



MANAGING YOUR HYBRID CLOUD

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BUSINESS HAS CHANGED – IN RESPONSE, IT OPERATIONS NEEDS TO CHANGE



LINE OF BUSINESS

Challenged to deliver services faster, at scale, and more efficiently



DEVELOPERS

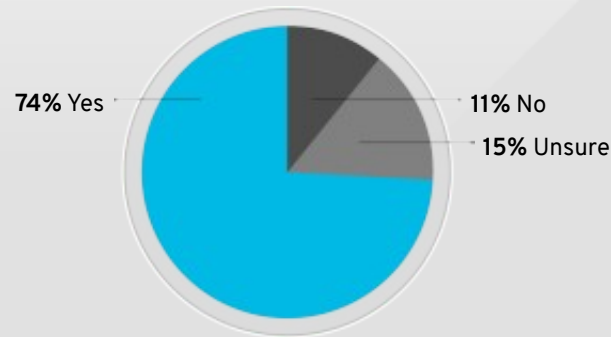
Need to develop applications faster with greater productivity



IT OPERATIONS

Must provide infrastructure on-demand that scales as needed

74% expect to buy new management solutions to support open hybrid clouds and next-generation application architectures.



N=201

Do you believe you will need to purchase new management software solutions between now and 2017?



CLOUD CAPABILITIES



EFFICIENCY AND OPTIMIZATION

Improve resource utilization and operational efficiency.



COMPLIANCE AND GOVERNANCE

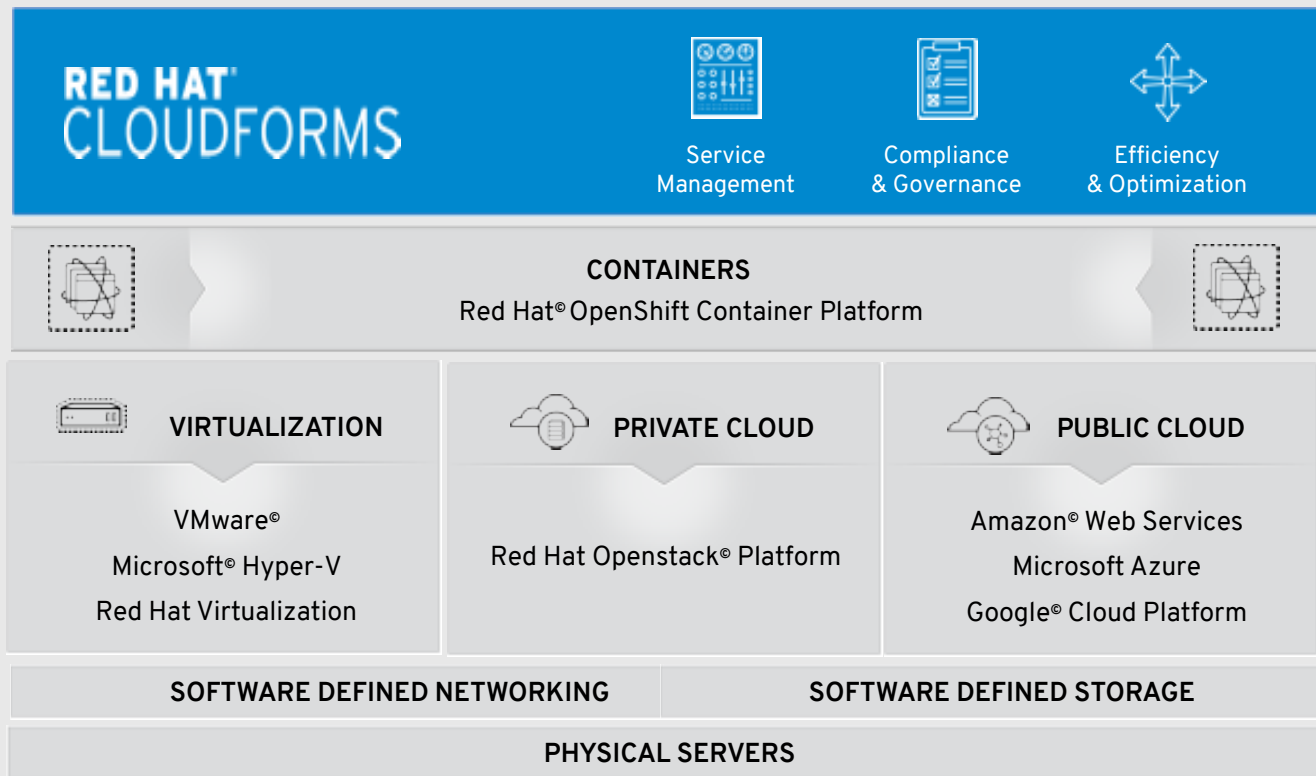
Responsibly enabling users and developers, without being in the way.



