



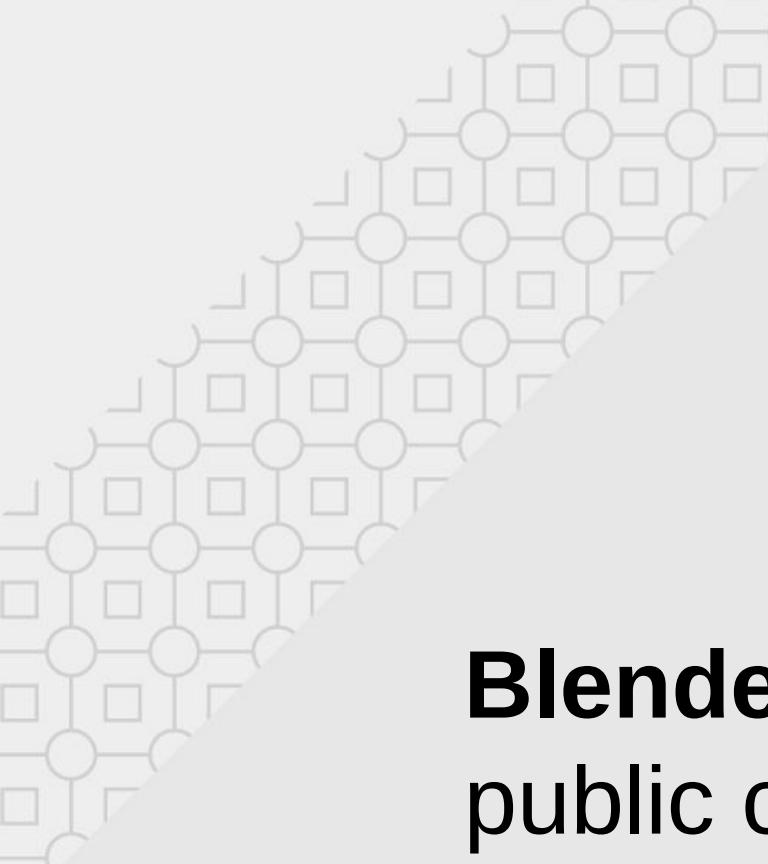
Red Hat Forum 2016



redhat.[®]

Building Hybrid Cloud with Red Hat CLOUDFORMS

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Hybrid Cloud (Multi-Cloud)

Blended infrastructure that combines the best of all worlds:
public cloud, private cloud and dedicated servers working
Together in any combination.

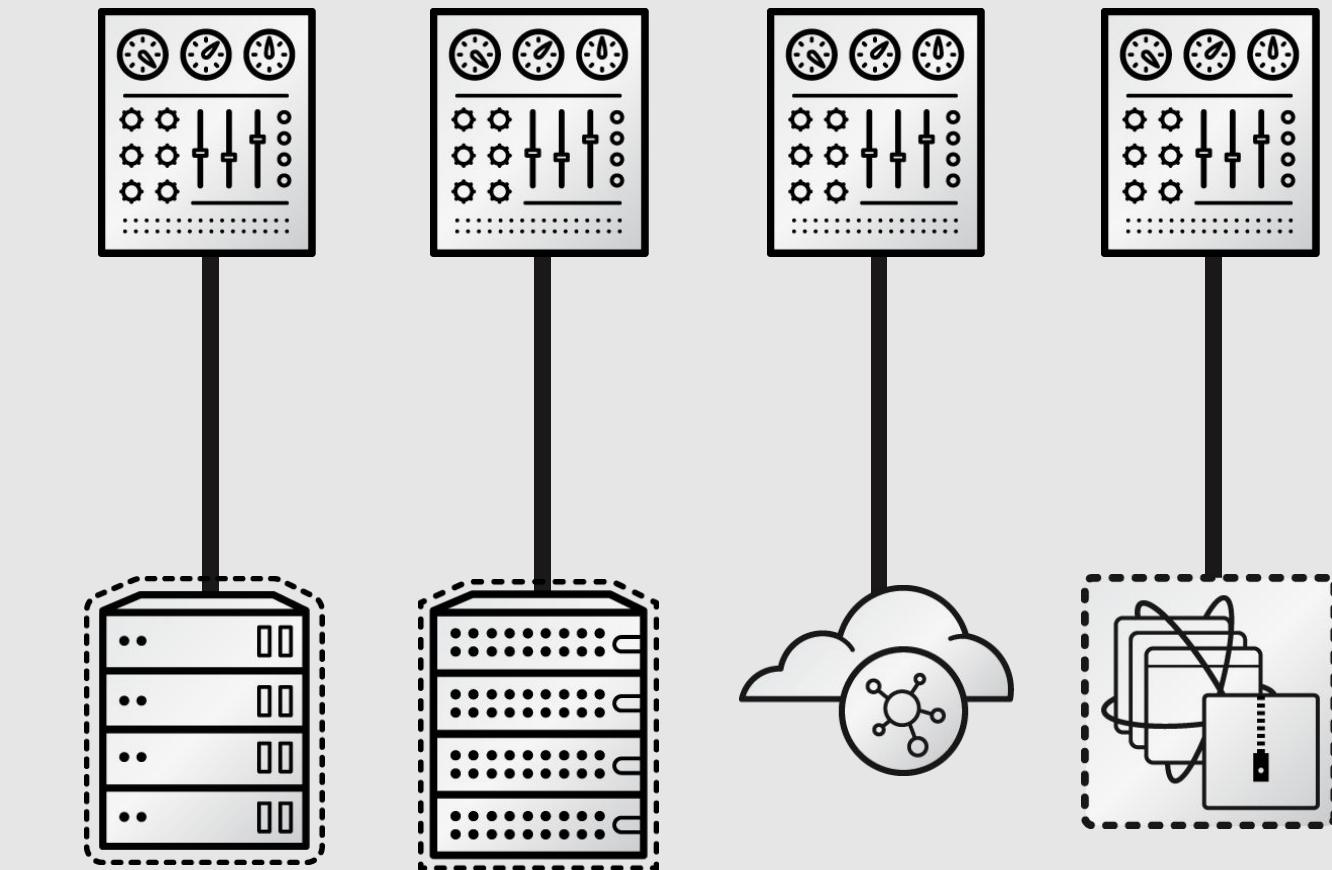
Hybrid Cloud is the Way Ahead for Enterprises.

