

Unified Management Platform For Hybrid Cloud Environment

Grisha Sokolovsky – VP Business Development Terasky

November 14 2017



TERASKY

“Bimodal IT” (Gartner) and Drivers for Hybrid Cloud



“MODE 1”

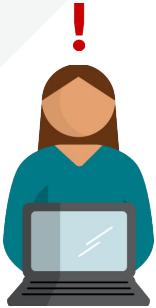
- Scale-up
- Proprietary
- Operator-deployed
- Integration via middle-ware
- Resilience in platform
- Built for efficiency
- C, Java, .Net
- Examples:
 - ERP's, Anything > 10 Years Old, Oracle



“MODE 2”

- Scale-out
- Open source
- Developer-deployed
- Integration via API
- Resilience in application
- Built for change, agility, and speed
- Java, Ruby, Go, Python
- Examples:
 - Mobile back-ends, web apps

SERVICE AUTOMATION CHALLENGES



We can't get systems fast enough!
I'm trying to help the business. IT just slows me down.



Do we have an IP address for this system?
Do we have the resources available for this request?
There's an emergency, I can't work on your request today.
Are you authorized to request these systems?

ACTIVITIES REQUIRED

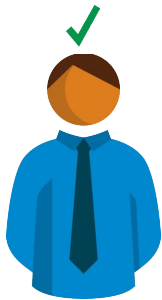
- + **Process requests** for IT resource
- + **Clarify request** and collect needed information
- + **VM creation** from template
- + **Configuration** to desired state
- + **Security** and compliance process
- + **Non-work time** for weekends, emergencies, etc.

= WEEKS OR MONTHS

SERVICE AUTOMATION WITH CLOUD MANAGEMENT PLATFORM



I use the self-service portal to request IT resources!
I can get systems configured exactly like I need them.



IP addresses are gathered automatically.
CloudForms checks quotas and available resources.
There's an emergency, I can't work on your request today.
CloudForms takes care of authorization and approvals.

ACTIVITIES REQUIRED

- + **Self-service** catalog
- + **Automated** approval workflow
 - + provisioning
 - + configuration
 - + policy enforcement
- + **No down time** for weekends, emergencies, etc.

= MINUTES

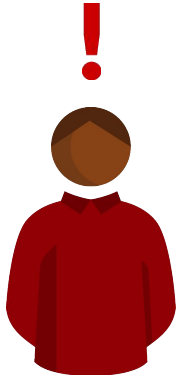
WHAT IS AN OPEN HYBRID CLOUD PLATFORM?

A MODERN PLATFORM THAT TAKES BEST ADVANTAGE OF ALL ENVIRONMENTS

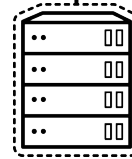
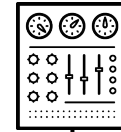
- Uses both on-premise and public cloud infrastructure
- Unifies management across all environments
- Shares resources (storage, networking, etc.) across infrastructure platforms
- Provides a container environment with orchestration
- Adheres to open, common industry standards and APIs

WHY SHOULD MANAGEMENT BE HYBRID?

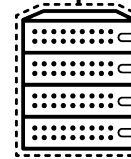
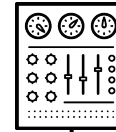
TO ELIMINATE DISPARATE SYSTEMS & DUPLICATION OF EFFORT



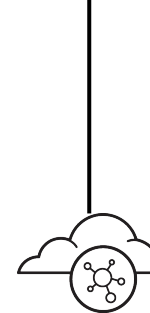
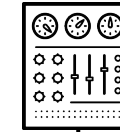
- Different management systems
- Different automation and policies



