RED HAT FORUM
Europe, Middle East & Africa

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Unified Management Platform For Hybrid Cloud Environment

Grisha Sokolovsky – VP Business Development Terasky

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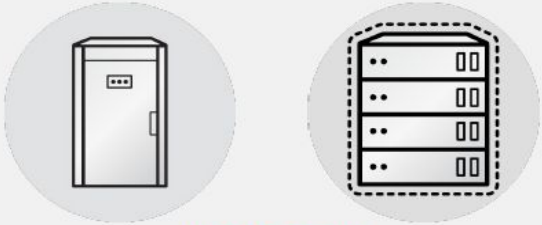
TERASKY

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



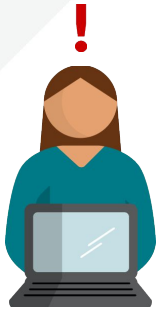
“MODE 1”

- 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.

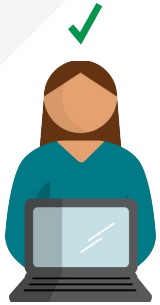
Are you authorized to request these systems?

ACTIVITIES REQUIRED

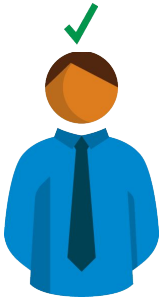
+ **Process requests** for IT resource
+ **Clarify request** and collect needed information
+ **VM creation** from template
+ **Configuration** to desired state
+ **Security** and compliance process
+ **Non-work time** for weekends, emergencies, etc.

= 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

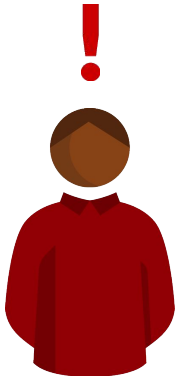
WHAT IS AN OPEN HYBRID CLOUD PLATFORM?

A MODERN PLATFORM THAT TAKES BEST ADVANTAGE OF ALL ENVIRONMENTS

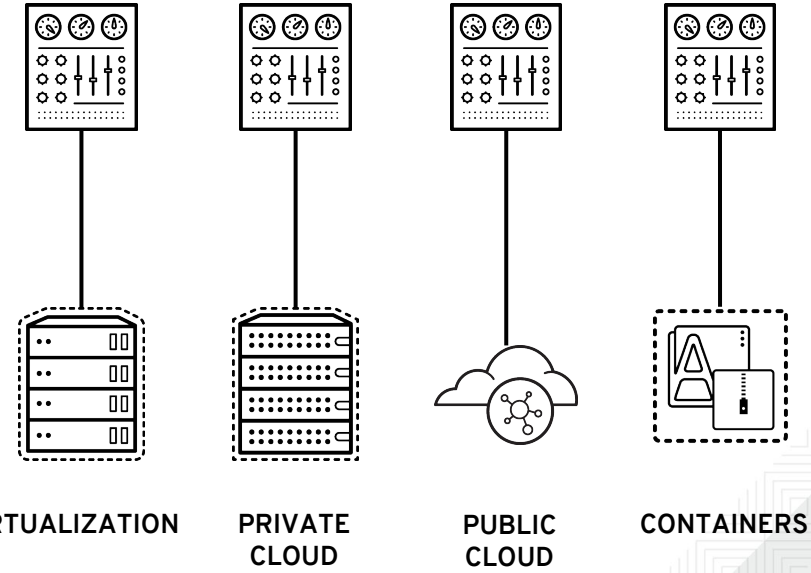
- Uses both on-premise and public cloud infrastructure
- Unifies management across all environments
- Shares resources (storage, networking, etc.) across infrastructure platforms
- Provides a container environment with orchestration
- Adheres to open, common industry standards and APIs

WHY SHOULD MANAGEMENT BE HYBRID?

