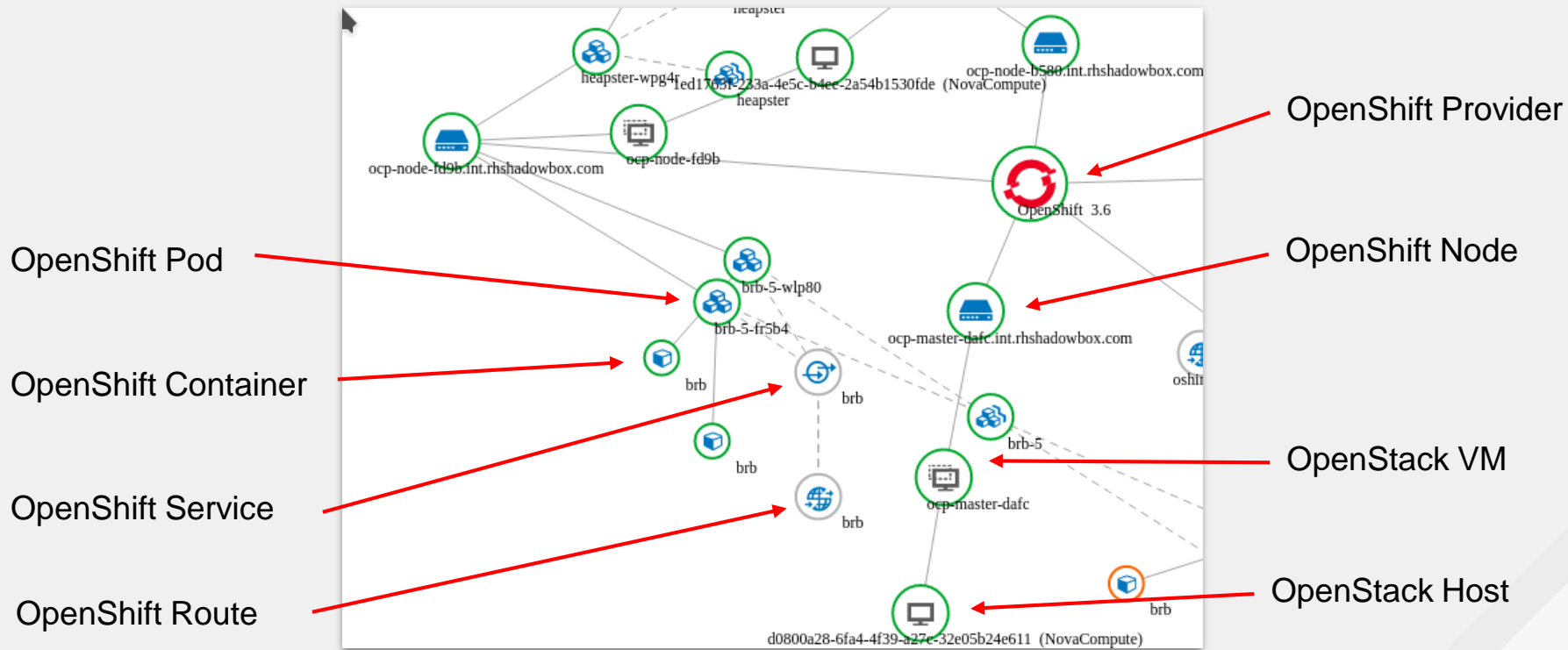
CPU	
Total	43.2 GHz (100%)
Available	43.2 GHz (100%)
Max Used	2.7 GHz (6%)
Avg Used	1.8 GHz (4%)
CPU Max Used MHz Trend: Projected to hit Total	307 days, on 02/19/2019 (UTC)
CPU Average Used MHz Trend: Projected to hit Total	after 1 year
CPU Max Used MHz Trend: Projected to hit Available	307 days, on 02/19/2019 (UTC)
CPU Average Used MHz Trend: Projected to hit Available	after 1 year

METRICS: CHARGEBACK/SHOWBACK

Saved Report "OpenStack Chargeback - Thu, 03 May 2018
07:26:55 -0400"