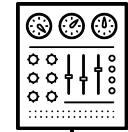
VIRTUALIZATION



PRIVATE
CLOUD



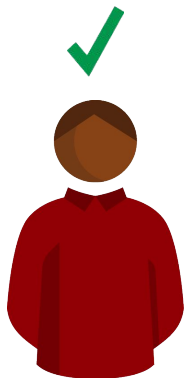
PUBLIC
CLOUD



CONTAINERS

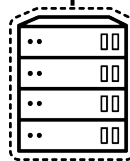
HYBRID CLOUD MANAGEMENT EFFICIENCY

COMMON SYSTEM ELIMINATES DUPLICATION OF EFFORT

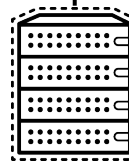


- One management system
- Consistent automation & policies

HYBRID MANAGEMENT



VIRTUALIZATION



PRIVATE
CLOUD



PUBLIC
CLOUD



CONTAINERS

BENEFITS OF UNIFIED HYBRID MANAGEMENT

DEFINE AND IMPLEMENT POLICY CONSISTENTLY

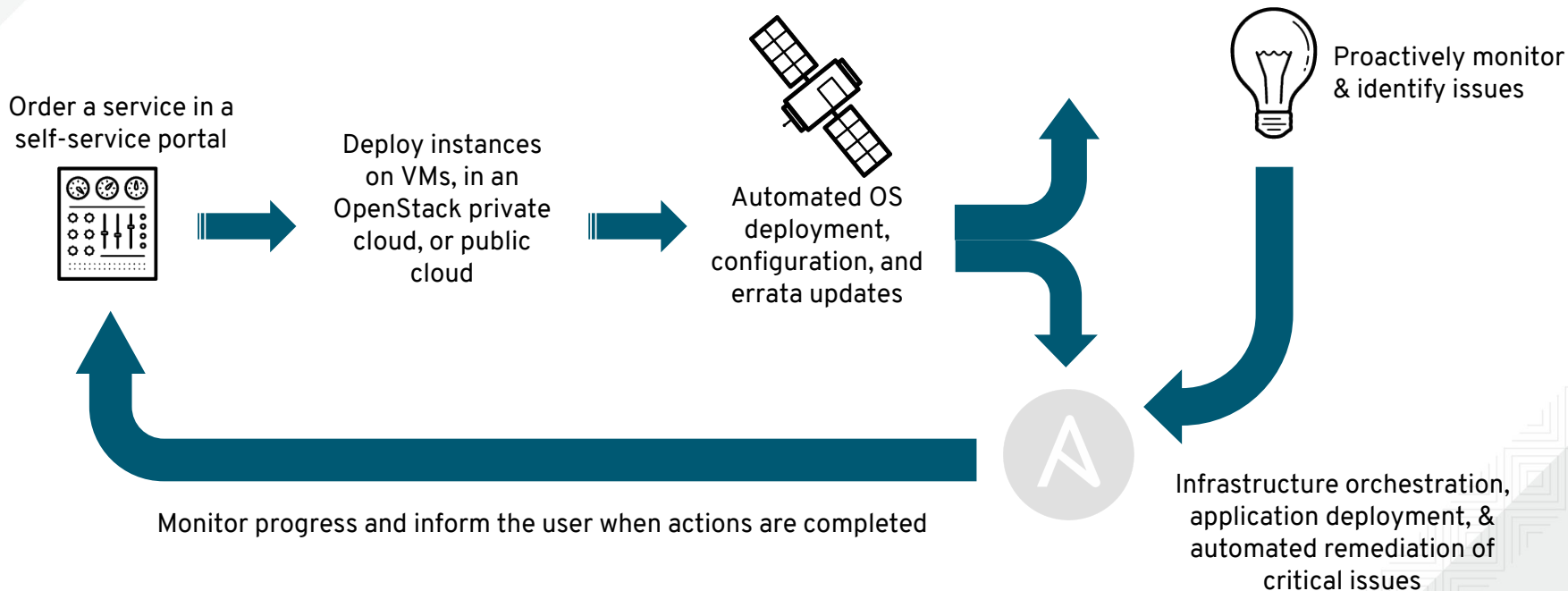
- ✓ Deliver services faster and reduce operational costs through self-service capabilities and life-cycle management
- ✓ Improve operational visibility and control
- ✓ Ensure compliance and governance through automated policy control
- ✓ Deploy composite applications to your choice of infrastructure in the same way, every time

What is CMP

- CMP -Integrated products for the management of public, private and hybrid cloud environments.
- Self-service interfaces,
- Provision system images,
- Metering and billing,
- Workload optimization through established policies.
- Service catalogs
- Configuration of storage and network resources,
- Monitoring for improved “guest” performance and availability
- Resource allocation,
- Tracking and billing