TO ELIMINATE DISPARATE SYSTEMS & DUPLICATION OF EFFORT

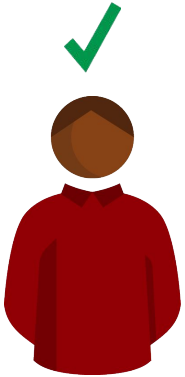


- Different management systems
- Different automation and policies

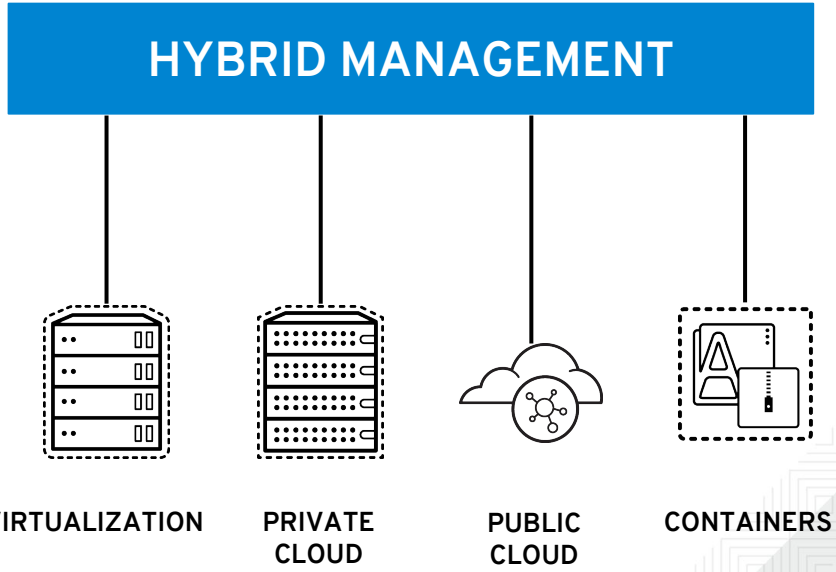


HYBRID CLOUD MANAGEMENT EFFICIENCY

COMMON SYSTEM ELIMINATES DUPLICATION OF EFFORT



- One management system
- Consistent automation & policies



BENEFITS OF UNIFIED HYBRID MANAGEMENT

DEFINE AND IMPLEMENT POLICY CONSISTENTLY

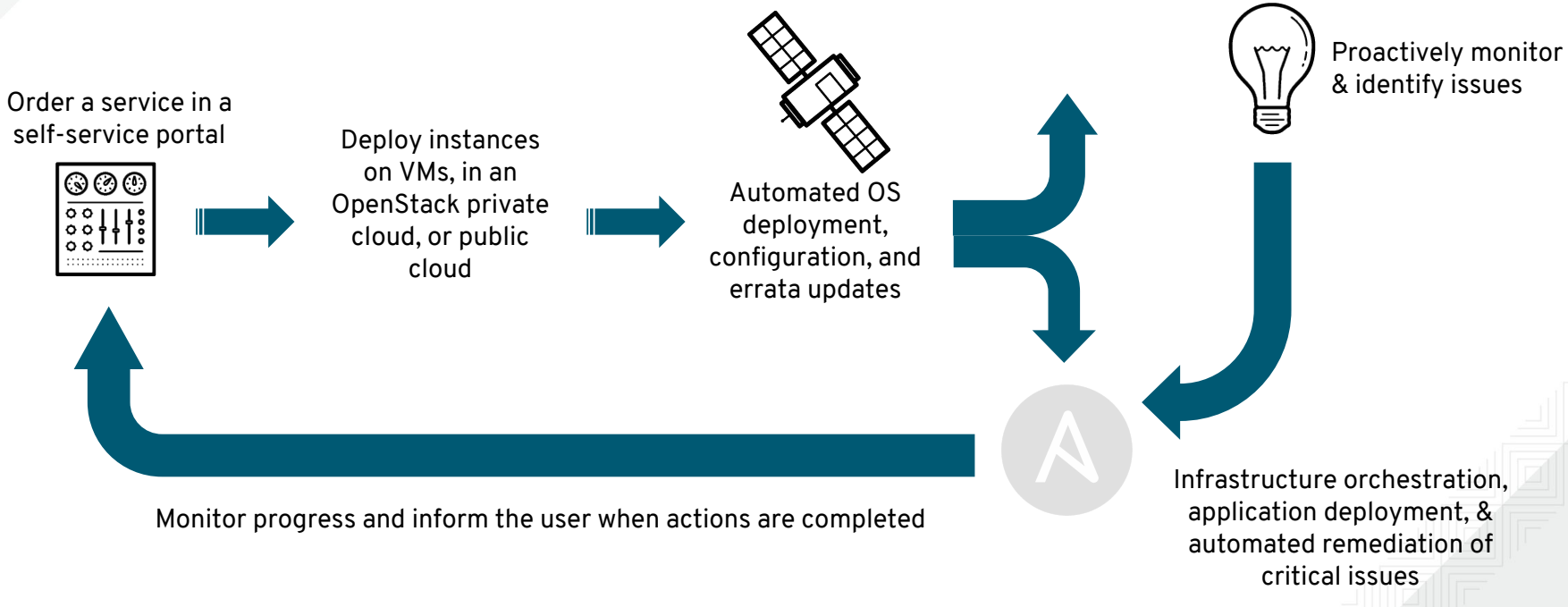
- Deliver services faster and reduce operational costs through self-service capabilities and life-cycle management
- Improve operational visibility and control
- Ensure compliance and governance through automated policy control
- Deploy composite applications to your choice of infrastructure in the same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

