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# Effective Management of Your Virtual Environments Using CloudForms

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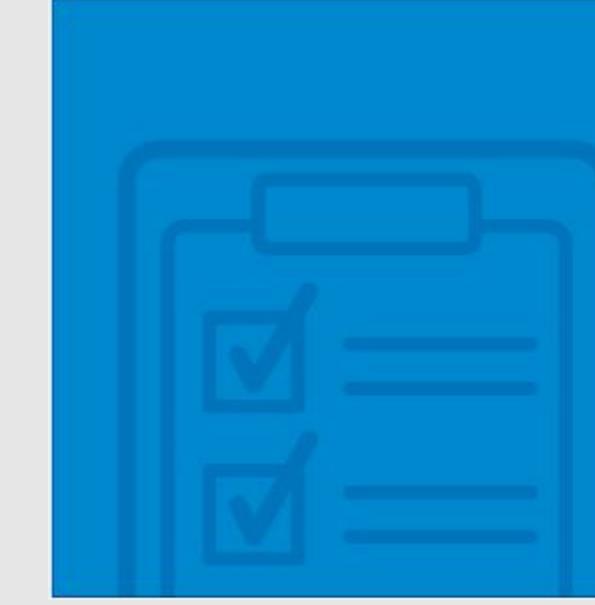
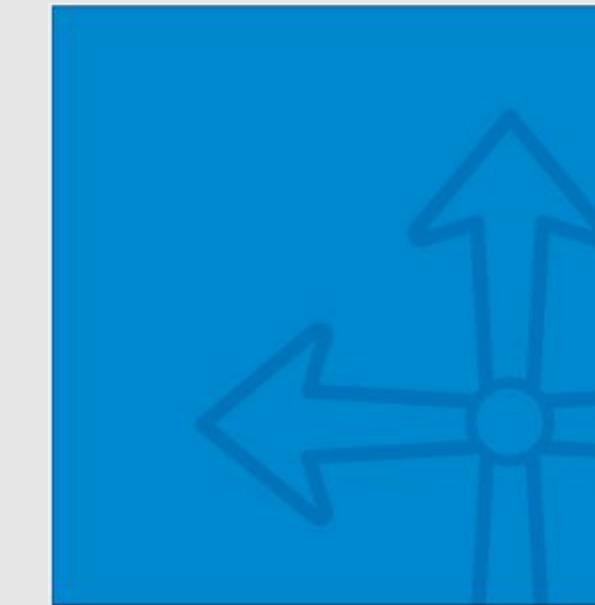