HYBRID CLOUD MANAGEMENT

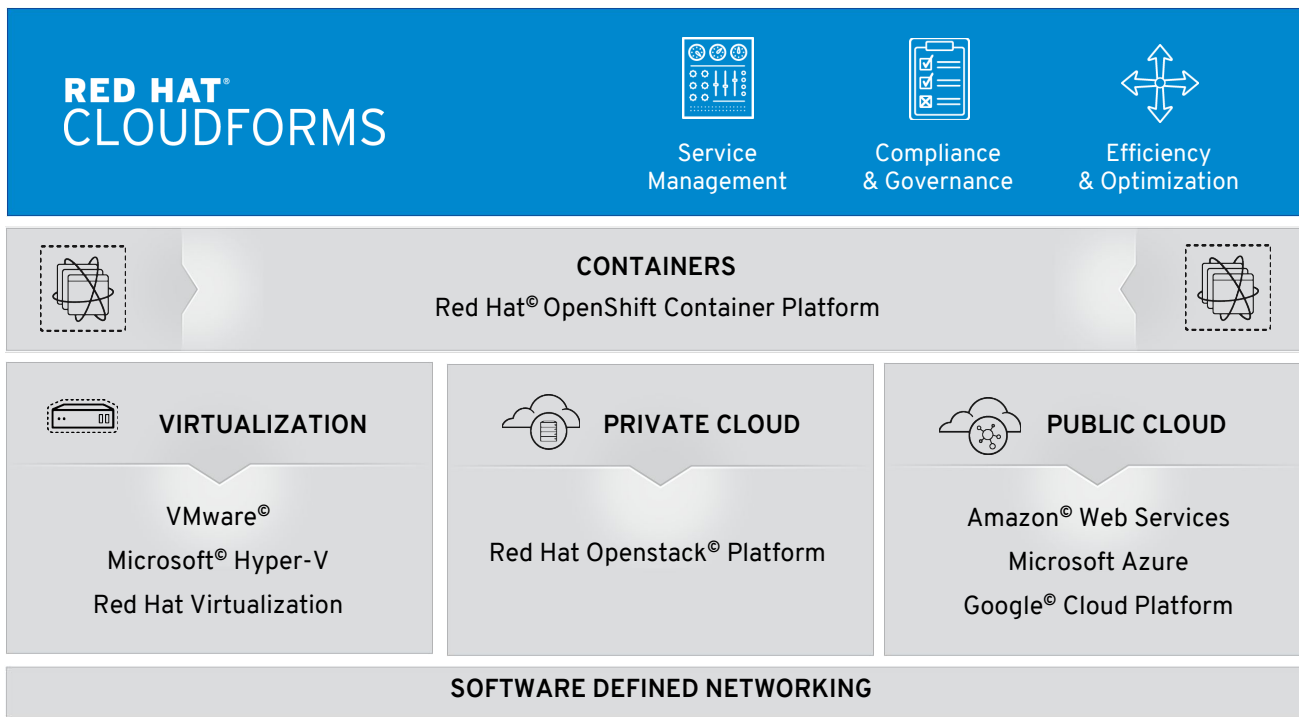
SELF-SERVICE, SYSTEM DEPLOYMENT, CONFIGURATION, & REMEDIATION



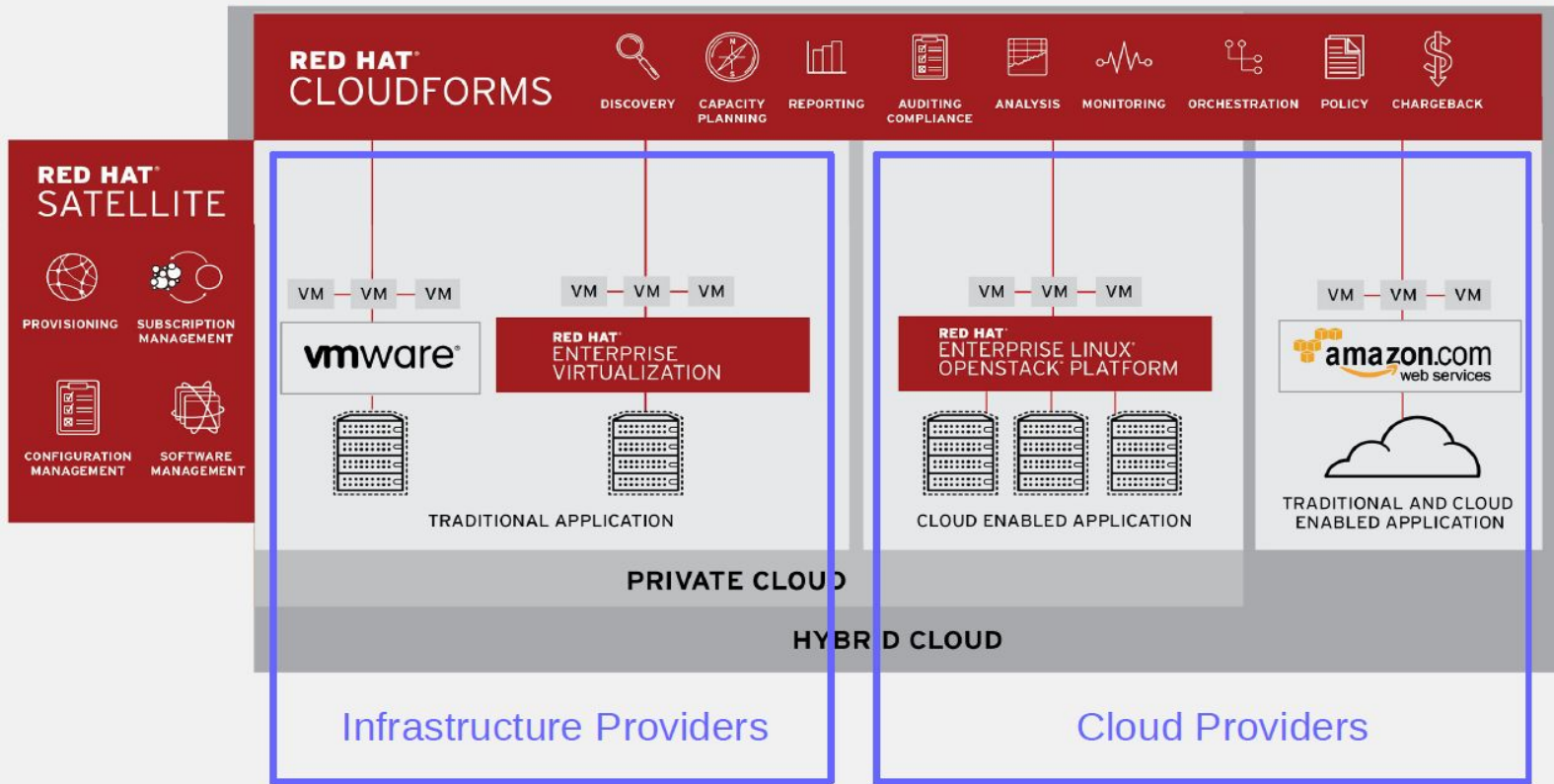
Hybrid Cloud requirements

- Virtualization
- Standardization
- Automation
- Instrumentation

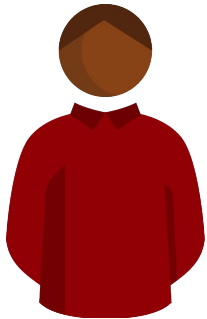
AN EVOLUTIONARY PATH TO HYBRID CLOUD



Red Hat CloudForms Provider Support



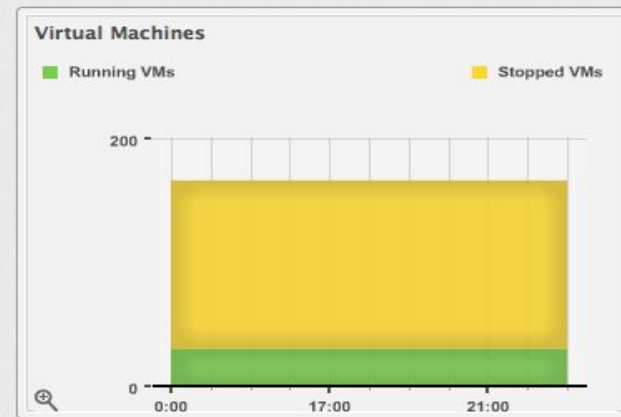
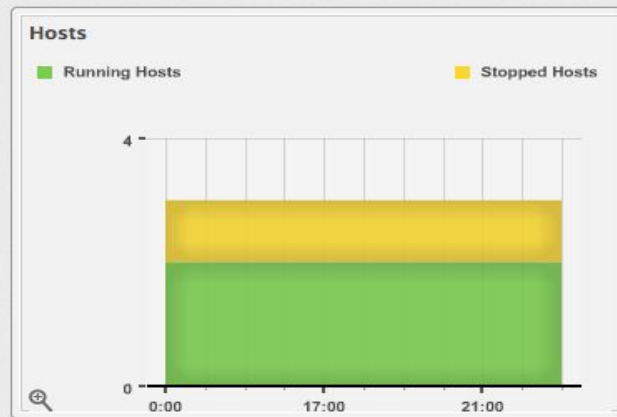
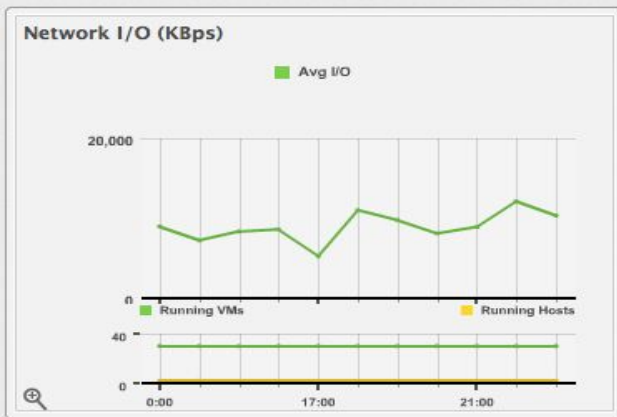
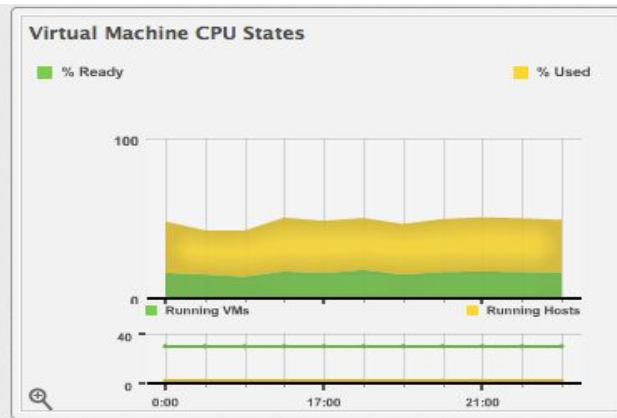
OPERATIONAL VISIBILITY WITH CLOUDFORMS



- Find unused resources and reclaim them. Assign ownership to resources.
- Automatic resource optimization intelligently places VMs and offers right-sizing recommendations.
- I can drill-down through infrastructure layers to determine the root cause.
- Resource tracking and trending aids in capacity and what-if scenario planning.



Capacity and Utilization Charts for a Cluster



VIRTUALIZATION MANAGEMENT

- Provision from clone of existing VM instance or template.
- View VM genealogy and track VM drift from established configurations.
- Execute VM power operations and retire VM instances.

All VMs & Templates

32DemoMaster 40DemoMaster alpha-dsl1 Analytics VM ansib...tower bdprd001

Top CPU Consumers (weekly)

Asset Name	Cluster Name	CPU - Usage Rate (%) (Avg)