82 percent of enterprises have a hybrid cloud strategy, holding steady from 2015..

UNIFIED HYBRID MANAGEMENT CHALLENGES



- We have different management systems for each of our platforms.
- We have to build automation and policies for each platform separately.
- Our existing management systems aren't suitable for cloud & container workloads.

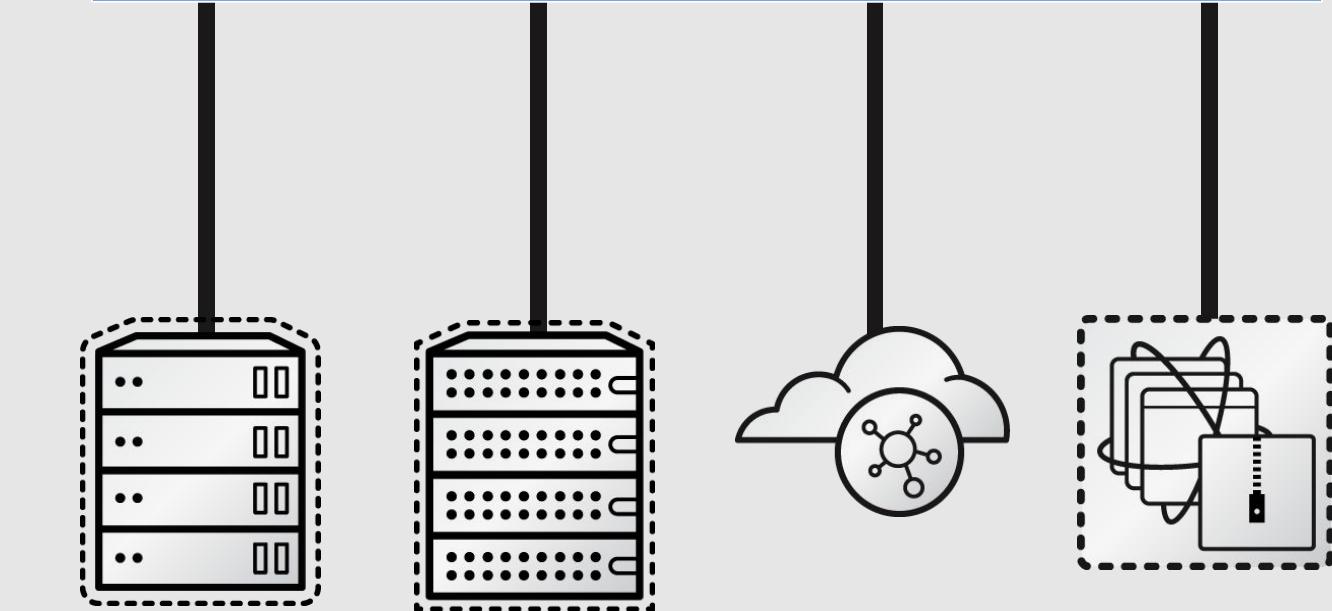


UNIFIED HYBRID MANAGEMENT WITH CLOUDFOR



- We have one management system for all of our platforms.
- We have consistent automation & policies that are common across platforms.
- CloudForms agentless management is designed for cloud/container workloads.