SERVICE MANAGEMENT AND SELF SERVICE

Automate and delegate service delivery processes, saving time and money.

AN EVOLUTIONARY PATH TO HYBRID CLOUD



CLOUDFORMS FEATURES

AGENTLESS



EASY DEPLOYMENT

ANSIBLE AUTOMATION



ANSIBLE

SIMPLE, POWERFUL, AGENTLESS

MULTI-TENANCY AND RBAC



SEGMENT USER ACCESS,
FINE GRAINED ACCESS CONTROL

CONTINUOUS DISCOVERY



BROWN-FIELD MANAGEMENT,
INTEROPERATES WITH OTHER MGMT

VIRTUAL APPLIANCE



EASY INSTALL, EASY MAINTENANCE

FEDERATED GLOBAL DEPLOYMENTS



HIGHLY SCALABLE, HIGHLY AVAILABLE
MULTI-REGION DEPLOYMENTS

SERVICE MANAGEMENT AND SELF SERVICE

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 CLOUDFORMS



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.

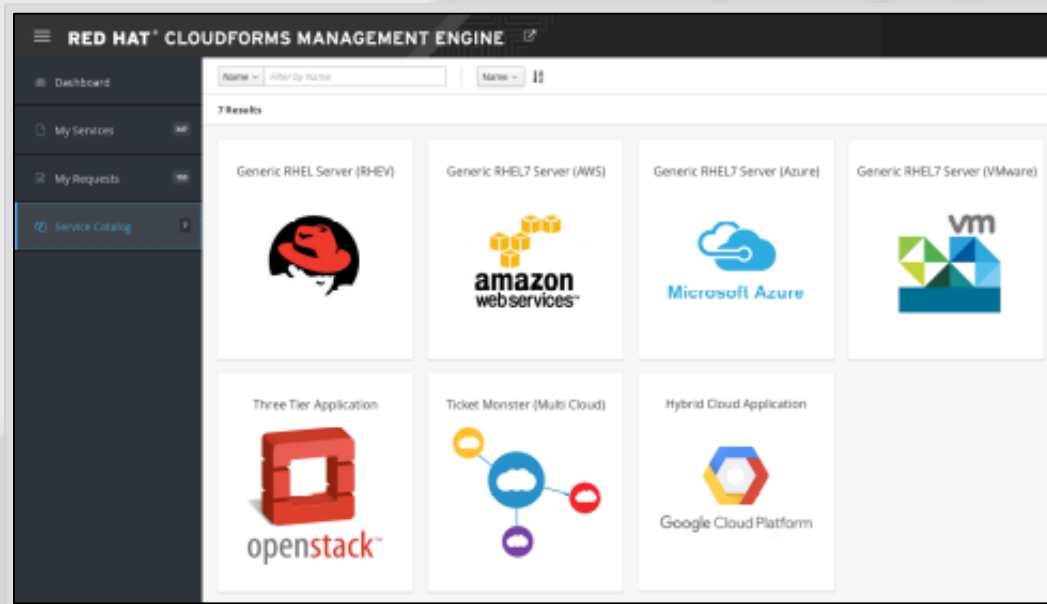
ACTIVITIES REQUIRED

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

= MINUTES

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.



AUTOMATED PROVISIONING

- Automatically deploys and configures requested services on any infrastructure platform.
- Automation steps can be codified in Ansible playbooks or natively in CloudForms.
- Integration to external IT systems allows CloudForms to automate all process steps.

The screenshot displays the CloudForms Service Catalog interface. On the left, a sidebar shows a tree view of 'Service Catalogs' and 'Catalog Items'. Under 'Catalog Items', 'All Catalog Items' is expanded, showing a list of items including 'JBoss Deployment (Ansible)', which is highlighted. The main panel on the right shows the details for 'Service Catalog Item "JBoss Deployment (Ansible)"'. It includes a 'Basic Information' section with fields for 'Name / Description', 'Dialog', 'Ansible Tower Job Template', and 'Provisioning Entry Point'. Below this is a 'Custom Image' section with a diagram showing a sequence of components: a VM icon, a plus sign, an Ansible logo, a plus sign, another VM icon, a plus sign, and a final Ansible logo. The word 'SERVICE' is written in red above the diagram.