# What Is Cloudforms?

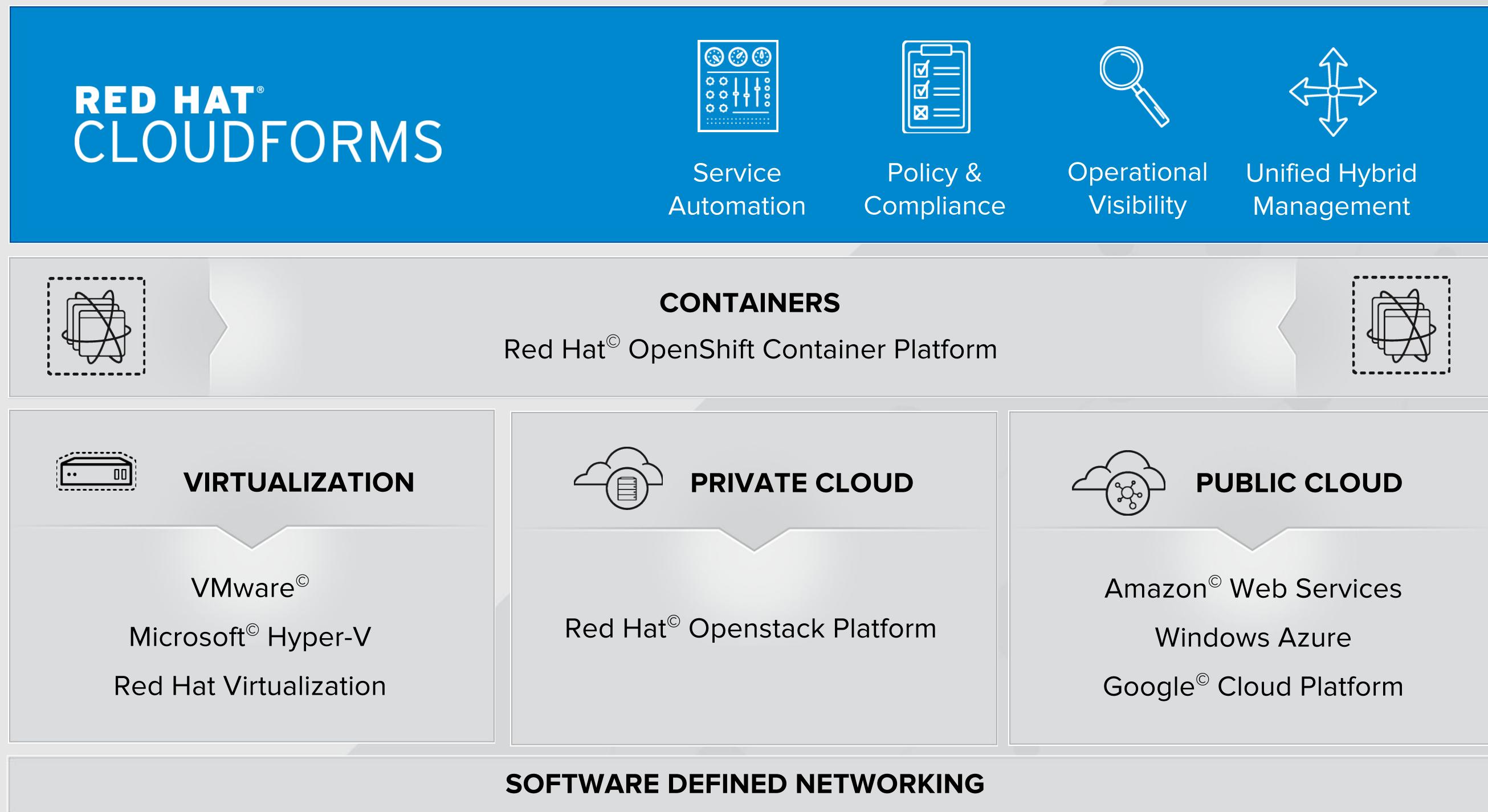


# Cloud Management Platform

# CLOUDFORMS DELIVERS SERVICES ACROSS HYBRID ENVIRONMENTS

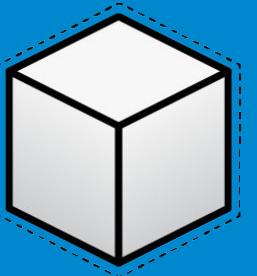
	<h3>SERVICE AUTOMATION</h3> <p>Streamline complex service delivery processes, saving time and money.</p>		<h3>POLICY &amp; COMPLIANCE</h3> <p>Draws on continuous monitoring and deep insights to raise alerts or remediate issues.</p>
	<h3>OPERATIONAL VISIBILITY</h3> <p>Complete lifecycle and operational management that allows IT to remain in control.</p>		<h3>UNIFIED HYBRID MANAGEMENT</h3> <p>Deploy across virtualization, private cloud, public cloud and container-based environments.</p>