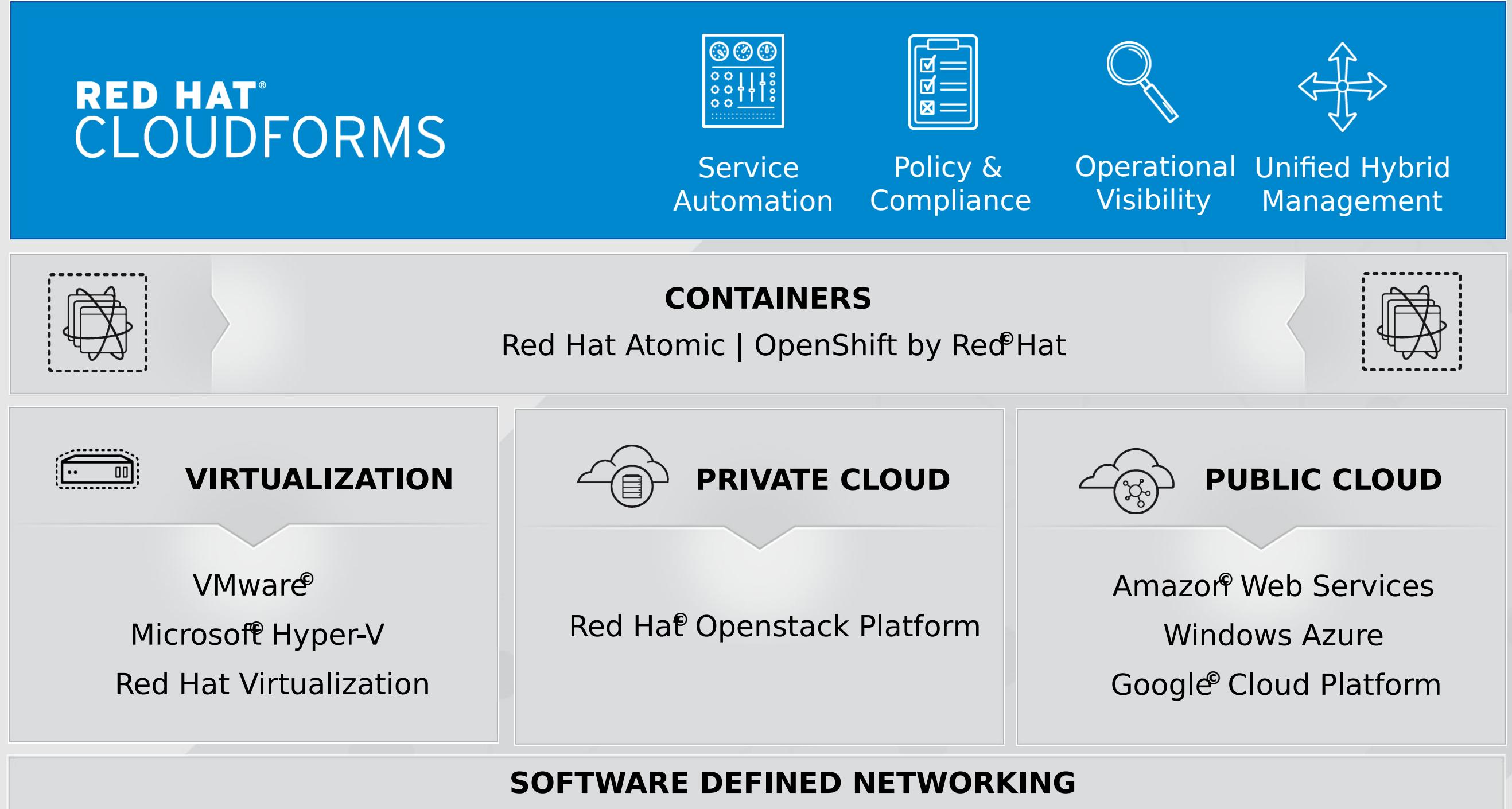
RED HAT® CLOUDFORMS



AN EVOLUTIONARY PATH TO HYBRID CLOUD



Google Cloud Platform



CLOUDFORMS DELIVERS SERVICES ACROSS HYBRID ENVIRONMENTS



SERVICE AUTOMATION

Streamline complex service delivery processes, saving time and money.