Service Catalog Item "JBoss Deployment (Ansible)"

Basic Information

Name / Description	JBoss Deployment (Ansible) / JBoss Deployment <input type="checkbox"/> Display In Catalog
Dialog	No Dialog
Ansible Tower Job Template	JBoss Deployment
Provisioning Entry Point	/ConfigurationManagement/AnsibleTower/Service/Provisioning/StateMachine (NS/Clis/Inst)

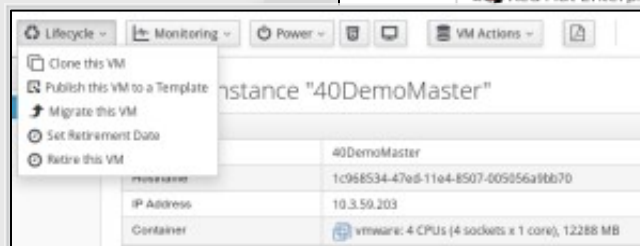
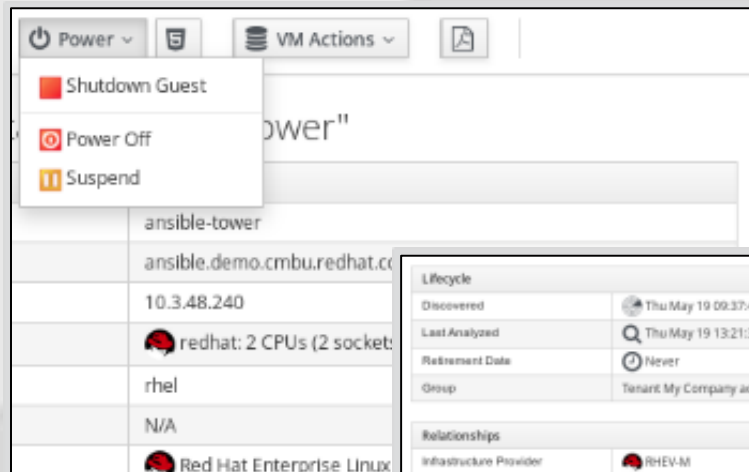
Custom Image

SERVICE

VM + ANSIBLE + VM + ANSIBLE

LIFECYCLE MANAGEMENT

- Ongoing tracking of services ensures continual visibility.
- Complete operational control over service resources, including power operations and virtual console access.
- Automated lifecycle policies for scheduled retirement and archiving.



Lifecycle	
Discovered	Thu May 19 09:37:43 MDT 2016
Last Analyzed	Thu May 19 13:21:38 MDT 2016
Retirement Date	Never
Group	Tenant: My Company access
Relationships	
Infrastructure Provider	RHEV-M
Cluster	Raleigh
Host	blcr16c06.core.cmburedhat.com
Resource Pool	Default for Cluster Raleigh
Datstores	RHEV-SCSI
Service	None
Genealogy	Show parent and child VMs
Drift History	2
Analysis History	3

EFFICIENCY AND OPTIMIZATION

OPERATIONAL VISIBILITY CHALLENGES



🔗 Systems that are not being utilized should be retired to reclaim resources.

🔗 Budgets are tight. We have to make sure that we are utilizing our systems efficiently.

🔗 Tracking problems across infrastructure layers can be a challenge.

🔗 I've got to project infrastructure usage into the future for planning purposes.