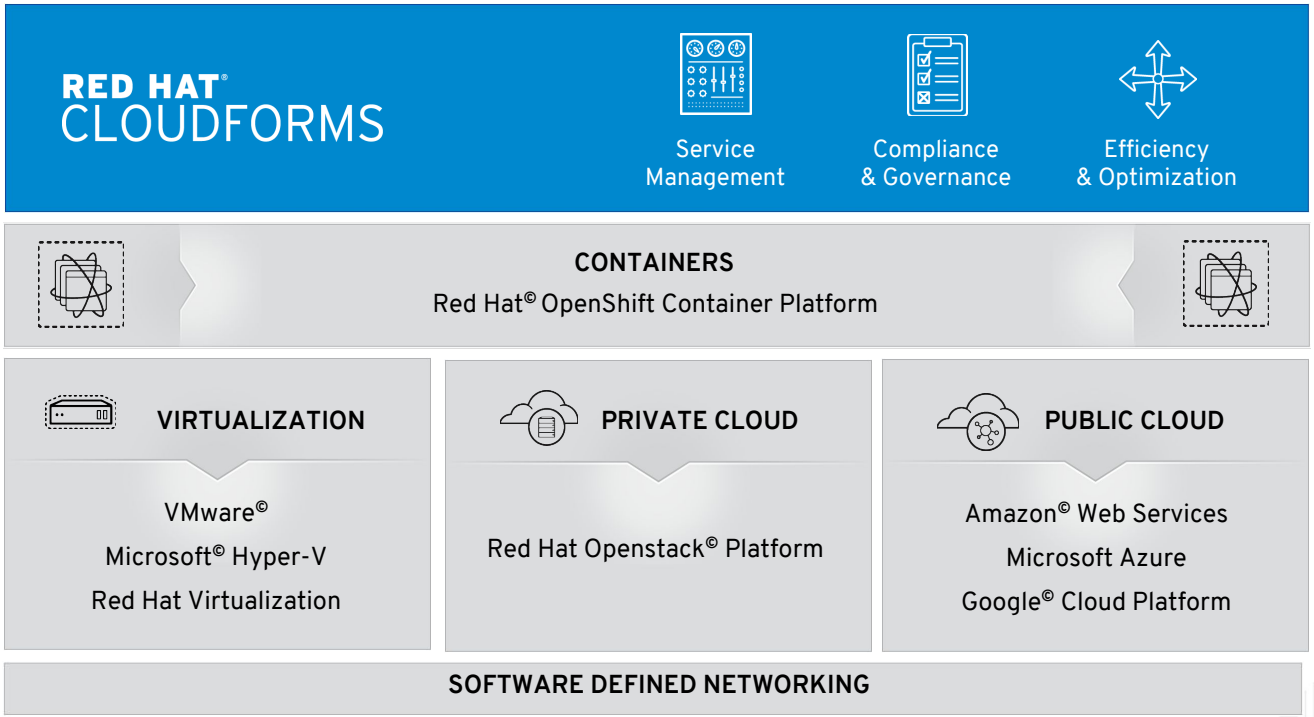
SELF-SERVICE, SYSTEM DEPLOYMENT, CONFIGURATION, & REMEDIATION



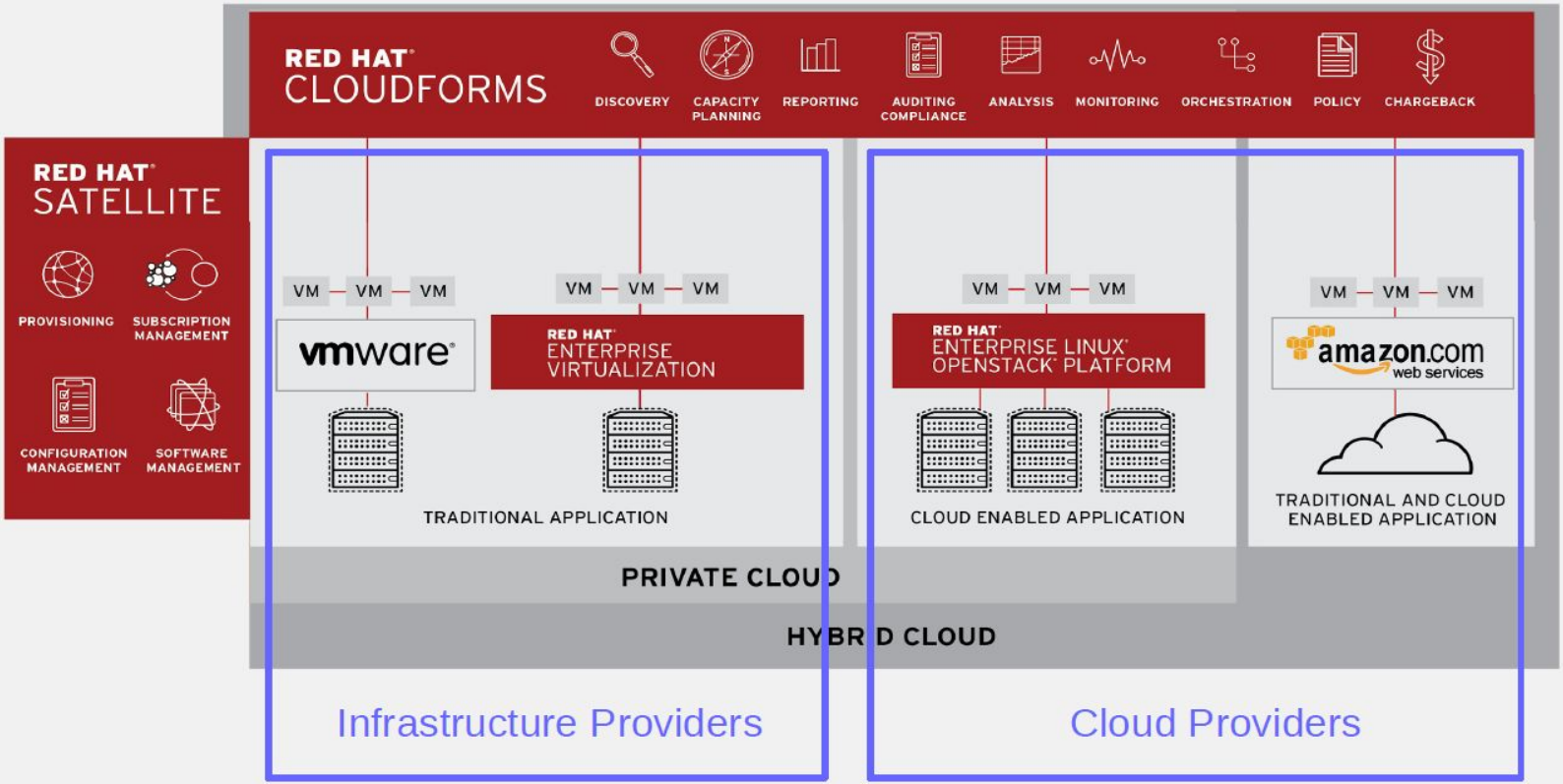
Hybrid Cloud requirements

- Virtualization
- Standardization
- Automation
- Instrumentation

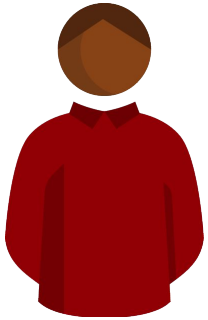
AN EVOLUTIONARY PATH TO HYBRID CLOUD



Red Hat CloudForms Provider Support

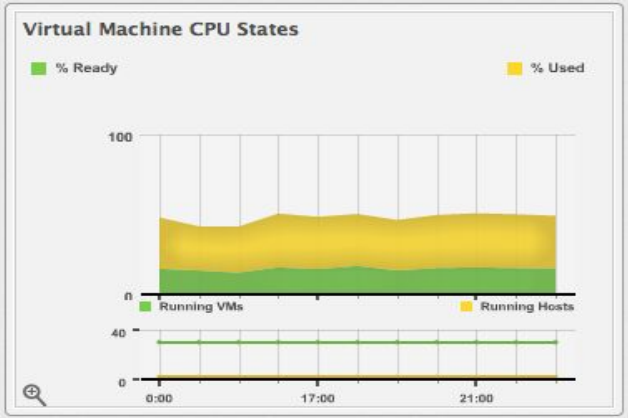


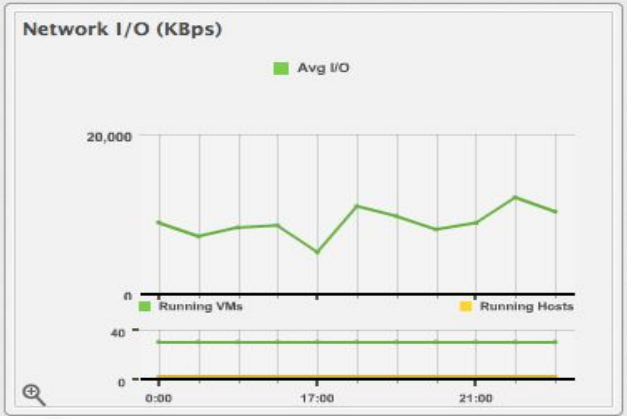