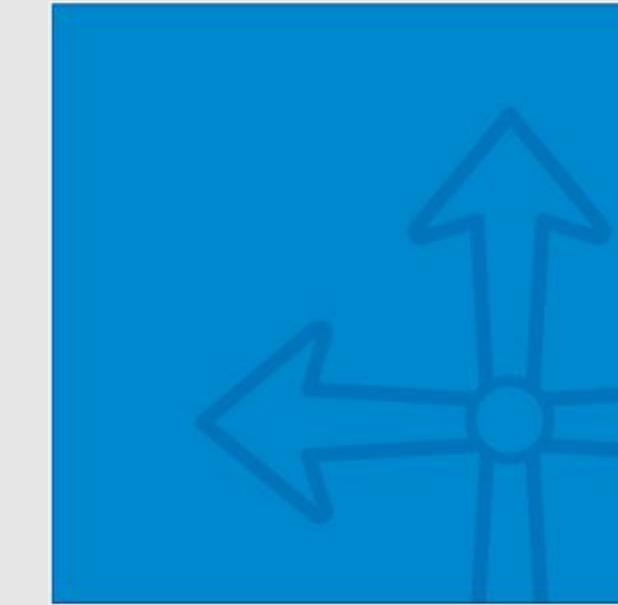
POLICY & COMPLIANCE

Draws on continuous monitoring and deep insights to raise alerts or remediate issues.



OPERATIONAL VISIBILITY

Complete lifecycle and operational management that allows IT to remain in control.

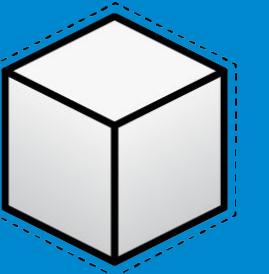


UNIFIED HYBRID MANAGEMENT

Deploy across virtualization, private cloud, public cloud and container-based environments.

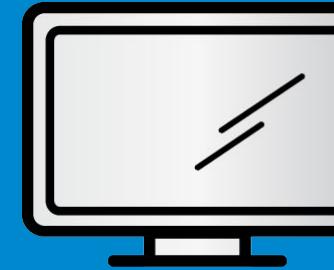
CLOUDFORMS FEATURES

**AGENTLESS,
VIRTUAL APPLIANCE**



NON-INVASIVE, EASY MAINTENANCE

**WEB-BASED, SELF-SERVICE,
ADMIN AND OPERATIONS**



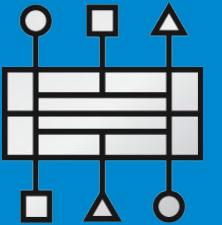
ACCESS FROM ANY BROWSER

**MULTI-TENANT AND
MULTI-LOCATION**



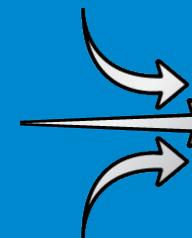
SECURELY SHARE INFRASTRUCTURE

**PLUGABLE API
FRAMEWORK**



**EASY TO INTEGRATE AND
EXTENSIBLE TO OTHER PLATFORMS**

**HORIZONTALLY SCALABLE,
LOAD-BALANCED**



**HIGHLY SCALABLE, HIGHLY AVAILABLE
WITH FAILOVER AND FALLBACK**

**ROLE-BASED ACCESS CONTROL
AND ENTITY TAGGING**



**SEGMENT USER ACCESS AND DRIVE
COMPLIANCE, CONTROL AND REPORTING**

WHY CLOUDFORMS?

- **INTEGRATED VIRTUAL APPLIANCE** provides both automation and insight, speeding installation and easing version to version upgrades
- **AGENTLESS SCANNING** with deep inspection of managed environments provides insights for policy and automation
- **CONTINUOUS MONITORING** and optimization maximizes resource utilization and aids in capacity planning
- **OPEN, FLEXIBLE INTEGRATION** makes it easier to automate every step in complicated IT processes

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. + **Self-service catalog**



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.

