



RED HAT  
**FORUM**  
Beijing

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21 October 2014

# CONTROL AND MANAGE COMPLEXITY IN THE HYBRID CLOUD

Glenn West  
Cloud Business Unit Manager  
Red Hat Asia Pacific  
October 21, 2014

Complexity and costs grows over time  
**Operational expenses** account for  
over

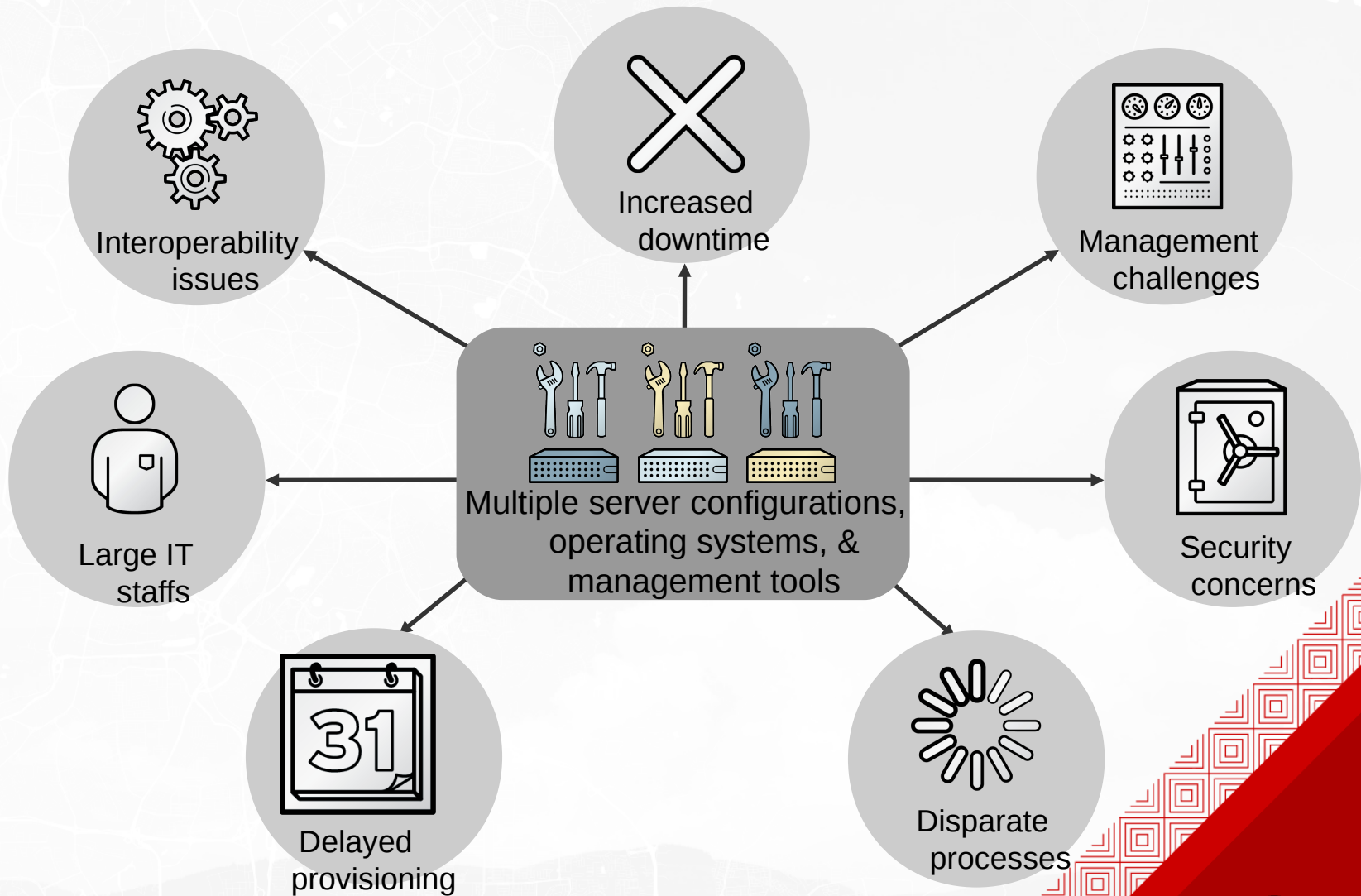
**50%**

of overall **IT infrastructure costs**



**More complexity =  
Higher operational costs**

# THE COST OF COMPLEXITY



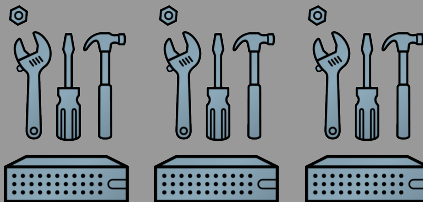
# BENEFITS OF STANDARDIZED OPERATING ENVIRONMENTS

- Simplified infrastructure
- Easier management and administration
- Less downtime
- Increased automation and efficiency
- Higher productivity