OPERATIONAL VISIBILITY WITH CLOUDFORMS

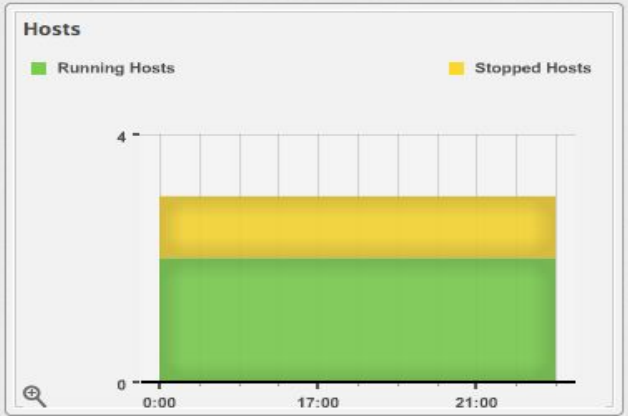


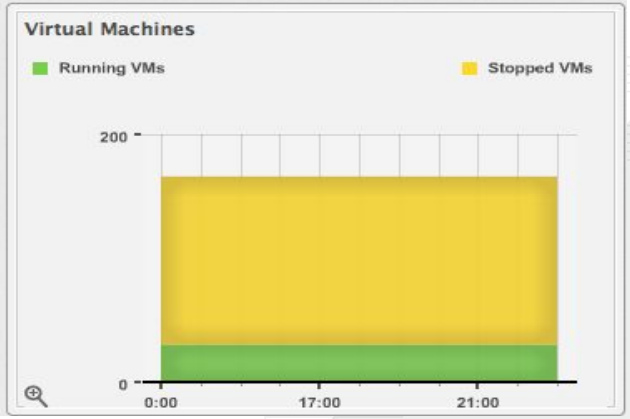
- Find unused resourced and reclaim them. Assign ownership to resources.
- Automatic resource optimization intelligently places VMs and offers right-sizing recommendations.
- I can drill-down through infrastructure layers to determine the root cause.
- Resource tracking and trending aids in capacity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