CHALLENGES



LIFECYCLE MANAGEMENT



RESOURCE OPTIMIZATION



ROOT-CAUSE ANALYSIS



CAPACITY MANAGEMENT

OPERATIONAL VISIBILITY WITH CLOUDFORMS

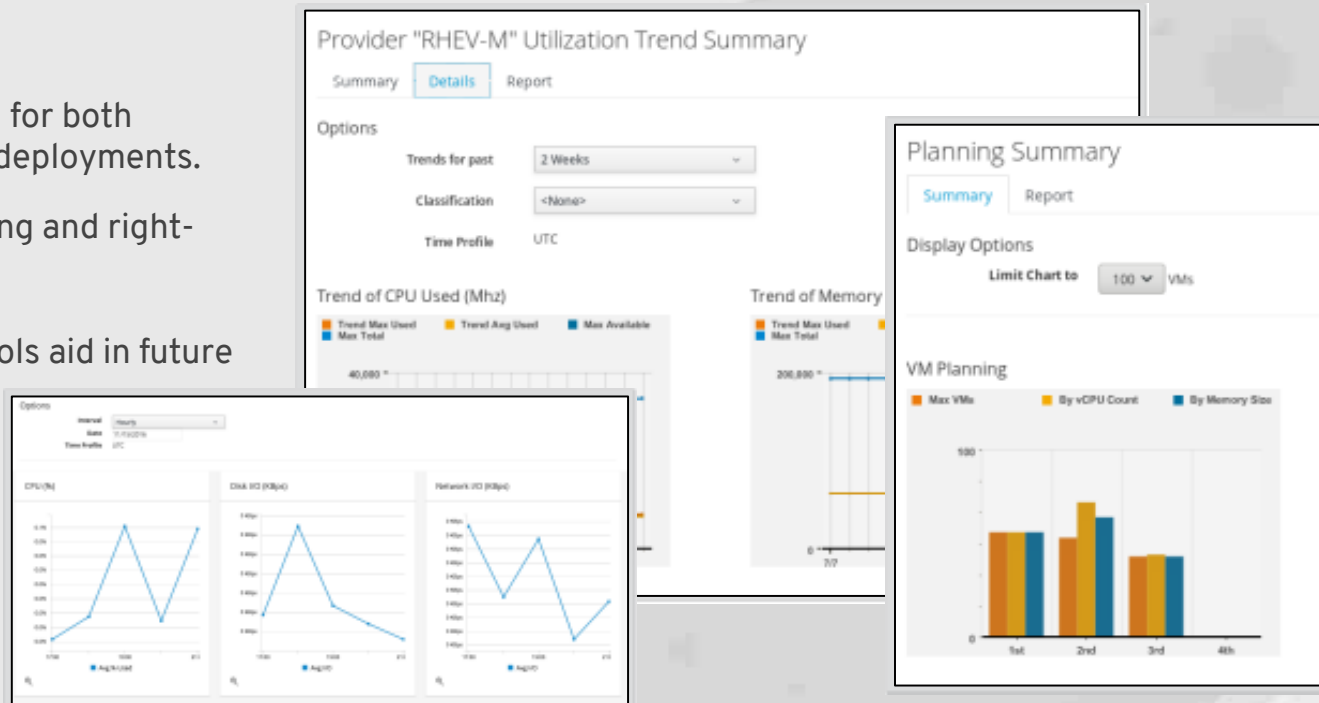


- Find unused resources and reclaim them. Assign ownership to resources.
- Automatic resource optimization intelligently places VMs and offers right-sizing recommendations.
- I can drill-down through infrastructure layers to determine the root cause.
- Resource tracking and trending aids in capacity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



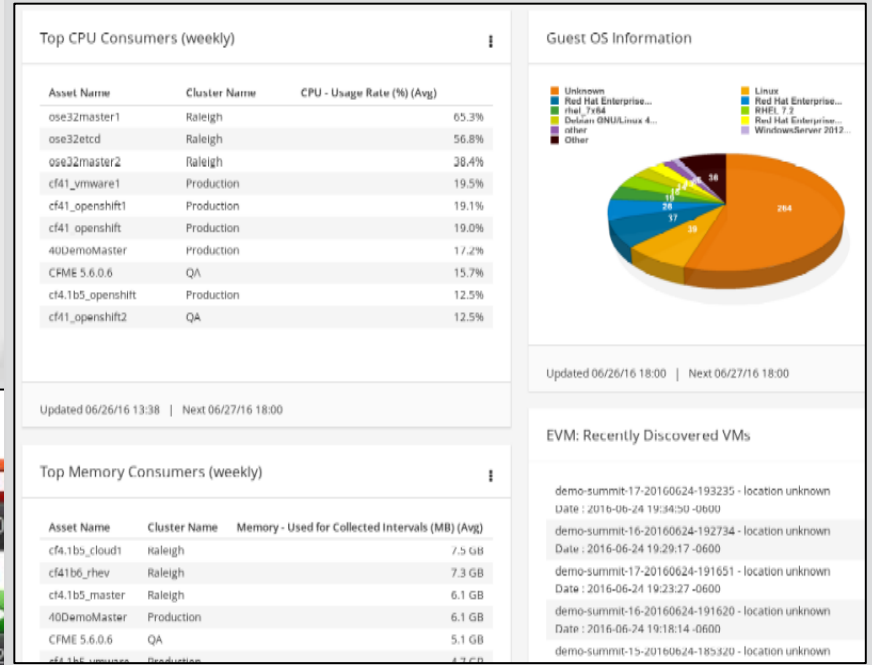
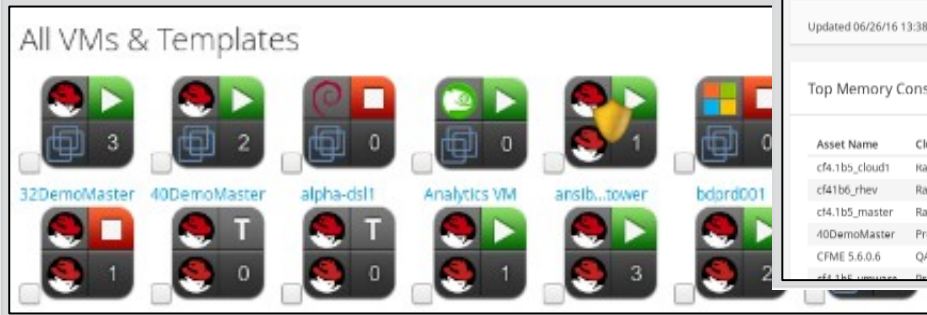
PERFORMANCE AND CAPACITY MANAGEMENT