ose32master1	Raleigh	65.3%
ose32etcd	Raleigh	56.8%
ose32master2	Raleigh	38.4%
cf41_vmware1	Production	19.5%
cf41_openshift1	Production	19.1%
cf41_openshift	Production	19.0%
40DemoMaster	Production	17.2%
CFME 5.6.0.6	QA	15.7%
cf4.1b5_openshift	Production	12.5%
cf41_openshift2	QA	12.5%

Updated 06/26/16 13:38 | Next 06/27/16 18:00

Guest OS Information

Updated 06/26/16 18:00 | Next 06/27/16 18:00

EVM: Recently Discovered VMs

- demo-summit-17-20160624-193235 - location unknown
Date : 2016-06-24 19:34:50 -0600
- demo-summit-16-20160624-192734 - location unknown
Date : 2016-06-24 19:29:17 -0600
- demo-summit-17-20160624-191651 - location unknown
Date : 2016-06-24 19:23:27 -0600
- demo-summit-16-20160624-191620 - location unknown
Date : 2016-06-24 19:18:14 -0600
- demo-summit-15-20160624-185320 - location unknown

Top Memory Consumers (weekly)

Asset Name	Cluster Name	Memory - Used for Collected Intervals (MB) (Avg)
cf4.1b5_coud1	Raleigh	7.5 GB
cf41b6_rhev	Raleigh	7.3 GB
cf4.1b5_master	Raleigh	6.1 GB
40DemoMaster	Production	6.1 GB
CFME 5.6.0.6	QA	5.1 GB
cf4.1b5_openshift	Production	4.7 GB

PUBLIC CLOUD MANAGEMENT

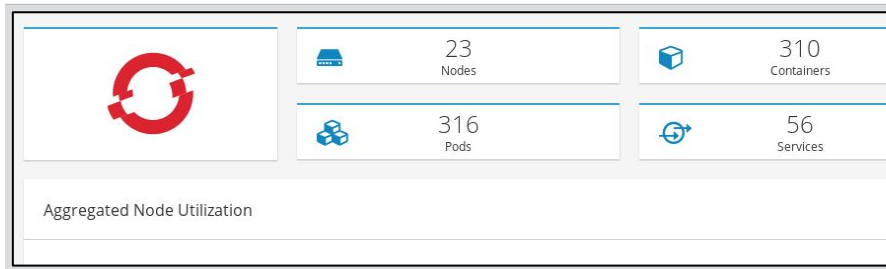
- View virtual instance inventory and manage across regions and availability zones.
- Provision virtual instances, storage and networking.
- Monitor and respond to events.