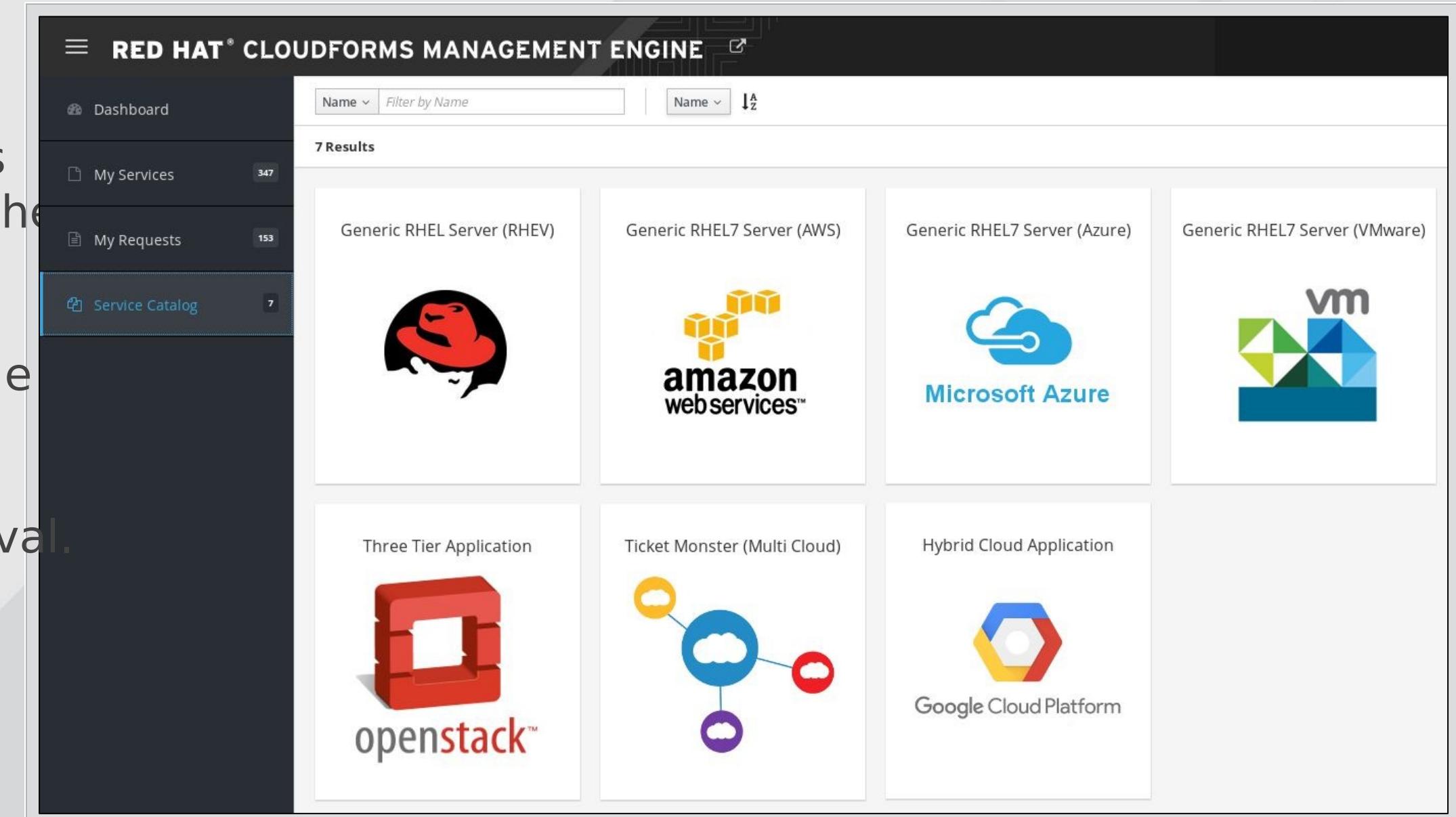
ACTIVITIES REQUIRED

- + **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 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 playbooks or natively in CloudForms.
- Integration to external IT systems via CloudForms to automate all process steps.

RED HAT® CLOUDFORMS MANAGEMENT ENGINE

Cloud Intel > Red Hat Insights > Services > Compute > Configuration > Networks > Control > Automate > Optimize >

Service Catalogs > Catalog Items > All Catalog Items > Hybrid Cloud Automation Items > AWS ELB Creation (Ansible) > JBoss Deployment (Ansible) > PostgreSQL Deployment (Ansible) > Register with HAProxy (Ansible) > Hybrid Cloud Provisioning Items > Hybrid Cloud Services > Multi Cloud Experiments > Multi Cloud Provisioning > RHEV Provisioning > VMware Provisioning > Orchestration Templates > Catalogs

Configuration Policy

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	/ConfigurationManagement/AnsibleTower/Service/Provisioning/StateMachines/ProvisioningEntryPoint/StateMachine(NS/Cl/Inst)
------------------	--

Provisioning Entry Point State Machine (NS/Cl/Inst)

Custom Image

The diagram illustrates a service architecture. At the top, a large black rectangle contains the word "SERVICE" in red capital letters. Below it, there are two white rectangular boxes, each representing a virtual machine ("VM"). Each VM box has a black circle with a white letter "A" inside it. A red plus sign (+) is positioned between the two VM boxes. Below the VMs, the word "ANSIBLE" is repeated twice, once under each VM. The entire diagram is enclosed in a light gray border.