- Continuous data gathering for both greenfield and brownfield deployments.
- Resource utilization tracking and right-size recommendations.
- Projection and “what if” tools aid in future planning.



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.



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.

Cloud Providers

 Amazon (sgor0)	Type: Amazon EC2 EVM Zone: Cloud Instances: 1 Images: 1	 AWS O_yhote	Type: Amazon EC2 EVM Zone: Cloud Instances: 3 Images: 94
 Azure J_US	Type: Azure EVM Zone: Cloud Instances: 11 Images: 19	 Google L_ject	Type: Google Compute Engine EVM Zone: Cloud Instances: 0 Images: 561

Azure (Central US) (Summary)

Cloud Providers » Azure (Central US) (Summary)

Properties	
Region	Central US
Discovered IP Address	
Type	Azure
Management Engine GUID	4d627c04-2752-11e6-998a-00155d567002

Status	
Default Credentials	Valid
Last Refresh	Success - 27 Minutes Ago

Google Cloud Engine (mbu-project) (Summary)

Properties	
Preferred Region	Central US
Discovered IP Address	
Type	Google Compute Engine
Management Engine GUID	ec355e06-2082-11e6-944e-001a4a3b6702

Status	
Default Credentials	Valid
Last Refresh	Success - 8 Minutes Ago

Relationships	
Availability zones	13
Cloud tenants	0
Flavors	18
Security groups	1
Instances	0
Images	530
Orchestration stacks	0
Cloud volumes	0
Cloud Object Stores	0