# AN EVOLUTIONARY PATH TO HYBRID CLOUD



# CLOUDFORMS FEATURES

**AGENTLESS,  
VIRTUAL APPLIANCE**



**NON-INVASIVE, EASY MAINTENANCE**

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



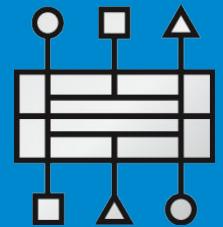
**ACCESS FROM ANY BROWSER**

**MULTI-TENANT AND  
MULTI-LOCATION**



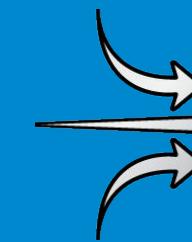
**SECURELY SHARE INFRASTRUCTURE**

**PLUGABLE API  
FRAMEWORK**



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

**HORIZONTALLY SCALABLE,  
LOAD-BALANCED**



**HIGHLY SCALABLE, HIGHLY AVAILABLE  
WITH FAILOVER ANDFallback**

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

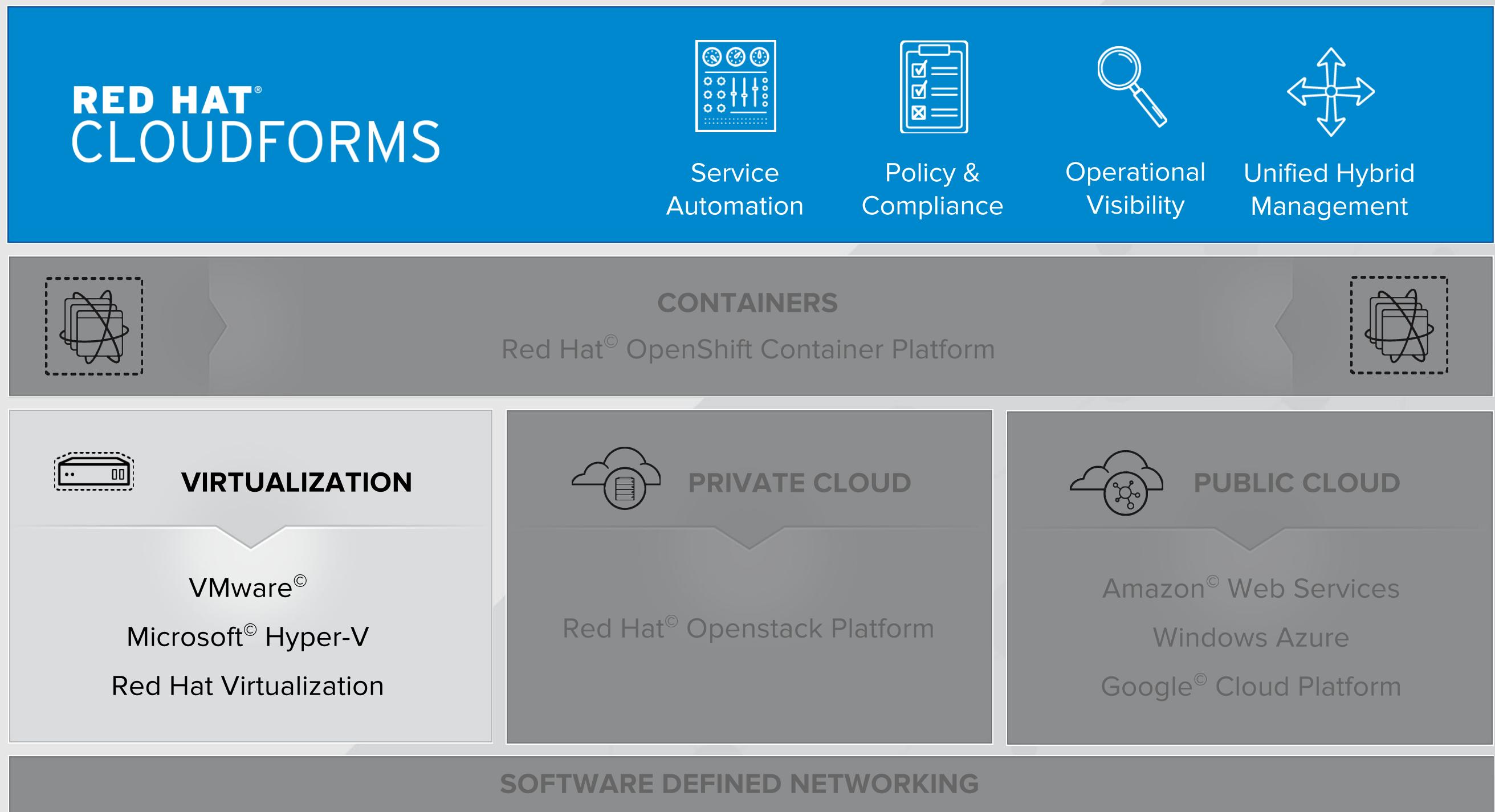


**SEGMENT USER ACCESS AND DRIVE  
COMPLIANCE, CONTROL AND REPORTING**



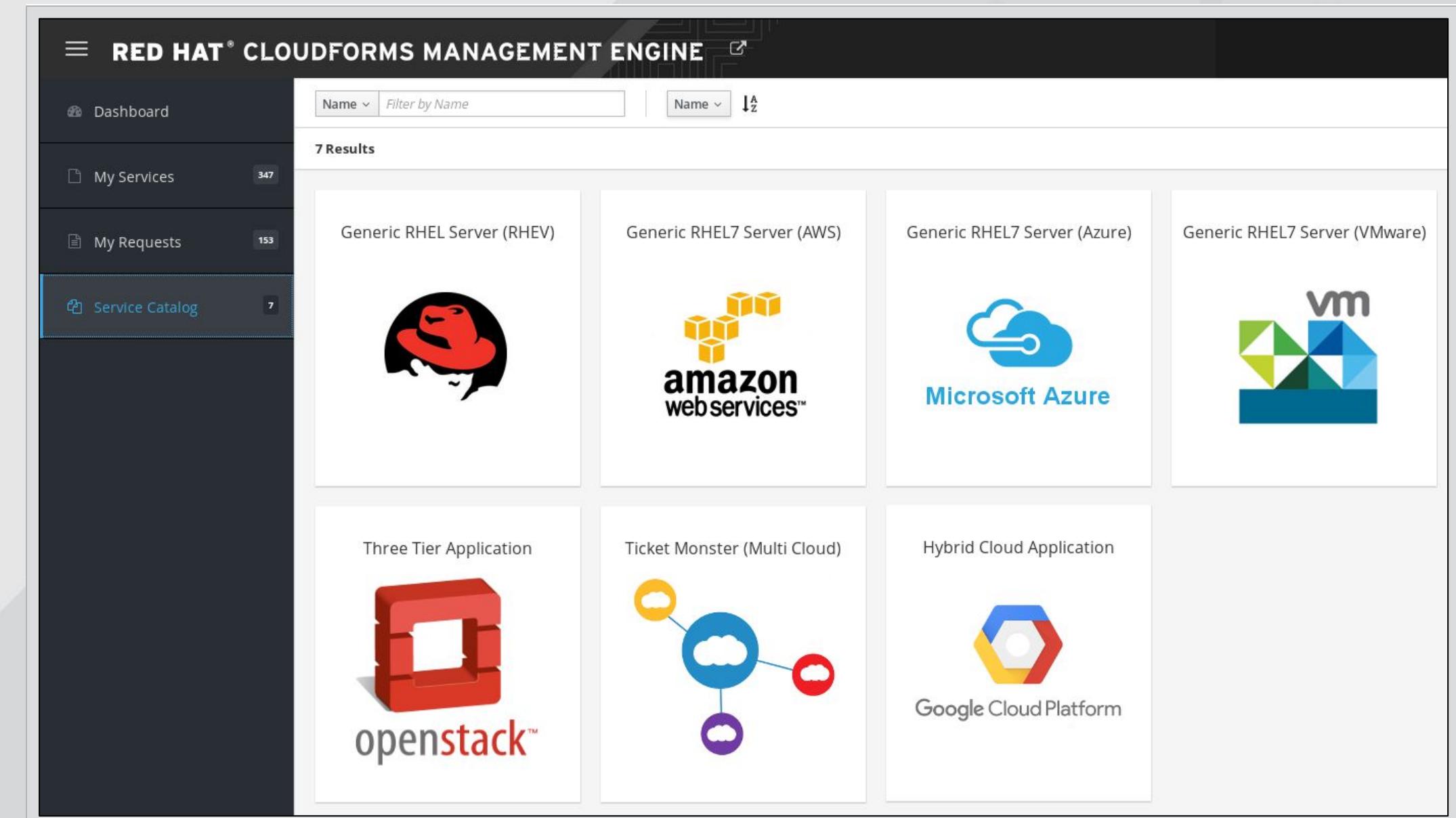
# CLOUDFORMS CAPABILITIES

# ADVANCED VIRTUALIZATION MANAGEMENT



# 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 shows the 'Service Catalog' interface. On the left, a tree view lists 'Catalog Items' under 'All Catalog Items'. Under 'Hybrid Cloud Automation Items', several items are listed, including 'AWS ELB Creation (Ansible)', 'JBoss Deployment (Ansible)', 'PostgreSQL Deployment (Ansible)', and 'Register with HAProxy (Ansible)'. The 'JBoss Deployment (Ansible)' item is selected and highlighted with a blue background. To the right, detailed information about this item is displayed:

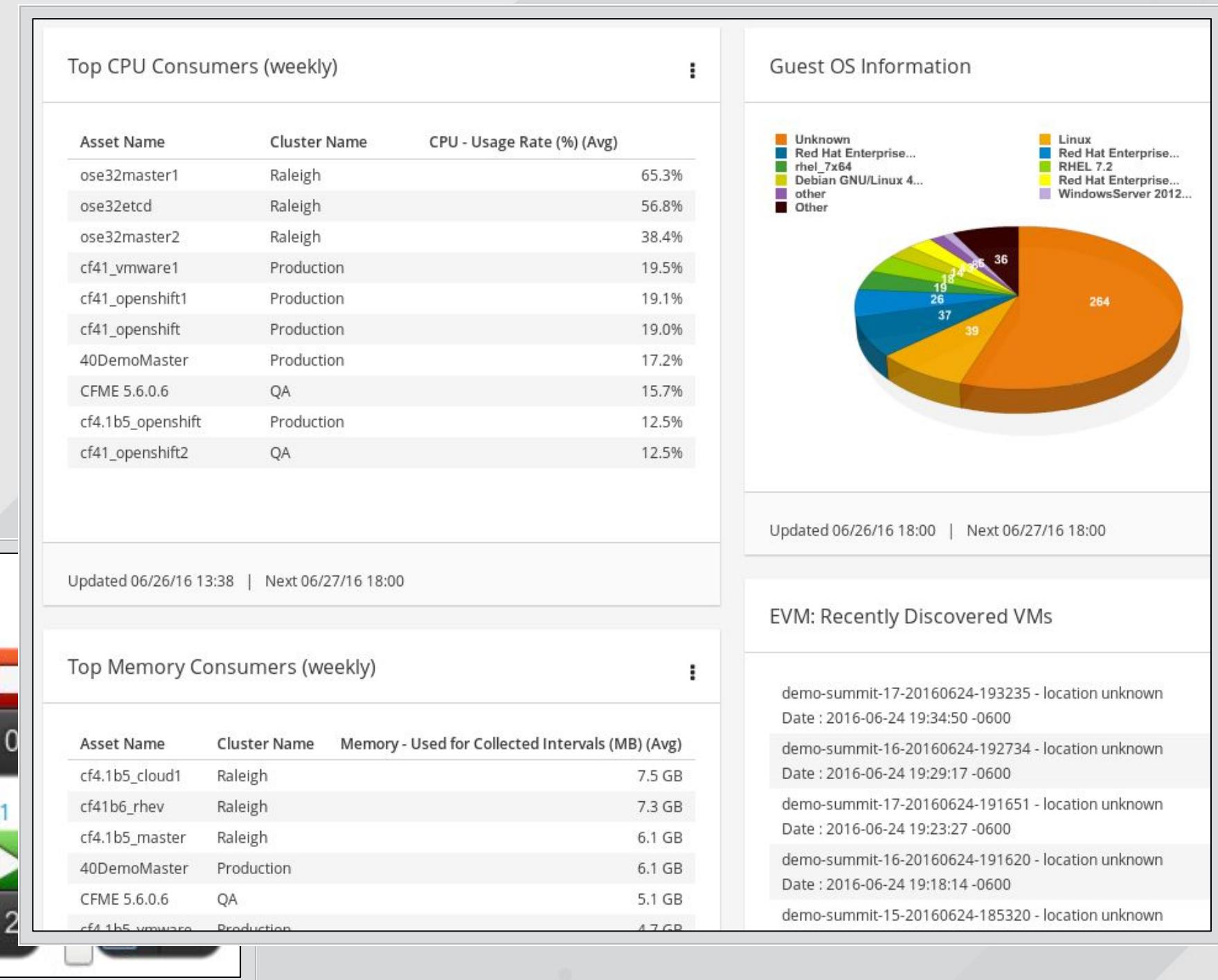
Basic Information	
Name / Description	JBoss Deployment (Ansible) / JBoss Deployment <input type="checkbox"/> Display in Catalog
Dialog	No Dialog
Ansible Tower Job Template	
Provisioning Entry Point	/ConfigurationManagement/AnsibleTower/Service/Provisioning/StateMachine (NS/Cls/Inst)
Custom Image	

# VIRTUALIZATION MANAGEMENT

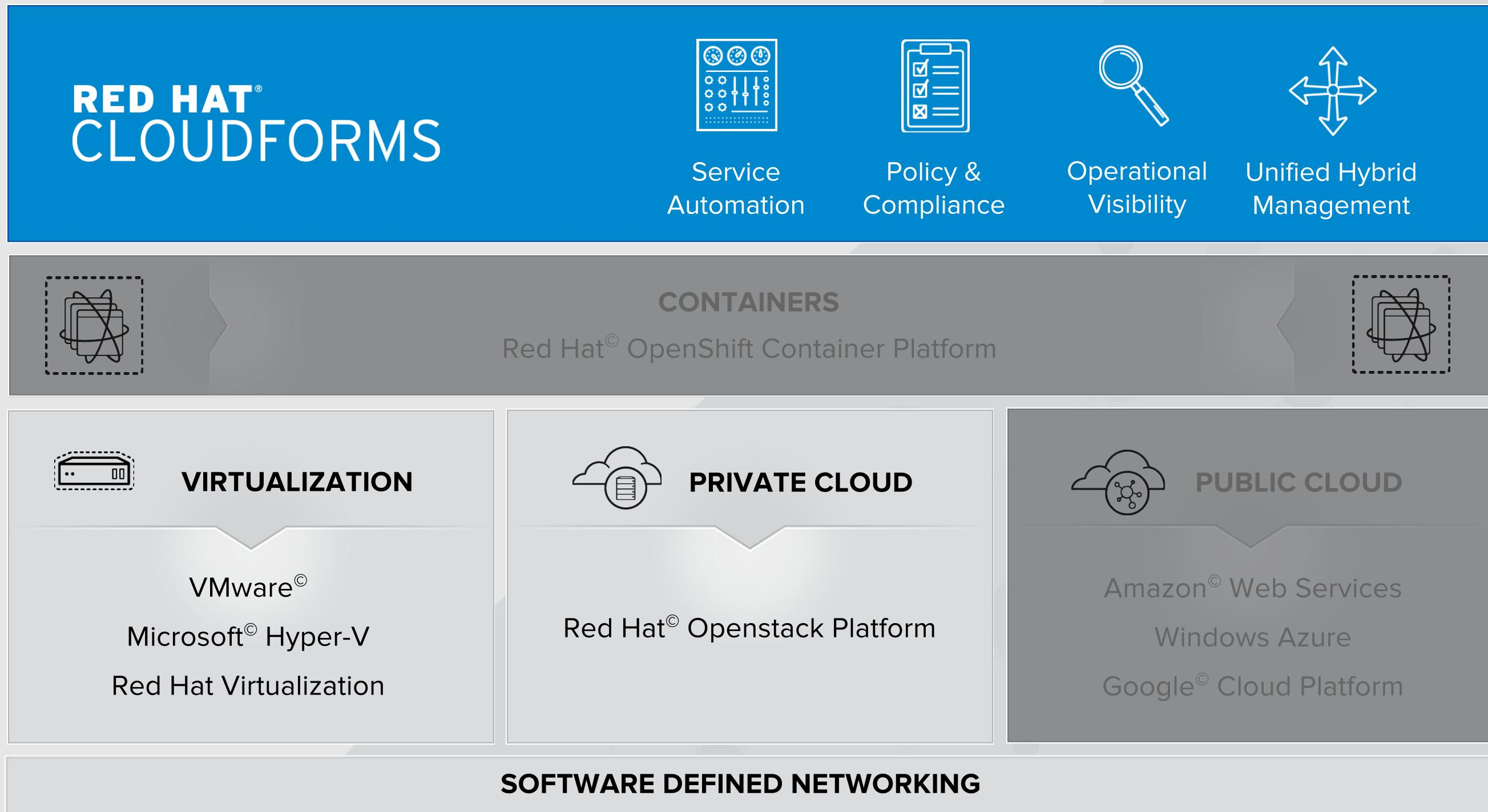
- Provision from clone of existing VM instance or template.
- View VM genealogy and track VM drift from established configurations.
- Execute VM power operations and retire VM instances.