Hybrid Cloud Visibility



- 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 out into the future for planning purposes.

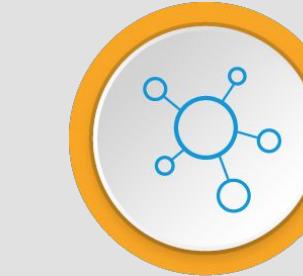
CHALLENGES



LIFECYCLE MANAGEMENT



RESOURCE OPTIMIZATION



ROOT-CAUSE ANALYSIS



CAPACITY MANAGEMENT

LIFECYCLE MANAGEMENT

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

The screenshot displays the Red Hat Satellite 6 interface, specifically the VM Management section. At the top, there's a toolbar with icons for Power, Monitoring, VM Actions, and a search bar. The main area shows a list of virtual machines:

VM Name	IP Address	Architecture
ansible-tower	10.3.48.240	redhat: 2 CPUs (2 sockets)
ansible.demo.cmbu.redhat.com	N/A	rhel
10.3.48.240	N/A	Red Hat Enterprise Linux

A context menu is open over the first VM, listing options: Clone this VM, Publish this VM to a Template, Migrate this VM, Set Retirement Date, and Retire this VM. The 'Migrate this VM' option is highlighted.

To the right, a detailed view of the selected VM (40DemoMaster) is shown:

Attribute	Value
Hostname	40DemoMaster
IP Address	10.3.59.203
Container	vmware: 4 CPUs (4 sockets x 1 core), 12288 MB

The detailed view also includes sections for Lifecycle and Relationships, providing historical data and connectivity information.