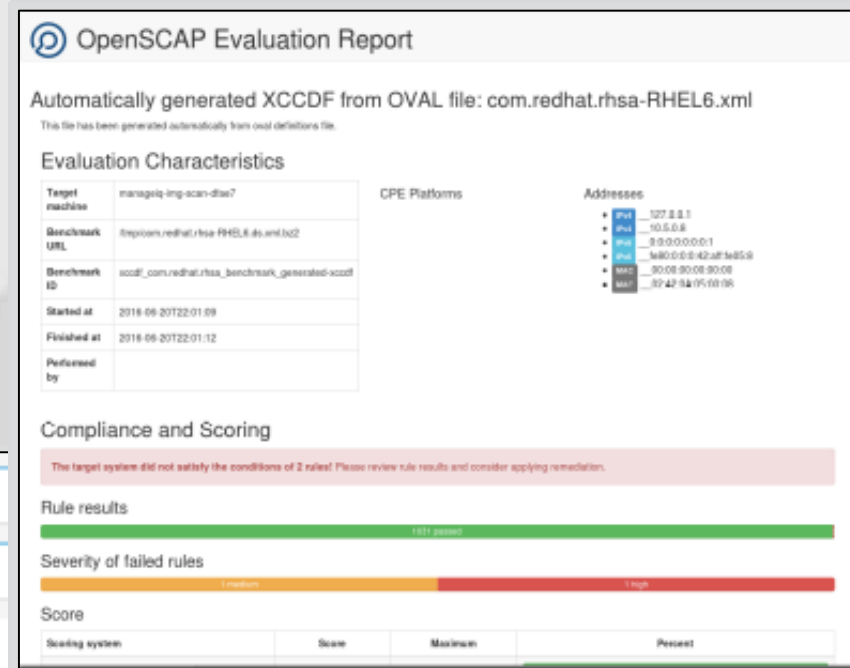
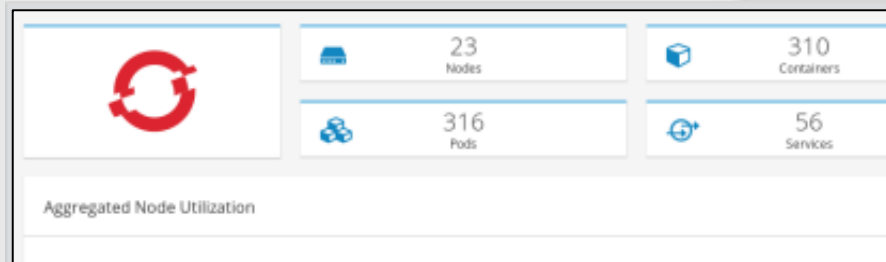
Smart Management	
Managed by Zone	Cloud
Red Hat Tags	No Red Hat Tags have been assigned

Azure (Central US) Network

1
0
59
10
13
6
34
0
0

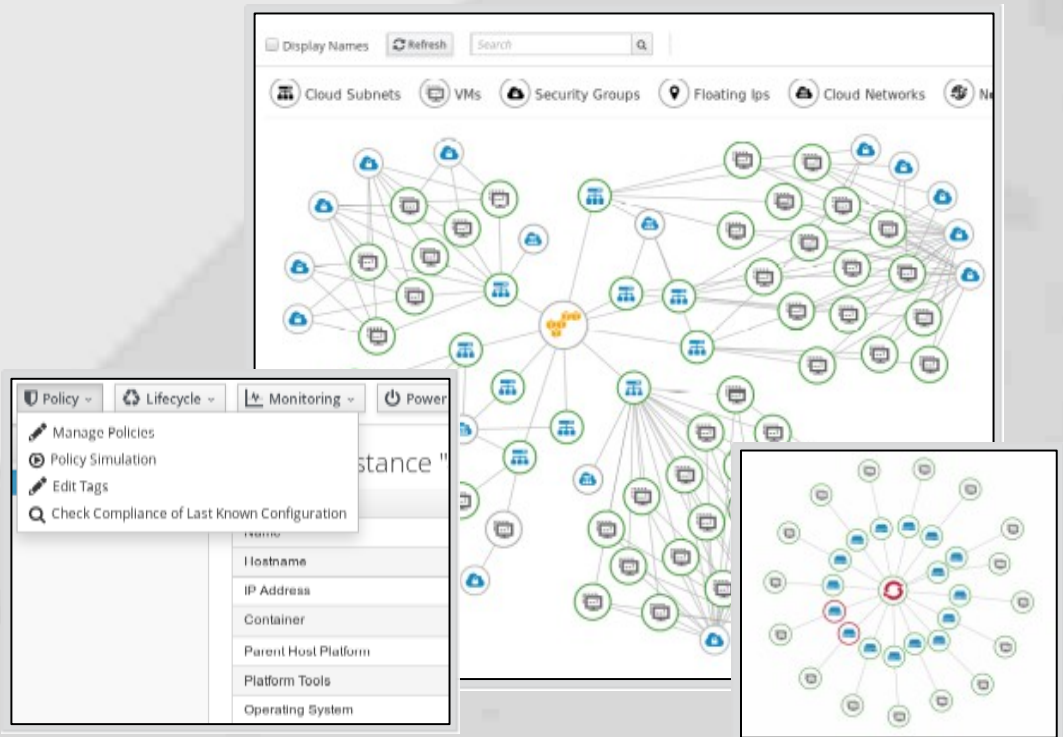
CONTAINER MANAGEMENT

- 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.



ROOT CAUSE ANALYSIS

- View instance performance and resource usage over time to pinpoint problem initiation.
- Quickly compare system state against known good state or other systems.
- Navigate across relationships and drill down infrastructure layers to identify underlying causes.