## All VMs & Templates

VM/Template Name	Memory Usage (MB)
32DemoMaster	3
40DemoMaster	2
alpha-dsl1	0
Analytics VM	0
ansib...tower	1
bdprd001	0
	1
	0
	0
	1
	3
	2



# TRANSFORMATION TO PRIVATE CLOUD



# 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 two main windows from the Red Hat Lifecycle Management interface:

**VM Details View:** This window shows a list of virtual machines. The first machine listed is "ansible-tower". The second machine has its details expanded, showing the following information:

Hostname	ansible.tower
IP Address	10.3.48.240
Container	Red Hat Enterprise Linux

**Context Menu:** A context menu is open over the second VM, listing several actions:

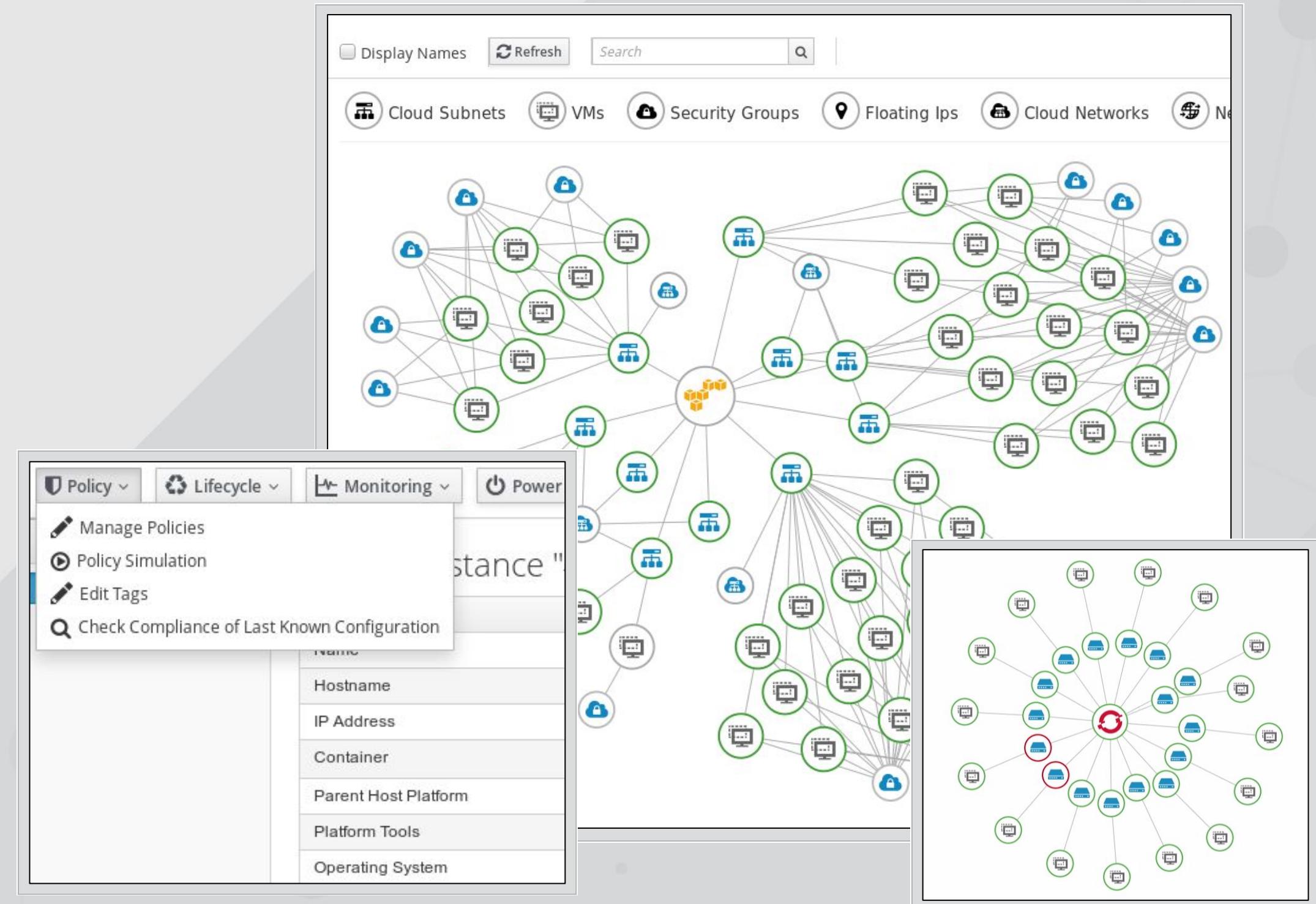
- Clone this VM
- Publish this VM to a Template
- Migrate this VM
- Set Retirement Date
- Retire this VM

**Relationships View:** This view provides a summary of the VM's relationships across various infrastructure components:

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	bldr16cc06.core.cmbu.redhat.com
Resource Pool	Default for Cluster Raleigh
Datastores	RHEV-ISCSI
Service	None
Genealogy	Show parent and child VMs
Drift History	▲ 2
Analysis History	Q 3