The screenshot displays a cloud management interface with several panels:

- Cloud Providers Summary:** A grid showing four providers: Amazon EC2 (1 instance, 1 image), Amazon EC2 (3 instances, 94 images), Azure (11 instances, 19 images), and Google Compute Engine (0 instances, 561 images).
- Azure (Central US) (Summary):** A detailed view of the Azure provider, showing properties (Region: Central US, Type: Azure, Management Engine GUID: 4d627c04-2752-11e6-998a-00114567702) and status (Default Credentials: Valid, Last Refresh: Success - 27 Minutes Ago).
- Google Cloud Engine (mbu-project) (Summary):** A detailed view of the Google Cloud Engine provider, showing properties (Preferred Region: Central US, Type: Google Compute Engine, Management Engine GUID: ec355e06-2d82-11e6-944e-00114567702) and status (Default Credentials: Valid, Last Refresh: Success - 8 Minutes Ago). It also includes a Relationships section with metrics for Availability zones (13), Cloud tenants (0), Flavors (18), Security groups (1), Instances (0), Images (530), Orchestration stacks (0), Cloud volumes (0), and Cloud Object Stores (0).

CONTAINER MANAGEMENT

- View connections from the container all the way down through the underlying infrastructure in one interface.
- Apply automation rules and enforce policies for deployed containers.
- Scan containers for known vulnerabilities with OpenSCAP.



OpenSCAP Evaluation Report

Automatically generated XCCDF from OVAL file: com.redhat.rhsa-RHEL6.xml
This file has been generated automatically from oval definitions file.

Evaluation Characteristics

Target machine	manageiq-imp-scan-dfae7	CPE Platforms	Addresses
Benchmark URL	/tmp/com.redhat.rhsa-RHEL6.ds.xml.bz2		<ul style="list-style-type: none">IPv4 127.0.0.1IPv4 10.5.0.8IPv4 0.0.0.0:0.0:0.1IPv4 fe80:0:0:0:42:aff:fe05:8MAC 00:00:00:00:00:00MAC 02:42:0A:05:00:08
Benchmark ID	xccdf_com.redhat.rhsa_benchmark_generated-xccdf		
Started at	2016-06-20T22:01:09		
Finished at	2016-06-20T22:01:12		
Performed by			

Compliance and Scoring

The target system did not satisfy the conditions of 2 rules! Please review rule results and consider applying remediation.

Rule results

1031 passed

Severity of failed rules

1 medium 1 high

Score

Scoring system	Score	Maximum	Percent

QUOTAS AND CHARGEBACK

- Rate schedules per platform and per tenant with multi-tiered and multi-currency support.
- Quota set by user, role and tenant and apply to compute, memory and storage resources.
- Monitor resource usage and report based on workload or tenant.

Currencies

Select currency: \$ [United States Dollars] v

Rate Details

* Caution: The value Range end will not be included in the tier.

Group	Description	Per Time	Per Unit	Range Start
CPU	Allocated CPU Count	Hourly v		
CPU	Used CPU	Hourly v	MHz v	
Cpu Cores	Used CPU Cores	Hourly v		
Disk I/O	Used Disk I/O	Hourly v	KBps v	
Fixed	Fixed Compute Cost 1	Hourly v		
Fixed	Fixed Compute Cost 2	Hourly v		
Memory	Allocated Memory	Hourly v	MB v	

Rate Details

Group	Description	Range		Rate	
		Start	Finish	Fixed	Variable
CPU	Allocated CPU Count	0.0	Infinity	1.0	0.0
CPU	Used CPU	0.0	Infinity	0.0	0.02
Cpu Cores	Used CPU Cores	0.0	Infinity	1.0	0.02
Disk I/O	Used Disk I/O	0.0	Infinity	0.0	0.005
Fixed	Fixed Compute Cost 1	0.0	Infinity	0.0	0.0
Fixed	Fixed Compute Cost 2	0.0	Infinity	0.0	0.0
Memory	Allocated Memory	0.0	Infinity	0.0	0.0
Memory	Used Memory	0.0	Infinity	0.0	0.02
Network I/O	Used Network I/O	0.0	100.0	0.5	0.0
		100.0	Infinity	0.5	0.005

Manage quotas for Tenant "Red Hat"

Enforced	Description	Value
<input checked="" type="checkbox"/>	Allocated Virtual CPUs	64
<input checked="" type="checkbox"/>	Allocated Memory in GB	32
<input checked="" type="checkbox"/>	Allocated Storage in GB	10240
<input checked="" type="checkbox"/>	Allocated Number of Virtual Machines	32
<input checked="" type="checkbox"/>	Allocated Number of Templates	12

Count

Save Reset Cancel

Customer Case

Hybrid Cloud Security Policies Orchestration

PRODUCTS & SERVICES

- VMware Platform
- Red Hat OpenStack NFV Platform
- Red Hat CloudForms
- Red Hat Enterprise Linux
- VMware vCenter
- Red Hat Satellite
- Terasky Consulting

Offering **IaaS**
to the Developers and
SW as a Service to the
Customers

CHALLENGE

- OFFER CLOUD & DATA SERVICES TO DEVELOPERS AND CUSTOMERS
- SHADOW IT
- MULTICLOUD MANAGEMENT

SOLUTION

Improved management & security to offer more services

RESULTS

- **Unified management** across VMware and OpenStack environments, as well as PUBLIC CLOUD PLATFORMS (AWS, Azure, Google)
- **Established self-service catalog** to expand data capabilities for developers
- **SaaS offering for different customers on a different cloud platforms**
- **Avoided lock-in** to a single cloud platform
- **Established a hybrid, multicloud development platform** based on Red Hat OpenShift Container Platform deployed across Microsoft Azure, AWS, and an on-premise virtualized environment