Capacity and Utilization Charts for a Cluster



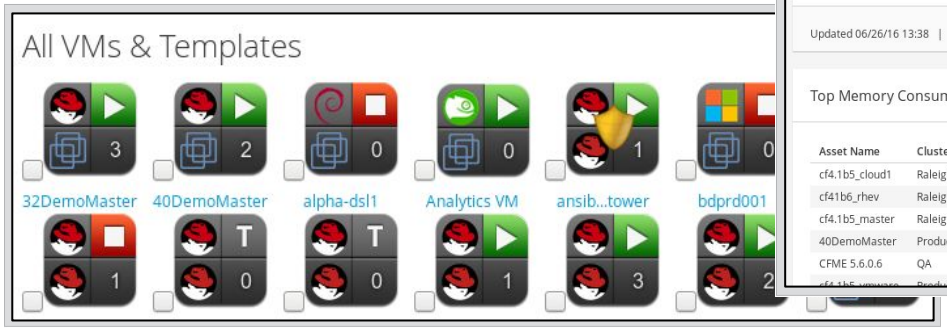


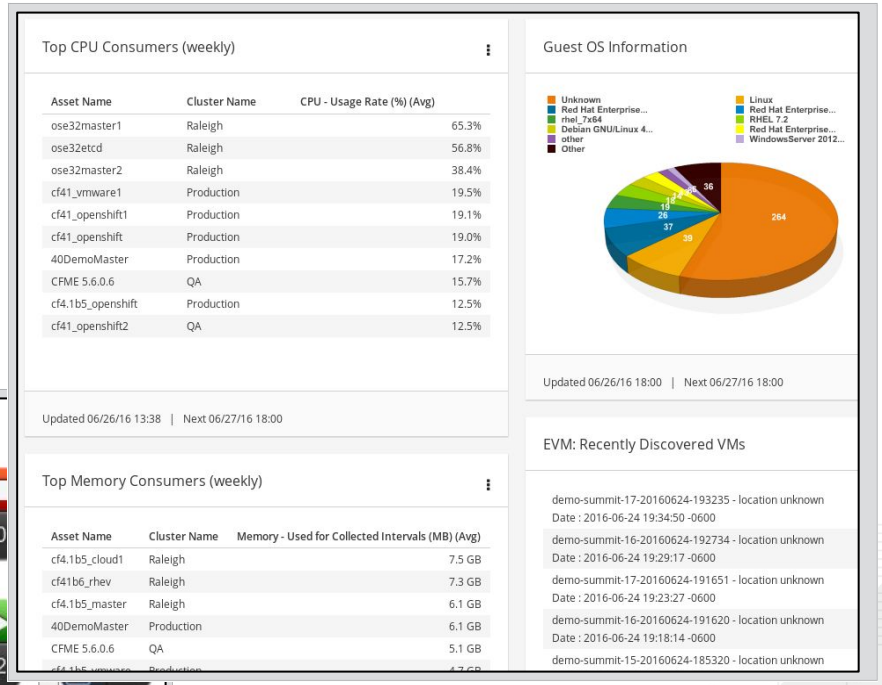




VIRTUALIZATION MANAGEMENT

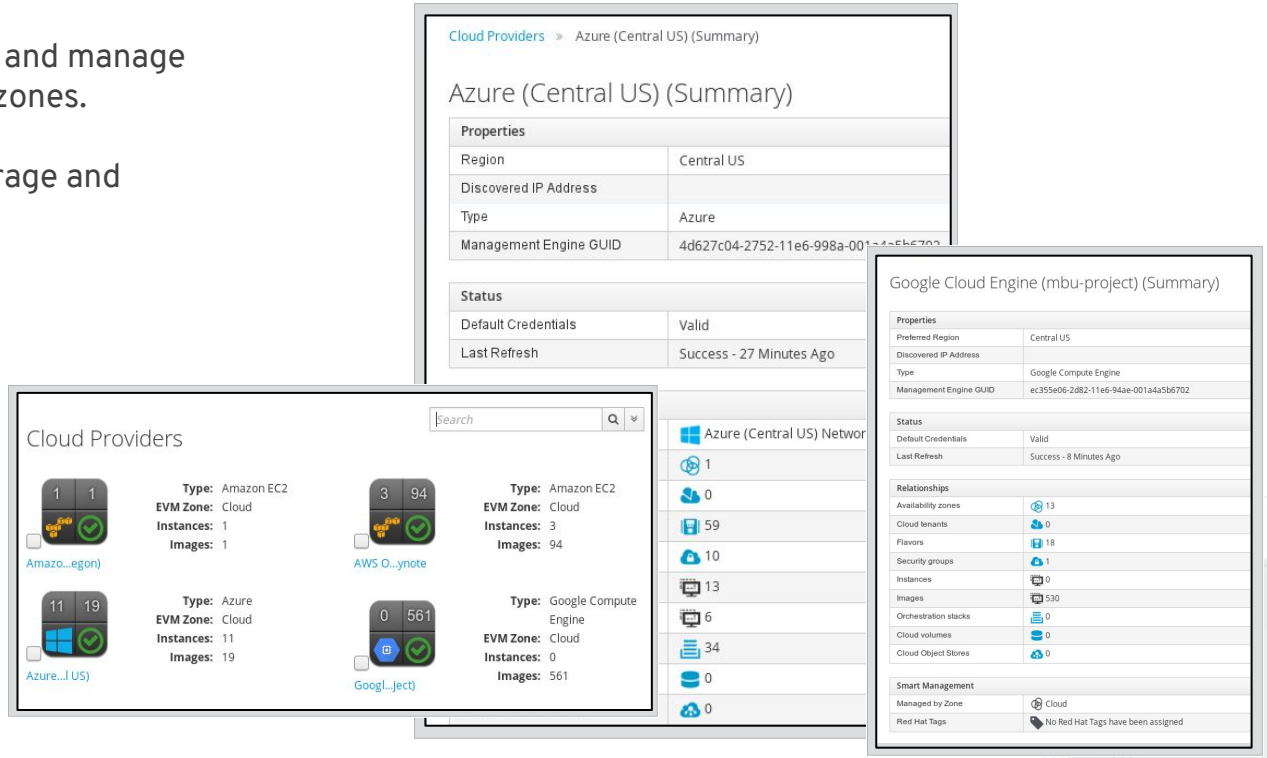
- Provision from clone of existing VM instance or template.
- View VM genealogy and track VM drift from established configurations.
- Execute VM power operations and retire VM instances.