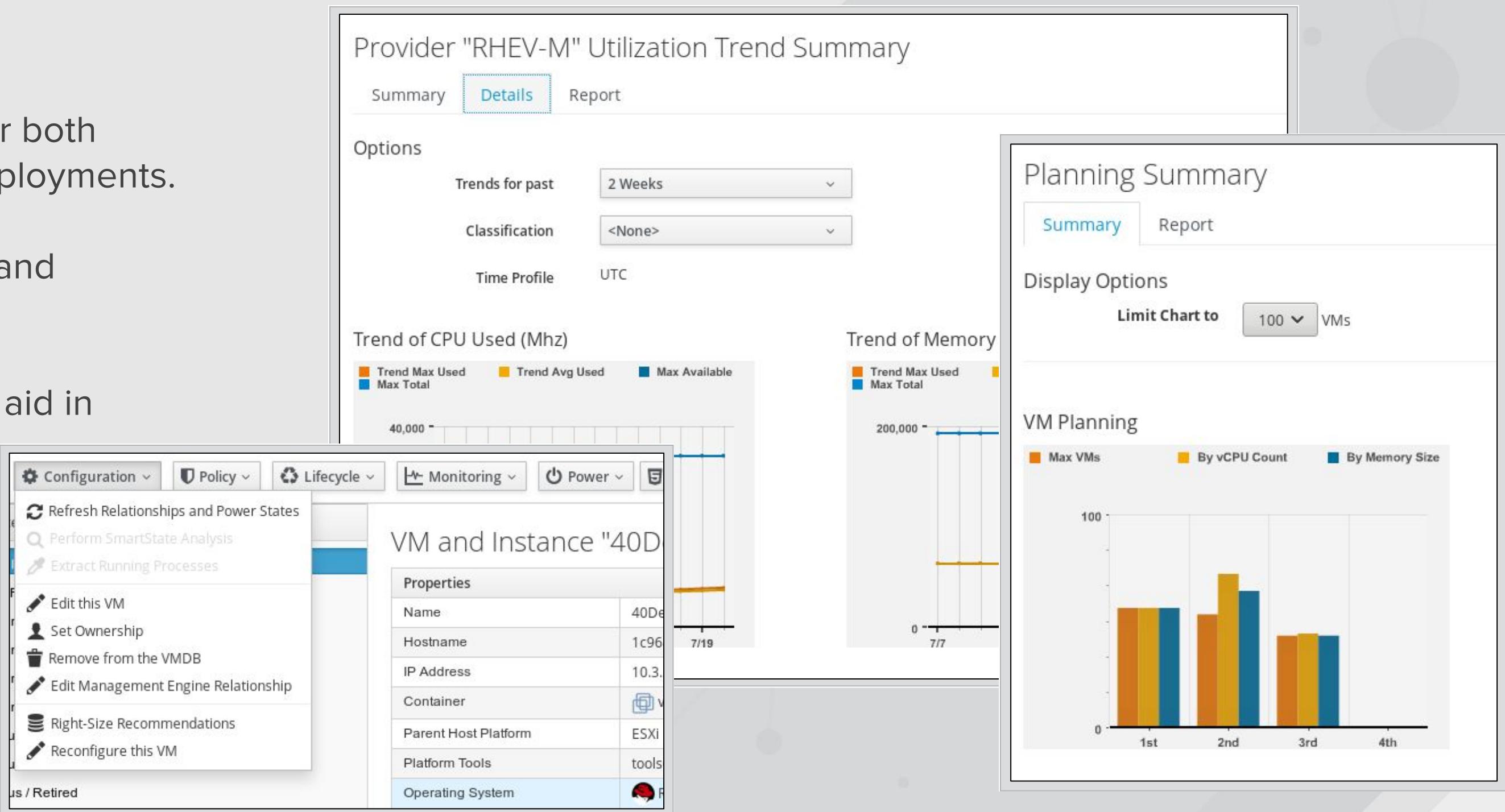
# ROOT CAUSE ANALYSIS

- 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.