VM Name	Date Range	CPU Used	CPU Total Cost	CPU Used Cost	Memory Used	Memory Used Cost	Total Cost
ansibletower	05/02/2018	123.20 MHz	\$59.13	\$59.13	3.5 GB	\$4.19	\$63.33
ansibletower							
Totals:		123.20 MHz	\$59.13	\$59.13	3.5 GB	\$4.19	\$63.33
demo-m001	05/02/2018	1.70 MHz	\$0.81	\$0.81	336.25 MB	\$0.16	\$0.97
demo-m001							
Totals:		1.70 MHz	\$0.81	\$0.81	336.25 MB	\$0.16	\$0.97
ocp-infra-1	05/02/2018	162.95 MHz	\$78.21	\$78.21	2.97 GB	\$3.56	\$81.78
ocp-infra-1							
Totals:		162.95 MHz	\$78.21	\$78.21	2.97 GB	\$3.56	\$81.78
ocp-master-1	05/02/2018	608.01 MHz	\$291.84	\$291.84	4.67 GB	\$5.60	\$297.44
ocp-master-1							
Totals:		608.01 MHz	\$291.84	\$291.84	4.67 GB	\$5.60	\$297.44

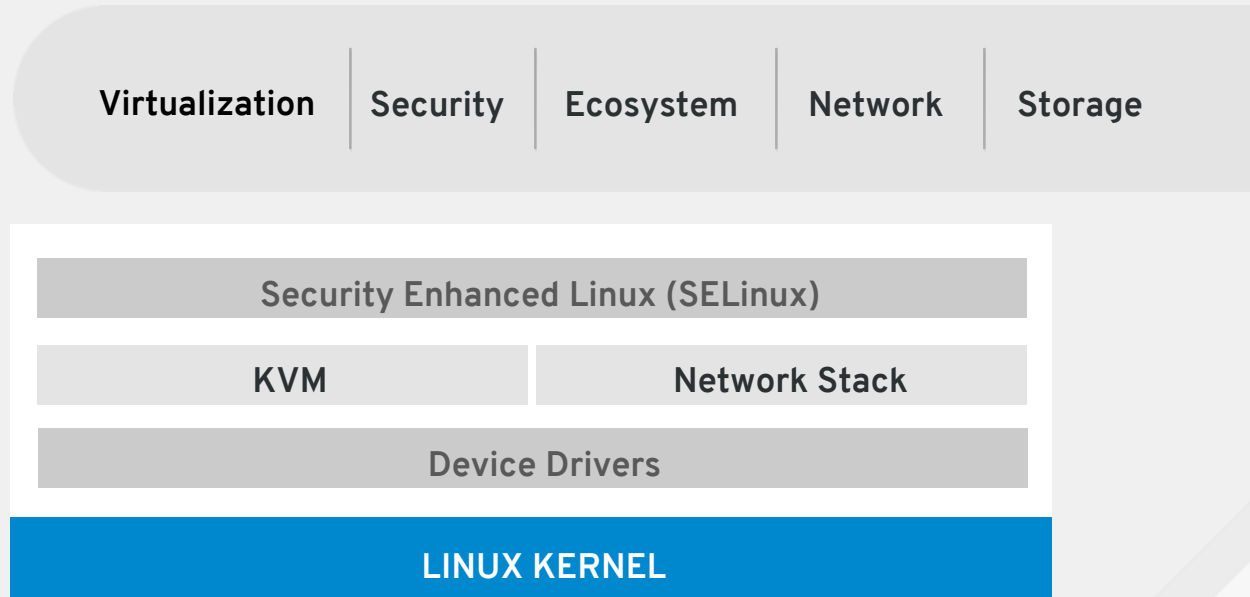
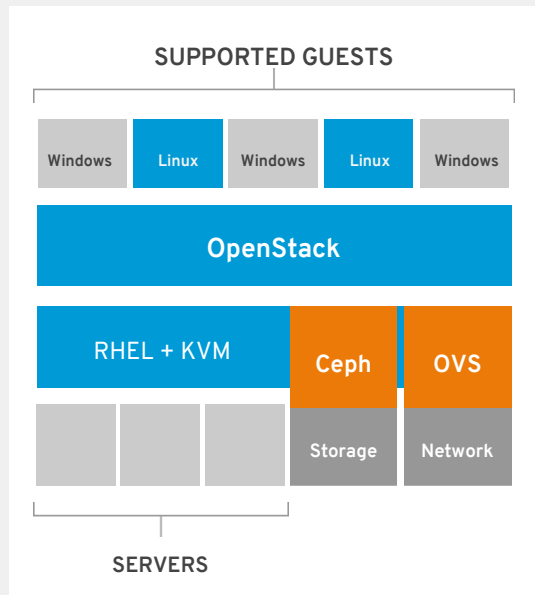
TOPOLOGY: STACK VISIBILITY TOP TO BOTTOM



DEMO: DEEP VISION FOR DECISIONS

SECURITY

RHOSP CO-ENGINEERED WITH RHEL



OPENSTACK SECURITY

NEW IN



12

Red Hat is a leader in OpenStack and security and is sharing our best practices publically.