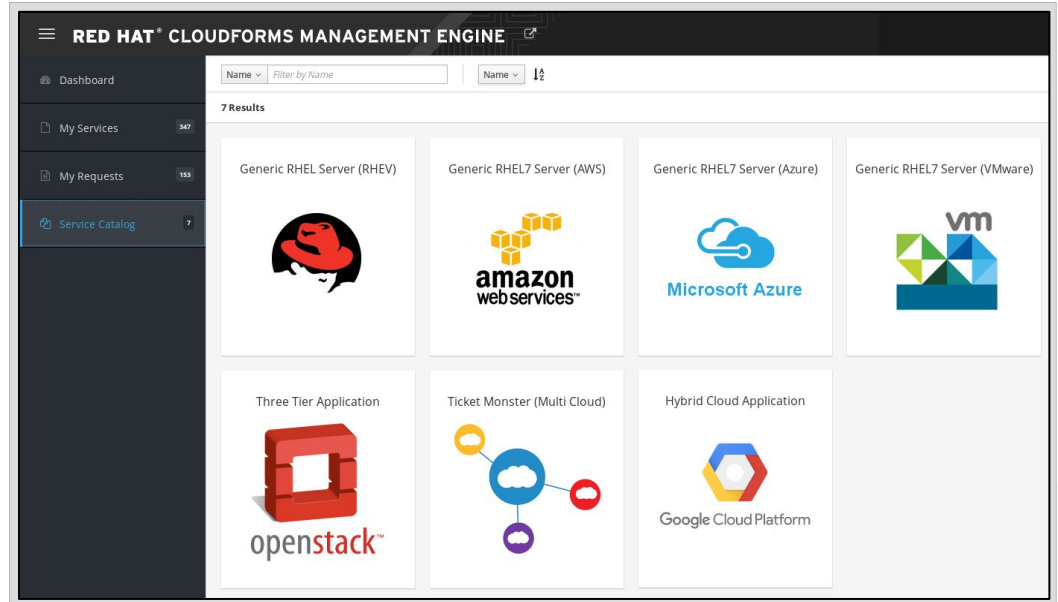
WHY TERASKY and RED HAT FOR CLOUD STRATEGY?

TERASKY CAN HELP YOU DISCOVER WHAT YOU NEED

1. Terasky experienced teams can help you **establish a long-term plan**, no matter where you are today.
2. Your world probably isn't just about one type of software (Vmware, Openstack, Storage, Analytics, Automation, Data Management, etc. so TERASKY gathers **broad expertise across open and proprietary technology** to keep risk low.
3. You get direct support from engineering, support, & product management—a cross-functional approach to make sure **business & IT are aligned**.
4. Working together and transferring knowledge to your staff, who gain the skills to **sustain your goals & plan for the future**.
5. DevOps, PaaS/Openshift, IT Automation & Modernization, Private, Hybrid Cloud expertise
6. Premier Partner for Red Hat, AWS, Google and a significant others

SELF-SERVICE DELIVERY

- Create service delivery catalogs for users to choose the services the services that they need to deploy.
- Shopping cart functionality allows multiple services to be requested at one time.
- Service requests can be routed for approval.

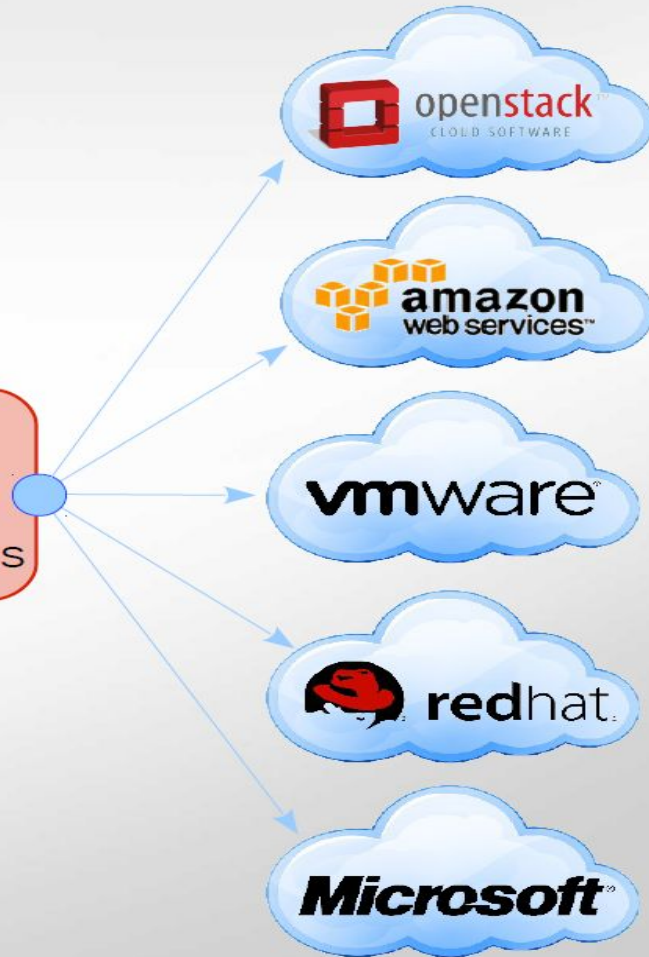


IT CLOUD MANAGEMENT

Seamless Self-Service



- Role-based Delegation
- Self-Service Portals
- Service Catalogs
- Automated Provisioning
- Quotas & Chargeback