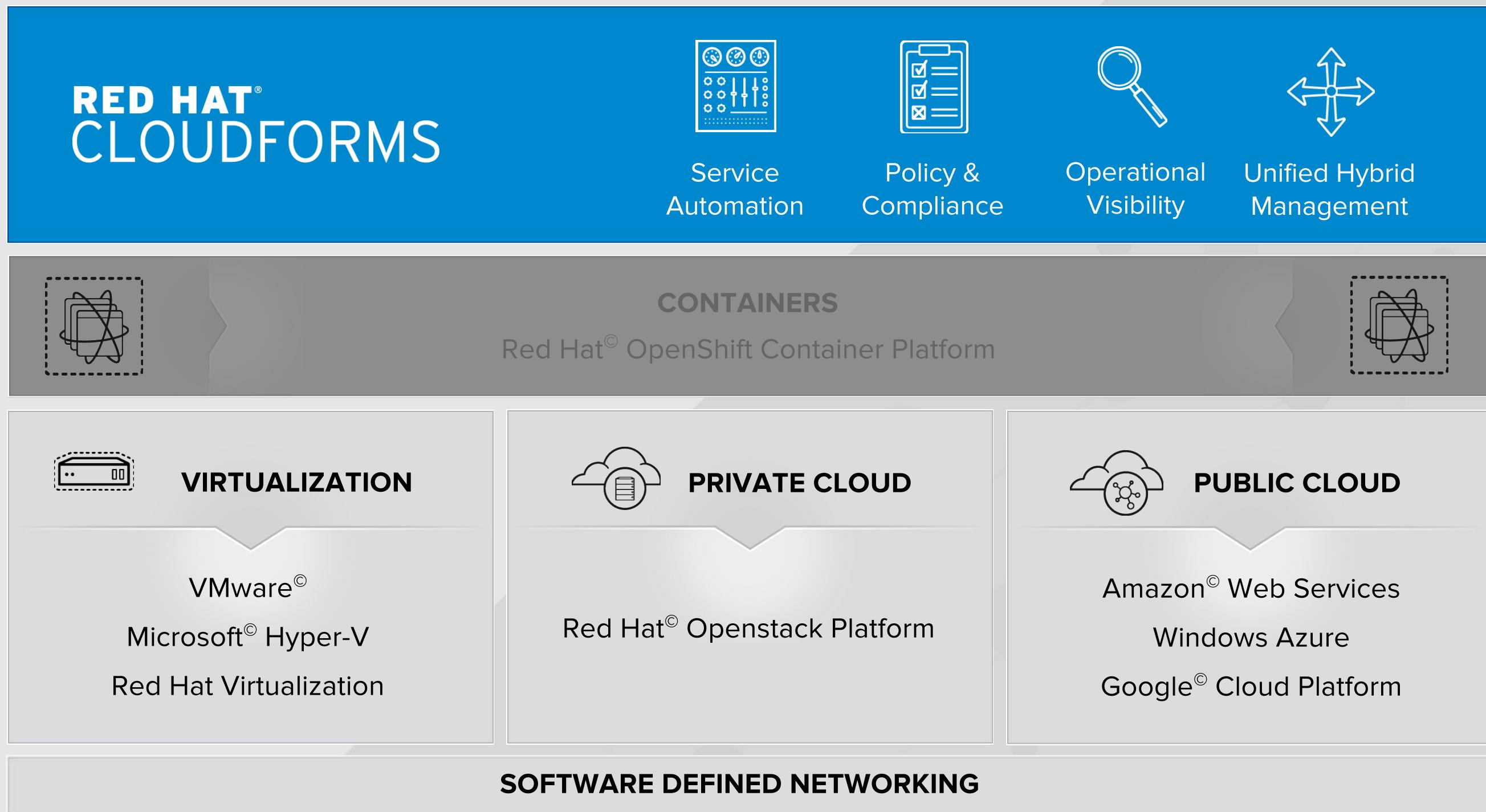


# PERFORMANCE AND CAPACITY MANAGEMENT

- 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.



# PERFORMANCE AND CAPACITY MANAGEMENT



# 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

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

Conditions

	Description	Scopes / Expressions
<span style="color: #0070C0;">◆</span>	Permit Root Login Disabled	Expression FIND VM and Instance.Files : Contents Available = "true" CHECK ALL

Events

	Description	Actions
<span style="color: #0070C0;">VM</span>	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		All Alerts		All Actions	
	Description		Description		Description
<span style="color: #0070C0;">🛡️</span>	Analysis: Exclude Specially Tagged VMs	<span style="color: #FFA500;">⚠️</span>	Cluster DRS not enabled	<span style="color: #0070C0;">👤</span>	Alert - CPU Reservation > 500Mhz
<span style="color: #0070C0;">🛡️</span>	Analysis: On VM Reconfiguration	<span style="color: #FFA500;">⚠️</span>	Cluster HA not enabled	<span style="color: #0070C0;">👤</span>	Cancel vCenter Task
<span style="color: #0070C0;">🛡️</span>	Compliance Hosts: November 2012	<span style="color: #FFA500;">⚠️</span>	CPU Ready > 4000 ms for more than 10 min	<span style="color: #0070C0;">👤</span>	Check Host or VM Compliance
<span style="color: #0070C0;">🛡️</span>	Compliance: DISA STIG	<span style="color: #FFA500;">⚠️</span>	Datacenter VMs > 10	<span style="color: #0070C0;">👤</span>	Collect Running Processes on VM Guest OS
<span style="color: #0070C0;">🛡️</span>	Compliance: DMZ Configuration	<span style="color: #FFA500;">⚠️</span>	Host Datastore < 5% of Free Space	<span style="color: #0070C0;">👤</span>	Connect All CD-ROM Drives for Virtual Machine
<span style="color: #0070C0;">🛡️</span>	Compliance: Hosts				
<span style="color: #0070C0;">🛡️</span>	Compliance: RHEL Host (KVM)				

# 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
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	

**Manage quotas for Tenant "Red Hat"**

Enforced	Description	Value
ON	Allocated Virtual CPUs	64
ON	Allocated Memory in GB	32
ON	Allocated Storage in GB	10240
ON	Allocated Number of Virtual Machines	32
ON	Allocated Number of Templates	12

**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

Save Reset Cancel

# 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

Type	EVM Zone	Instances	Images
Amazon EC2	Cloud	1	1
Azure	Cloud	11	19
Google Compute Engine	Cloud	0	561
AWS Lambda	Cloud	3	94

Search

Cloud Providers » Azure (Central US) (Summary)

### Azure (Central US) (Summary)

Properties	
Region	Central US
Discovered IP Address	
Type	Azure
Management Engine GUID	4d627c04-2752-11e6-998a-001a4a5b6702

Status	
Default Credentials	Valid
Last Refresh	Success - 27 Minutes Ago

Google Cloud Engine (mbu-project) (Summary)