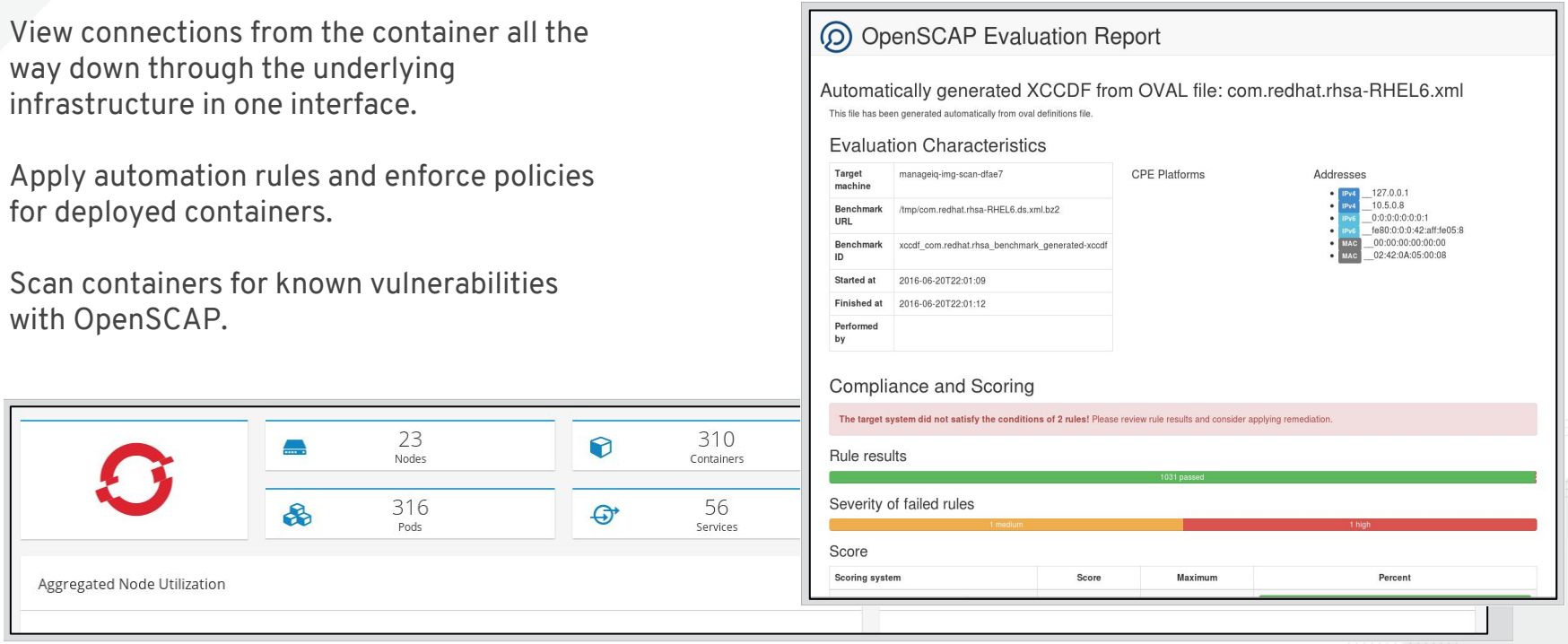
PUBLIC CLOUD MANAGEMENT

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



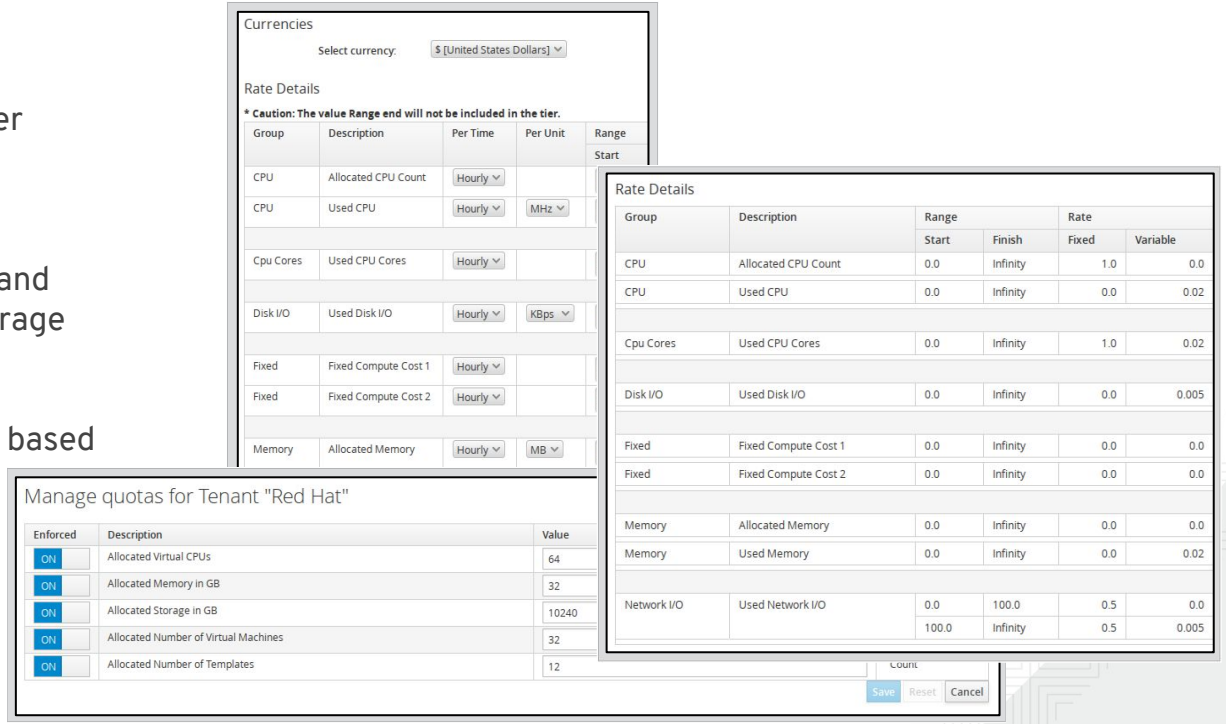
CONTAINER MANAGEMENT

- 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.