We are taking a global view on security and working to meet international standards organizations' requirements.

[Releasing OSP specific security guide with recommendations for RHEL and OpenStack platform.](#)

Security guide addresses how we meet worldwide compliance frameworks' core control groups.

Meeting FedRAMP (USA), ETSI (Europe), and ANSSI (France) covers 90% of world standards



CLOUDFORMS RBAC

Editing Role "Custom-user_self_service"

Role Information

Name

Custom-user_self_service




Access Restriction for
Services, VMs, and Templates

Only User Owned




CLOUDFORMS TAGGING FILTERS VISIBILITY

Group Information

Description	group1
Role	 Custom-user_self_service
Project/Tenant	 operators
Users in this Group	 user 1


Smart Management


Red Hat Shadowbox Tags  No Red Hat Shadowbox Tags have been assigned


Assigned Filters (read only)

[Red Hat Shadowbox Tags](#) [Nodes & Deployment Roles](#) [VMs & Templates](#)

This user is limited to items with the selected tags.

▼  Application Group

☒  AppGroup1

☐  AppGroup2

CLOUDFORMS POLICY ENGINE

Policy "Shell-Shock Vulnerability"


Basic Information

Active	Yes
Created	By Username admin 2017-11-10 13:26:54 EST


Scope

VM and Instance : OS Name INCLUDES "linux"

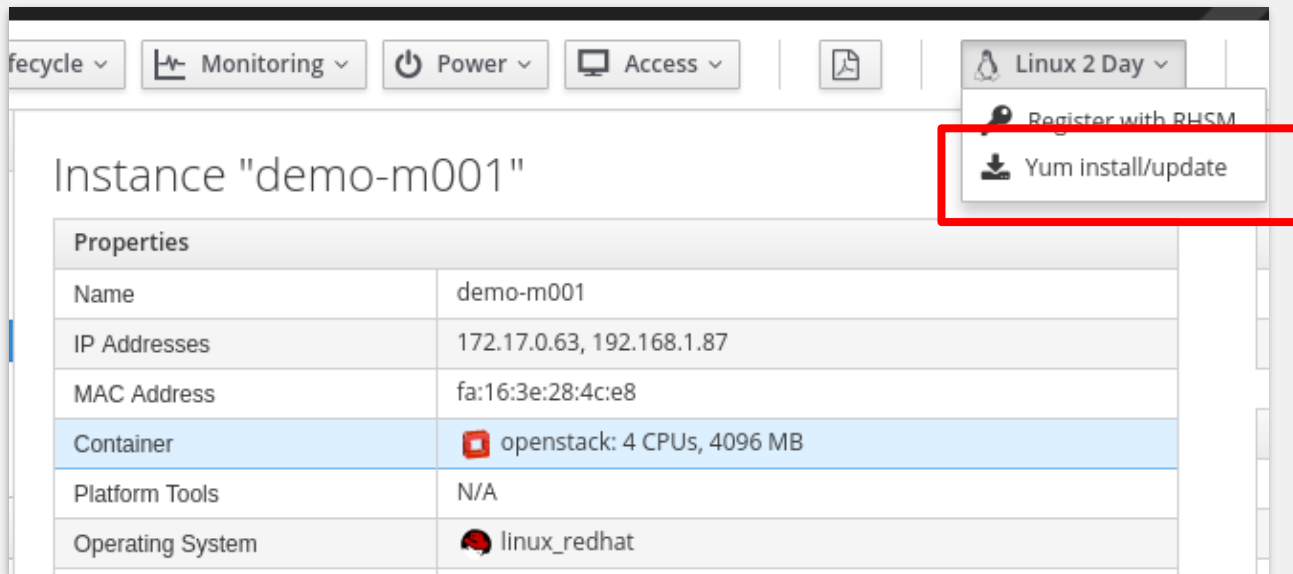
Conditions

	Description	Scopes / Expressions
	Vulnerable bash Package (ShellShock)	Expr (VM and Instance.Guest Applications : Name CONTAINS "bash" AND FIND VM and Instance.Guest Application essios : Version = "4.1.2" CHECK ALL Release REGULAR EXPRESSION MATCHES "1[5]\.(el6_5.2\b el6_5.1.sjis.2(?:\.) en l6_4.2)")