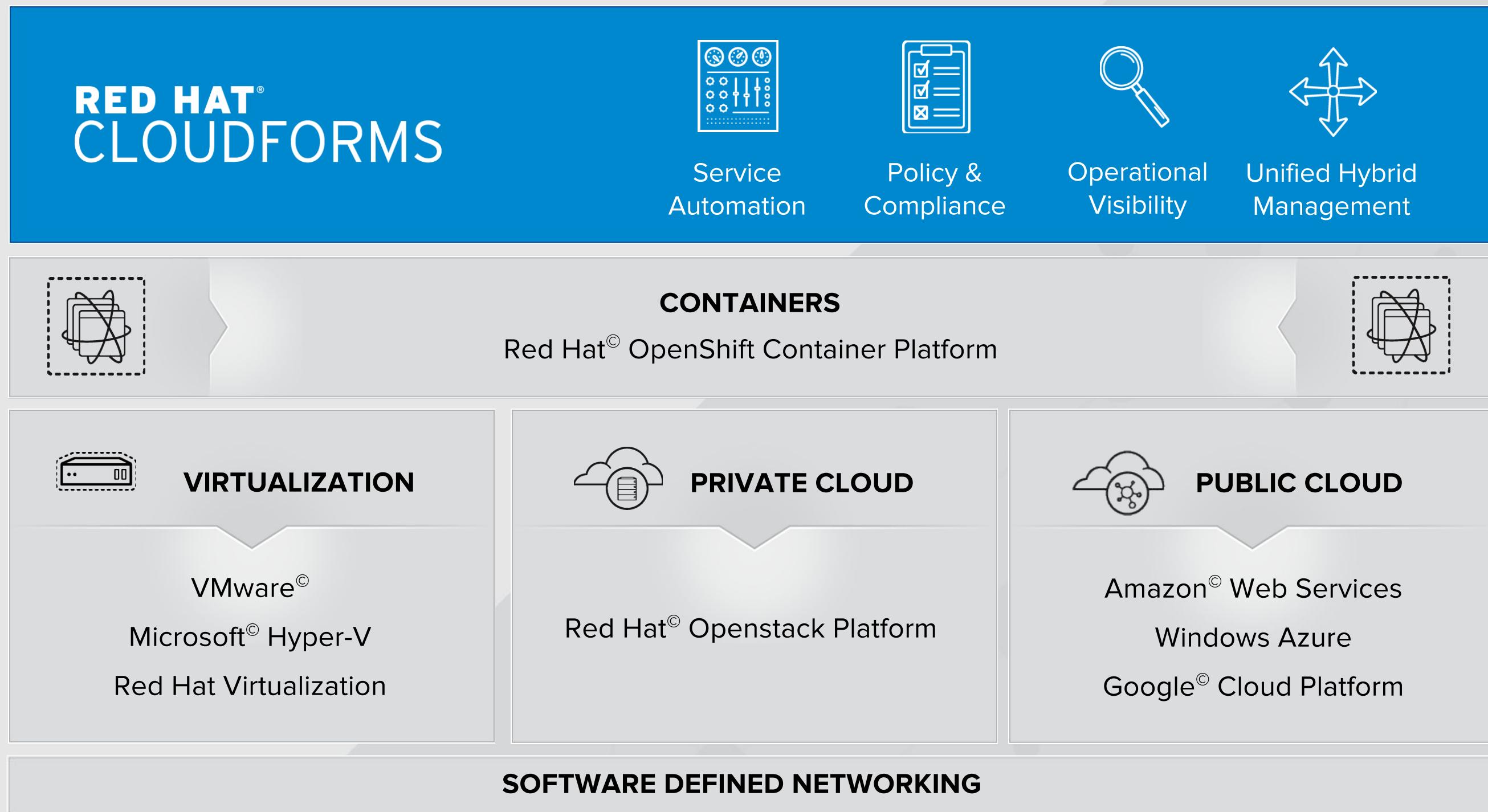
Properties	
Preferred Region	Central US
Discovered IP Address	
Type	Google Compute Engine
Management Engine GUID	ec355e06-2d82-11e6-94ae-001a4a5b6702

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

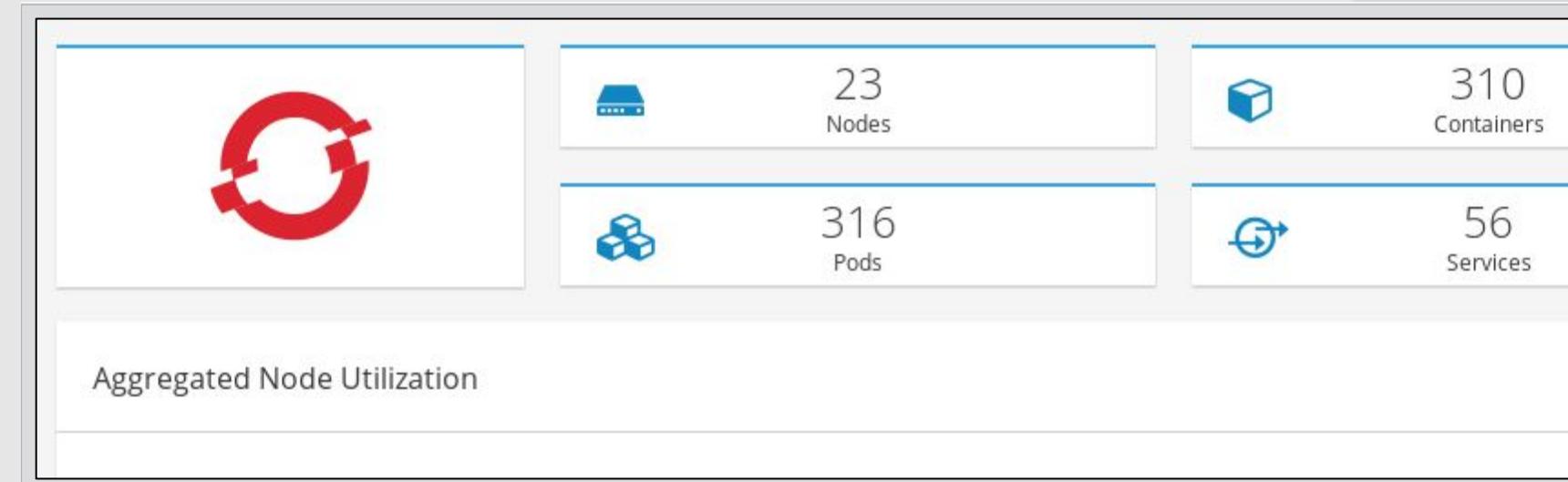
Smart Management	
Managed by Zone	Cloud
Red Hat Tags	No Red Hat Tags have been assigned

# CONTAINER AND CLOUD NATIVE WORKLOADS



# 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

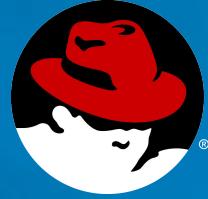
# WHY CLOUDFORMS?

- **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



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# Demo



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# THANK YOU



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