CLOUDFORMS INTEGRATIONS

CMDB: ServiceNow, BMC Remedy

Communications: Twilio, Google Voice

Configuration Management: Ansible, Satellite, Foreman, Chef, Puppet, Salt, HP Server Automation

Databases: Oracle, Microsoft SQL Server, MySQL, PostgreSQL

Directories and Identity: Microsoft Active Directory, Red Hat Identity Management, Centrify, Any LDAP directory

Disaster Recovery: VMware SRM, Zerto

DevOps: Calm.io, Jenkins

Firewall: Juniper, Checkpoint, Cisco, Fortinet, Palo Alto

Incident/Change Management: ServiceNow, BMC Remedy, Atlassian JIRA

IPAM/DDI: Infoblox, BlueCat, BIND, Microsoft DNS, Microsoft DHCP, SolarWinds, Men and Mice, PHP IPAM

Load Balancers: F5 BigIP, Citrix Netscaler, AWS Elastic Load Balancer, Neutron LBaaS

Logging: Splunk, Elk Stack

Networking: Cisco APIC

Orchestration: VMware vRealize Orchestrator, HP Operations Orchestration

Operations Management: Microsoft Systems Center Operations Manager, CA Spectrum, HP Operations Manager, Any SNMP enabled system

Patching: IBM BigFix, Satellite, Microsoft Systems Center Configuration Manager

Service Catalogs: ServiceNow, BMC Remedy

Source Control: github

Storage: NetApp WFA

Miscellaneous: Any Web service enabled system

Performances and Utilization

Metrics

Provider	Metrics source
VMware	vCenter Server statistics
Red Hat Virtualization	Data Warehouse database (default: ovirt_engine_history)
OpenStack CloudManager (OSP 6-9)	Ceilometer
OpenStack CloudManager (OSP 10+)	Gnocchi
OpenStack InfraManager (Director)	Ceilometer
Amazon	Amazon CloudWatch
Azure	Azure Monitor
Google	Google Cloud Monitoring API (superseded by Stackdriver)
OpenShift	Hawkular

RED HAT CLOUDFORMS CAPABILITIES FOR VMWARE

CloudForms form factor	VMware Virtual Appliance (OVA Format, 700MB)
Managed VMware infrastructure	VMware vCenter Server 5.0 and later
Discoverable VMware inventory	Hosts, VMs, networks, virtual switches, disks/volumes, Datastores
Continuous discovery	Yes, including VMware resources provisioned outside of Red Hat CloudForms
Event capture	Infrastructure and VM-specific events with event timeline
Alerts capture	VMware alarms, VM reconfiguration, and VM value change
Metrics capture	VM count, CPU count, CPU utilization, memory utilization, disk utilization, network IO
SmartState Analysis	Yes, using the VMware Virtual Disk Development Kit (VDDK) for Windows or Linux® guests
Provisioning	VM-to-VM, Template-to-VM
Policy enforcement	Host and VM enforcement
Compliance check	Host and VM compliance
Orchestration	Provision a single VM or multiple VMs, including the application stack, with Ansible by Red Hat or third-party tools
Optimization	Right-size recommendations, capacity planning, bottleneck identification
Operations	Snapshot creation and removal, VM migration, VM power operations, VM retirement
Reconfiguration	Add/remove CPU, add/remove memory, add/remove disk
Reporting	Capacity and utilization, trending, performance, chargeback
Chargeback	Multiple rate cards per tenant, group or user; fixed and variable rates for CPU, memory, storage, and networking; multicurrency support
Troubleshooting	Host and VM drift comparison, relationship tracking