Events



	Description	Actions
	VM Compliance Check	<ul style="list-style-type: none">✗ Send Email to Security Team✗ Mark as Non-Compliant✗ Generate log message

CLOUDFORMS WITH SATELLITE AND ANSIBLE



Instance "demo-m001"

Properties

Name	demo-m001
IP Addresses	172.17.0.63, 192.168.1.87
MAC Address	fa:16:3e:28:4c:e8
Container	 openstack: 4 CPUs, 4096 MB
Platform Tools	N/A
Operating System	 linux_redhat

Linux 2 Day ▾

- Register with RHSM
- Yum install/update


ZERO DAY VULNERABILITY REPORTS

Expression

(VM and Instance.Guest Applications : Name CONTAINS "bash" **AND** FIND VM and Instance.Guest Applications : Version = "4.1.2" CHECK ALL
Release REGULAR EXPRESSION MATCHES "1[5]\.(el6_5.2\b|el6_5.1.sjis.2(?:\.)|el6_4.2)")

VM/Instance Name	Power State	Last Compliance Timestamp	Last Compliance Status
demo-rhel7	on	01/26/18 00:02:51 UTC	False
op001abc	on	11/27/17 10:51:34 UTC	False

CLOUDFORMS WITH RED HAT INSIGHTS




hostname:
demorhel7


UUID: 6981157b-fffe-4c9d-9ed3-3937f689b91e


OS	RHEL Server release 7.4 (Maipo)
Hardware Platform	RHEV Hypervisor
BIOS Version	SeaBIOS 1.10.2-3.el7_4.1

BIOS Release Date	04/01/2014
Registration Date	2 hours ago
Last Check-in	2 hours ago


▼ Security > Kernel vulnerable to denial of service via Bluetooth stack (CVE-2017-1000251/Blueborne)

 Impact

 Likelihood

 Total Risk


> Risk of change: **Moderate**

 Detected issues

This system is vulnerable to denial of service because:

- It is running a vulnerable kernel 3.10.0-693.el7.
- It is x86_64 architecture.
- The stack protector is enabled in the kernel.

#redhat #rhsummit

 redhat.

DEMO: GO BEYOND PROVISIONING



CUSTOMER SUCCESS

RESULTS:

- Massive OpenStack deployment for Network Function Virtualization (NFV)
- 50 server racks of hardware across 5 data centers
- Chosen because of strong partnerships with Big Switch Networks and Dell
- Thousands of nodes live today

PRODUCTS USED:

RED HAT
OPENSTACK
PLATFORM

RED HAT
CLOUDFORMS

RED HAT
ENTERPRISE
LINUX

ANSIBLE
by Red Hat

RED HAT
CONSULTING

RED HAT
CEPH STORAGE

US Department of Defense

“

Red Hat made me feel like making my customer happy was as important to them as it was to me--and that level of commitment is hard to find these days.

”

- **Timothy Autry**, Assistant Vice
President, Cyber Engineering
Operations, Radiance Technologies

CUSTOMER SUCCESS

RESULTS:

- Radiance Technologies partnered with Red Hat to deliver a tailored solution on behalf of the U.S. Department of Defense using Red Hat Cloud Suite
- Migrated the U.S. Air Force organization from its legacy network architecture to a scalable cloud infrastructure
- Red Hat OpenStack Platform enables a massively scalable, highly agile private cloud infrastructure and rapid provisioning of virtual machines

PRODUCTS & SERVICES USED:

RED HAT®
OPENSTACK®
PLATFORM

RED HAT®
ENTERPRISE
LINUX®

RED HAT®
CONSULTING

ANSIBLE
by Red Hat®

 RED HAT®
OPENSIFT
Container Platform

RED HAT®
CEPH STORAGE

RED HAT®
CLOUDFORMS

RED HAT® CLOUDFORMS



RED HAT®
OPENSTACK®
PLATFORM

Image Source: <http://dreamworks.wikia.com/wiki/File:Turbo.png>

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THANK YOU



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