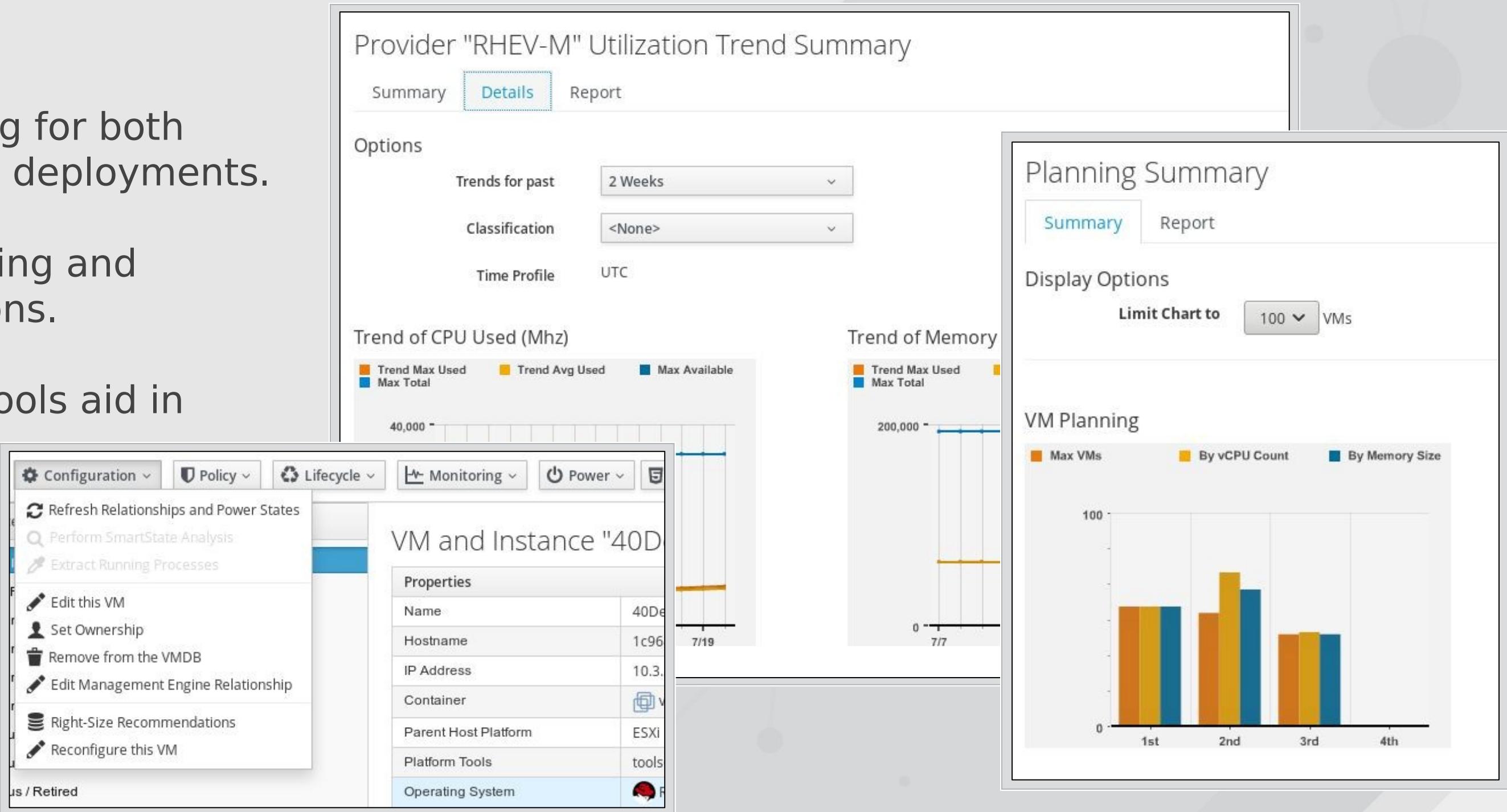
ROOT CAUSE ANALYSIS

- 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.

The screenshot displays the Red Hat CloudForms Management Engine interface. At the top, a navigation bar includes links for Cloud Intel, Red Hat Insights, Services, Compute, Configuration, Networks, and Control. Below the navigation bar is a search bar with filters for Display Names, Refresh, and Search. A toolbar below the search bar includes icons for Cloud Subnets, VMs, Security Groups, Floating IPs, Cloud Networks, and Networks. The main area features a network graph where nodes represent VMs and hosts, connected by lines indicating relationships. A specific host, "40DemoMaster", is highlighted in the center of the graph. A detailed view of this host is shown in a modal window, listing its properties: Name (40DemoMaster), Hostname (1c968534-47ed-11e4-8507-005056a9bb), IP Address (10.3.59.203), Container (vmware: 4 CPUs (4 sockets x 1 core)), Parent Host Platform (ESXi), Platform Tools (toolsOk), and Operating System (Red Hat Enterprise Linux 6 (64-bit)). To the right of the main graph, a smaller inset shows a zoomed-in view of a cluster of host nodes, with one specific node highlighted in red.

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.



POLICY AND COMPLIANCE CHALLENGES



- Monitoring systems so that they remain compliant and secure is time consuming.
- Identifying an issue with a system often requires detailed analysis.
- I need to show users the resources they are consuming.
- With end user self-servicing, I need to check that systems are secure.
- I need to be able to keep users from over-provisioning resources.



POLICY AND COMPLIANCE WITH CLOUDFORMS



- CloudForms continuously monitors systems so they remain compliant/secure.
- Smart State Analysis deeply scans systems to provide policy engine with detailed information.
- Chargeback/ showback reports let users know the resources they are utilizing.
- Our automatic provisioning includes automatic policy enforcement.
- Quotas prevent over-provisioning compute, memory or storage resources.



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

P

The screenshot shows the Red Hat CloudForms Management Engine interface. The top navigation bar includes Cloud Intelligence, Red Hat Insights, Services, Clouds, Infrastructure, Containers, Control (selected), Automate, Optimize, and Configure. The Control tab is active, showing the 'Policy Profiles' section. A tree view on the left lists 'Policy Profiles' such as 'Demo self protection', 'Golden Profile(Demo)', and 'VM and Instance Compliance'. Under 'VM and Instance Compliance', a specific profile is selected, showing conditions like 'Permit Root Login Disabled' and actions like 'VM Compliance Check', 'Mark as Non-Compliant', and 'Generate log message'. To the right, sections for 'Scope' (indicating no policy scope defined), 'Conditions' (listing the selected condition), and 'Events' (listing the selected event) are displayed. Below these is a large table titled 'All Policy Profiles' listing various compliance profiles. Another table titled 'All Alerts' lists various alert types, and a third table titled 'All Actions' lists various actions that can be taken.