GOVERNANCE AND COMPLIANCE

COMPLIANCE AND GOVERNANCE CHALLENGES



- Monitoring systems so that they remain compliant and secure is time consuming.
- With end user self-servicing, how do I know systems are compliant?
- How to check compliance without “being in the way”?
- How do I govern what resources are consumed and where?
- How do I prevent a huge bill from my cloud provider?



POLICY AND COMPLIANCE WITH CLOUDFORMS



- CloudForms continuously monitors systems so they remain secure.
- Smart State Analysis deeply scans systems to provide policy engine with detailed information.
- Apply policies based on Smart State data without requiring cooperation of users.
- Our automatic provisioning includes automatic placement policies.
- Quotas prevent over-provisioning compute, memory or storage resources.



POLICY ENFORCEMENT

- Continuous discovery and deep SmartState inspection of virtual instances.
- Policy violations can raise alerts or be remediated automatically.
- Policy can be applied uniformly or based on virtual instance criteria.

Scope
 No Policy scope defined, the scope of this policy includes all elements.

Conditions

	Description	Scopes / Expressions
	Permit Root Login Disabled	ExpressionFIND VM and Instance.Files : Contents Available = "true" CHECK ALL

Events

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

All Policy Profiles	All Alerts	All Actions
<div><div></div><div>Analysis: Exclude Specially Tagged VMs</div></div> <div><div></div><div>Analysis: On VM Reconfiguration</div></div> <div><div></div><div>Compliance Hosts: November 2012</div></div> <div><div></div><div>Compliance: DISA STIG</div></div> <div><div></div><div>Compliance: DMZ Configuration</div></div> <div><div></div><div>Compliance: Hosts</div></div> <div><div></div><div>Compliance: RHEL Host (KVM)</div></div>	<div><div></div><div>Description</div></div> <div><div></div><div>Cluster DRS not enabled</div></div> <div><div></div><div>Cluster HA not enabled</div></div> <div><div></div><div>CPU Ready > 4000 ms for more than 10 min</div></div> <div><div></div><div>Datacenter VMs > 10</div></div> <div><div></div><div>Host Datastore < 5% of Free Space</div></div>	<div><div></div><div>Description</div></div> <div><div></div><div>Alert - CPU Reservation > 500Mhz</div></div> <div><div></div><div>Cancel vCenter Task</div></div> <div><div></div><div>Check Host or VM Compliance</div></div> <div><div></div><div>Collect Running Processes on VM Guest OS</div></div> <div><div></div><div>Connect All CD-ROM Drives for Virtual Machine</div></div>

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]

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		
CPU	Used CPU	Hourly	MHz	
Cpu Cores	Used CPU Cores	Hourly		
Disk I/O	Used Disk I/O	Hourly	Kbps	
Fixed	Fixed Compute Cost 1	Hourly		
Fixed	Fixed Compute Cost 2	Hourly		
Memory	Allocated Memory	Hourly	MB	

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

Save Reset Cancel

EXTERNAL PERSPECTIVES

ANALYST STUDIES

**97% ROI.
\$5.9 million in savings.**



Forrester Consulting conducted a Total Economic Impact study to determine the business impact enterprises may realize by deploying Red Hat CloudForms.

**20x more service requests fulfilled.
92% less staff time per request.**



IDC interviewed organizations using Red Hat CloudForms and found that it has given them the ability to deliver services with agility and speed across their IT environments while helping manage these environments more efficiently.

CUSTOMER SUCCESS - COX AUTOMOTIVE

CHALLENGE

- Disparate IT infrastructure platforms
- Long provisioning and service delivery times

RESULTS

- Reduced delivery times from 2-8 weeks to 15 minutes, saving 4,500 developer hours

“We analyzed the numbers and realized with Red Hat we saved almost 10 years of time and almost \$5 million in soft savings.”

JASON CORNELL,

MANAGER OF CLOUD AND INFRASTRUCTURE AUTOMATION,
COX AUTOMOTIVE



CUSTOMER SUCCESS - UNION BANK

CHALLENGE

- Forty-five days to decrease operational complexity and automate provisioning of applications

RESULTS

- Increased quality and consistency of application delivery, shortened cycle times, and reduced risk with enhanced governance and efficiency

“The openness of the Red Hat solutions gave us integration options that not all other vendors offer.”

FRANK VENDITTI,
CHIEF INFRASTRUCTURE ARCHITECT, MUFG UNION BANK



Thank You