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.



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

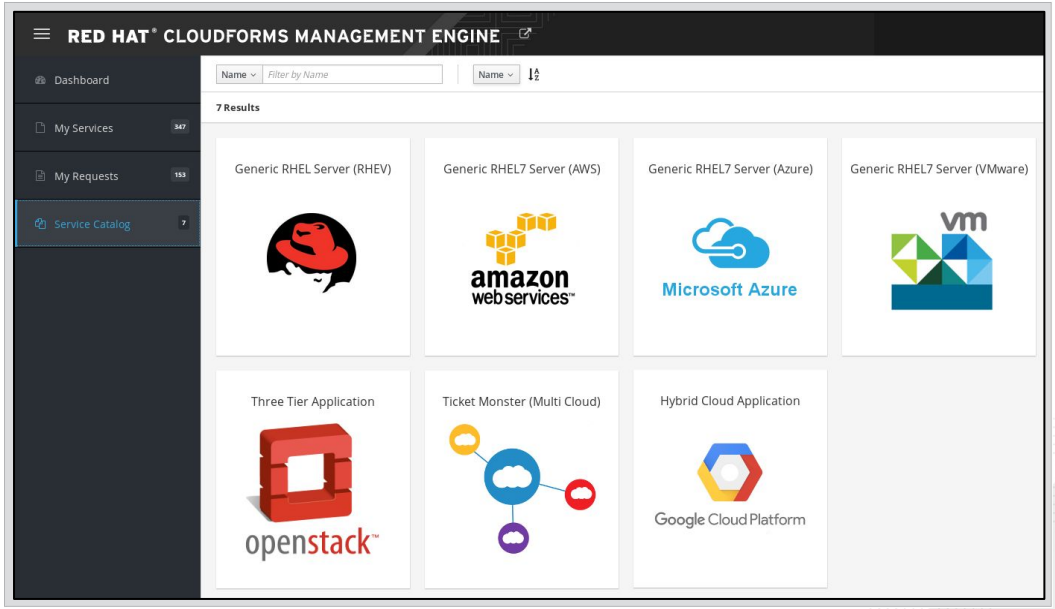
WHY TERASKY and RED HAT FOR CLOUD STRATEGY?