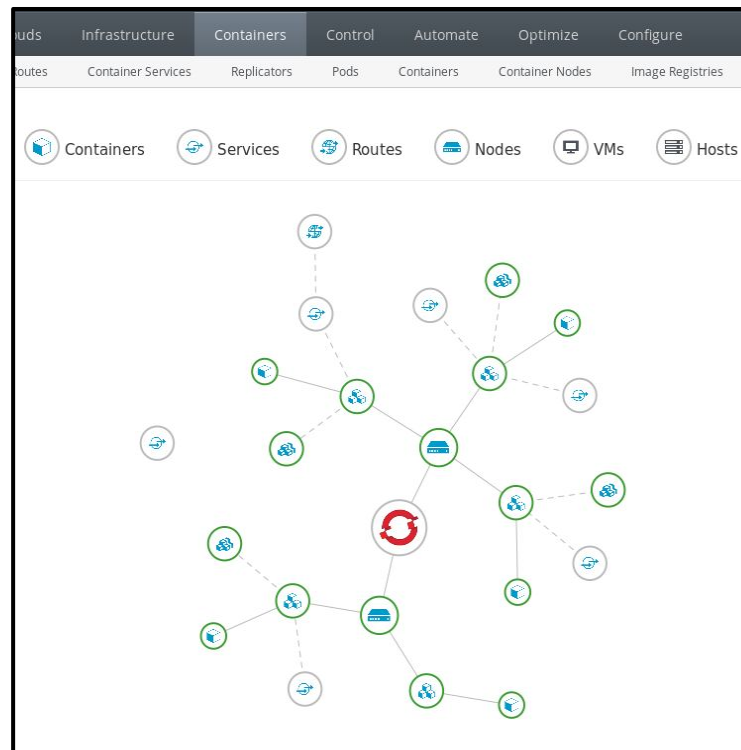
MICROSOFT AZURE



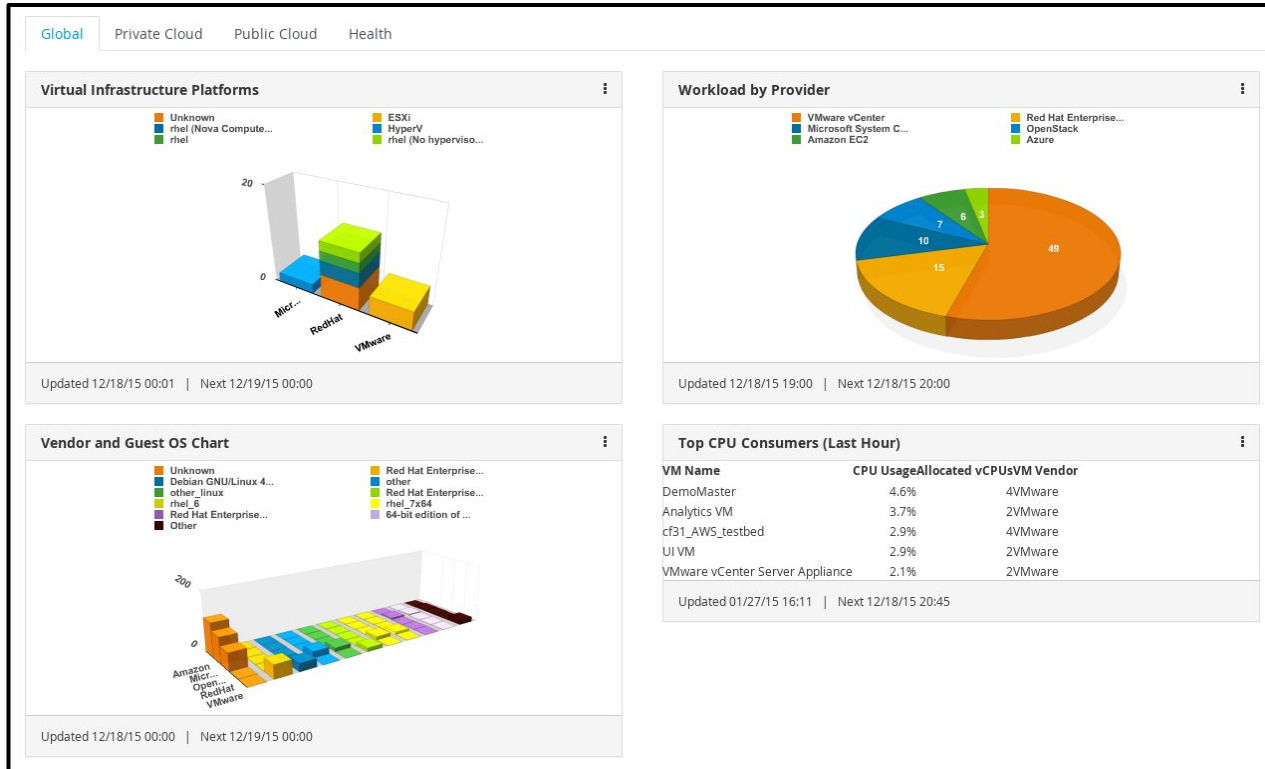
- Part of Red Hat / Microsoft agreement announced in November.
- Developed in collaboration with Microsoft.
- Supports core provider functionality:
 - Inventory
 - Regions, Availability Zones, Instances
 - Power Operations
 - Start, Stop, Terminate
 - Stack Provisioning
 - Deploy multi-tiered applications using a stack template
 - CloudForms automatically creates the necessary components for the Service Catalog

CONTAINER MANAGEMENT

- Containers are first-class managed entities.
 - Supports Red Hat OpenShift and Red Hat Atomic Enterprise via kubernetes API
- Displays relationships between containers, pods, nodes, VMs, ...
- SmartState analysis of container contents



IMPROVED DASHBOARDS AND REPORTING



TENANCY

- Introducing Tenant concept in CloudForms
 - Allows segmenting of data and functionality among different divisions or customers.
- Tenants are hierarchical with parent to child visibility.
- All resources can be partitioned by tenant:
 - Hosts
 - Virtual Machines
 - Nodes, Pods, Containers
- Tenants contain their own service catalogs, inventory and automation policies.
- Quotas for CPU, memory, storage and counts are enforced at the tenant level.

Why TeraSky?

TeraSky is a highly-skilled and experienced Integrator with proven capabilities in designing, deploying and supporting complicated IT projects & solutions in the following areas:

- Cloud Solutions & Platforms (Private, Hybrid & Public Cloud/Openstack, SaaS, PaaS/OpenShift, IaaS)
- Software Defined IT (SDDC, SDS)
- Data Center Consolidations
- Virtualization & Automation
- Databases Migration
- Storage & Hyperconverged Solutions
- Data Protection (Data Protection for Cloud & Enterprise, Disaster Recovery, Business Continuity)
- Big Data (Hadoop, Scale-out storage, distributed file systems, SQL & Non-SQL data bases, etc.)
- AI, Machine Learning, Deep Learning (NVIDIA platform)
- Business Data Analytics, ElasticSearch, Hadoop
- DevOps, IT Automation & Modernization

WHAT IS YOUR TOP PRIORITY?

1. Building a cloud strategy
2. Using public cloud
3. Building new private cloud
4. Maintaining or improving existing private cloud
5. Using containers on cloud
6. Managing hybrid or multicloud resources

THANK YOU!

Contact Terasky on

Web : WWW.TERASKY.COM

Facebook : [HTTPS://WWW.FACEBOOK.COM/TERASKYLTD/](https://WWW.FACEBOOK.COM/TERASKYLTD/)

LinkedIn : [HTTPS://WWW.LINKEDIN.COM/COMPANY/1510957/](https://WWW.LINKEDIN.COM/COMPANY/1510957/)

Personally: GRISHA@TERASKY.COM