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

Description	Actions
VM Compliance Check	<input checked="" type="checkbox"/> Mark as Non-Compliant <input checked="" type="checkbox"/> Generate log message <input checked="" type="checkbox"/> Generate Audit Event <input checked="" type="checkbox"/> Send Email to Security Team

All Policy Profiles	
	Analysis: Exclude Specially Tagged VMs
	Analysis: On VM Reconfiguration
	Compliance Hosts: November 2012
	Compliance: DISA STIG
	Compliance: DMZ Configuration
	Compliance: Hosts
	Compliance: RHEL Host (KVM)
	Compliance: VM
	Compliance: VMware Security Hardening Guide v4.x & v5.x (DM)
	Compliance: VMware Security Hardening Guide v4.x & v5.x (Ent)
	Compliance: VMware Security Hardening Guide v4.x & v5.x (SSI)
	Demo: CPU Reservation

All Alerts	
	Cluster DRS not enabled
	Cluster HA not enabled
	CPU Ready > 4000 ms for more than 10 min
	Datacenter VMs > 10
	Host Datastore < 5% of Free Space
	Host Event Log Error - Failed to validate VM IP address
	Host Event Log Error - Memory Exceed Soft Limit
	Host VMs >10
	POC - CFME: High DB Disk Usage
	POC - CFME: High System Disk Usage

All Actions	
	Alert - CPU Reservation > 500Mhz
	Cancel vCenter Task
	Check Host or VM Compliance
	Collect Running Processes on VM Guest OS
	Connect All CD-ROM Drives for Virtual Machine
	Connect All Floppy and CD-ROM Drives for Virtual Machine
	Connect All Floppy Drives for Virtual Machine
	Convert to Template
	Delete all Snapshots
	Delete Most Recent Snapshot

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	Rate
				Start	Finish
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

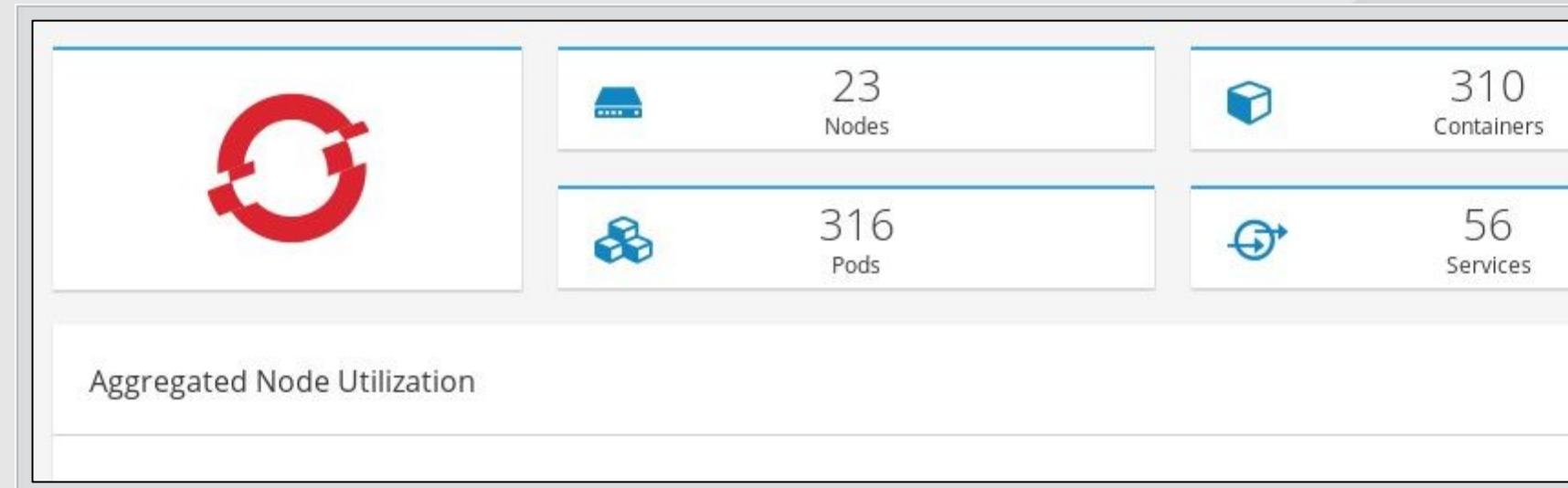
Group	Description	Range	Rate		
		Start	Finish	Fixed	Variable
CPU	Allocated CPU Count	0.0	Infinity	1.0	0.0
CPU	Used CPU	0.0	Infinity	0.0	0.02
Cpu Cores	Used CPU Cores	0.0	Infinity	1.0	0.02
Disk I/O	Used Disk I/O	0.0	Infinity	0.0	0.005
Fixed	Fixed Compute Cost 1	0.0	Infinity	0.0	0.0
Fixed	Fixed Compute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

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-img-scan-dfae7
Benchmark URL	/tmp/com.redhat.rhsa-RHEL6.ds.xml.bz2
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	

CPE Platforms

IPv4	127.0.0.1
IPv4	10.5.0.8
IPv6	0:0:0:0:0:0:1
IPv6	fe80:0:0:0:42:aff:fe05:8
MAC	00:00:00:00:00:00
MAC	02:42:0A:05:00:08

Addresses

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



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THANK YOU



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