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 transfering 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

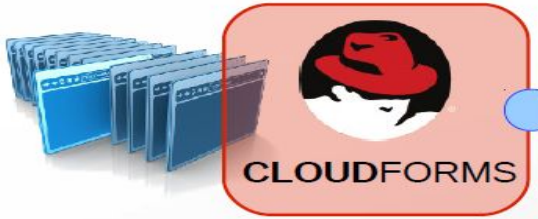
SELF-SERVICE DELIVERY

- 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

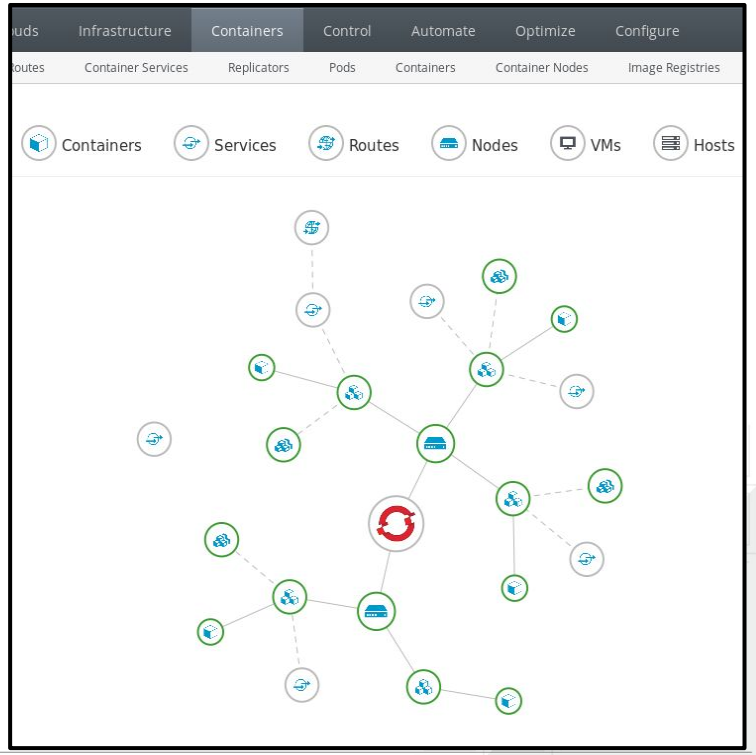
CloudForms form factor	VMware Virtual Appliance (OVA Format, 700MB)
Managed VMware infrastructure	VMware vCenter Server 5.0 and later
Discoverable VMware inventory	Hosts, VMs, networks, virtual switches, disks/volumes, Datastores
Continuous discovery	Yes, including VMware resources provisioned outside 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

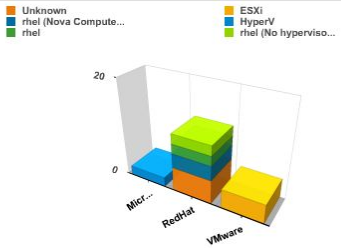
- Containers are first-class managed entities.
  - Supports Red Hat OpenShift and Red Hat Atomic Enterprise via kubernetes API
- Displays relationships between containers, pods, nodes, VMs, ...
- SmartState analysis of container contents



IMPROVED DASHBOARDS AND REPORTING

Global | Private Cloud | Public Cloud | Health

Virtual Infrastructure Platforms



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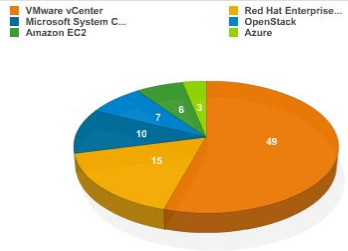
Workload by Provider



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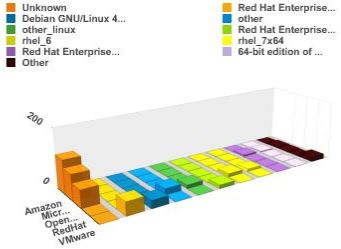
Vendor and Guest OS Chart



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Top CPU Consumers (Last Hour)

VM Name	CPU Usage	Allocated vCPUs	VM Vendor
DemoMaster	4.6%	4	VMware
Analytics VM	3.7%	2	VMware
cf31_AWS_testbed	2.9%	4	VMware
UI VM	2.9%	2	VMware
VMware vCenter Server Appliance	2.1%	2	VMware

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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!

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Web : WWW.TERASKY.COM
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LinkedIn : HTTPS://WWW.LINKEDIN.COM/COMPANY/1510957/
Personally: GRISHA@TERASKY.COM