**Reduce costs**  
**Increase business agility**


# THE BENEFITS OF SIMPLICITY



Simplified, consistent infrastructure



Streamlined management and administration processes




Automation




Reduced downtime



Lower operational costs



Higher server/admin ratios



Improved productivity



Reduced help desk workload



Faster IT response times

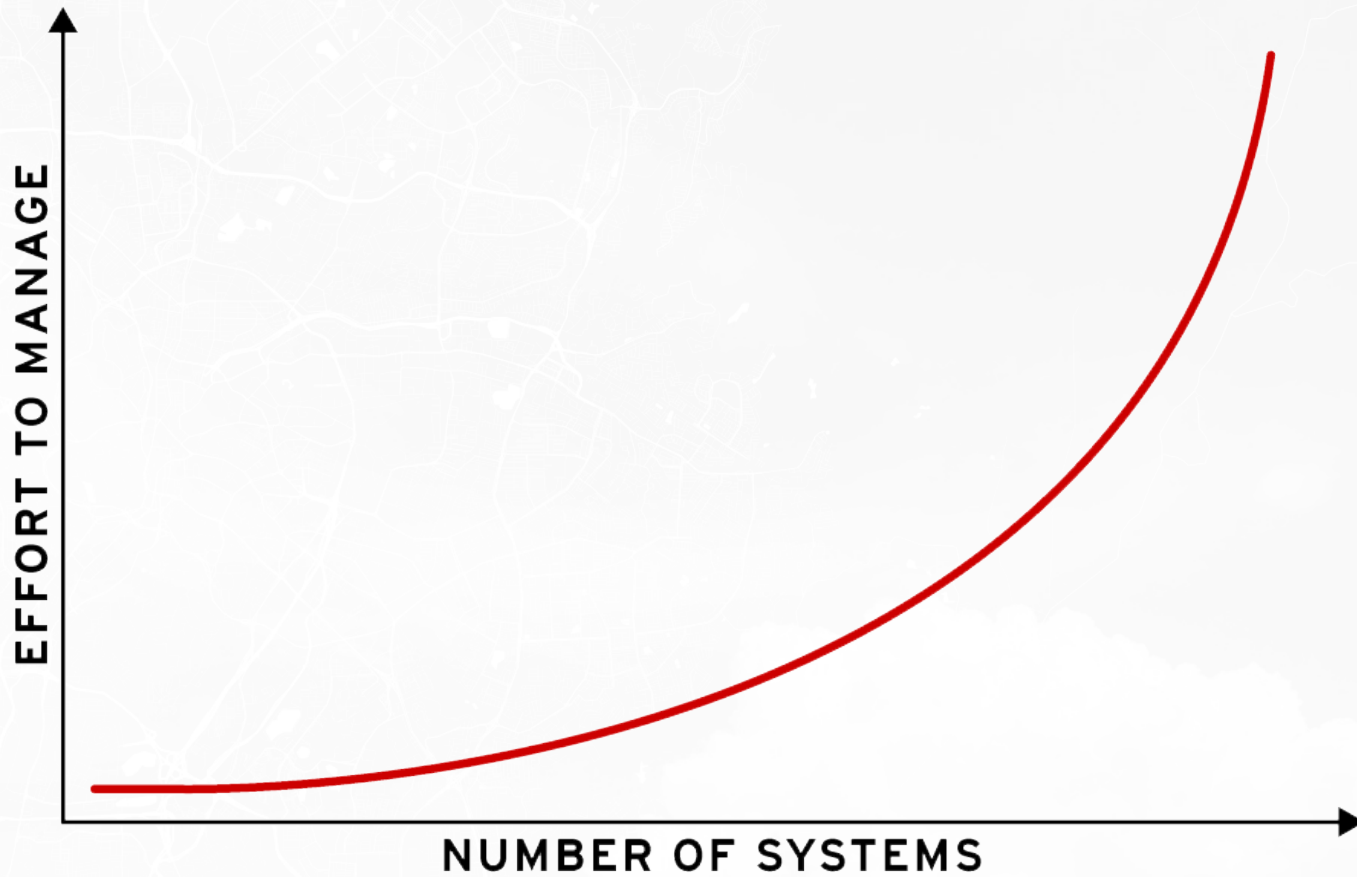


Increased security & control

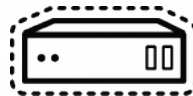


Greater business agility

# COMPLEXITY OF CLOUD



PHYSICAL

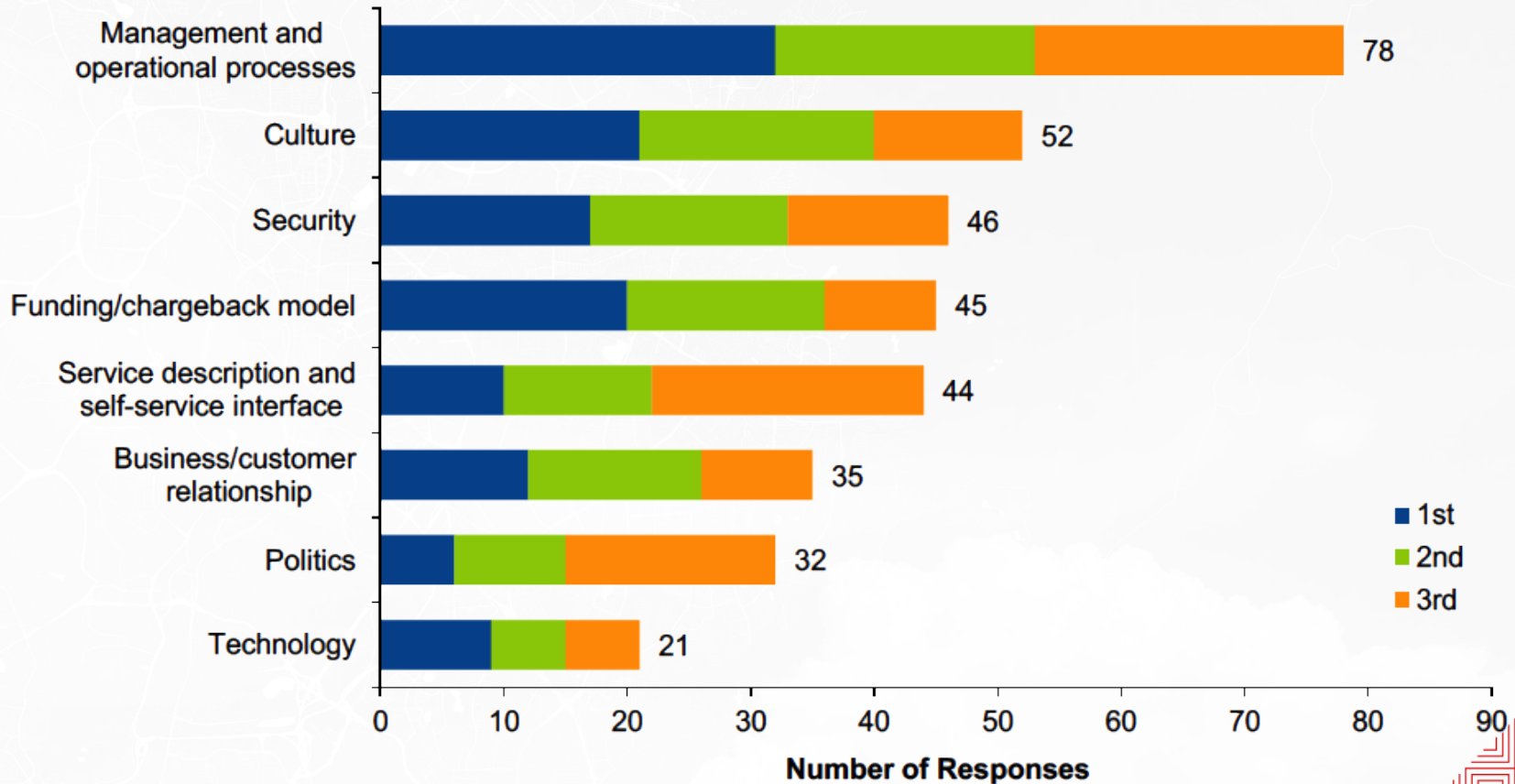


VIRTUAL



CLOUD

# Private Cloud Computing Challenges



Source: Gartner (September 2013)

Management and operational processes was chosen by more people by far as the biggest challenge.

# OPEN, FLEXIBLE ARCHITECTURES ESSENTIAL FOR SUCCESS



## TRADITIONAL WORKLOADS

- Typically resides on a single, large VM
- Cannot tolerate any downtime
- Need \$\$ enterprise virtualization tools
- Application scales up, not out

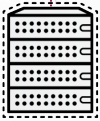
## CLOUD WORKLOADS

- Workload resides on multiple VMs
- Tolerates VM failure
- Fault tolerance often built into workload
- Application scales out, not up



# RED HAT'S EVOLUTIONARY PATH TO CLOUD

EXISTING  
VIRTUALIZATION



# CLOUD MANAGEMENT PLATFORM

Transformation to Private Cloud

**CLOUD  
MANAGEMENT  
PLATFORM**



DISCOVERY



CAPACITY  
PLANNING



REPORTING



AUDITING  
COMPLIANCE



ANALYSIS



MONITORING



ORCHESTRATION



POLICY



CHARGEBACK

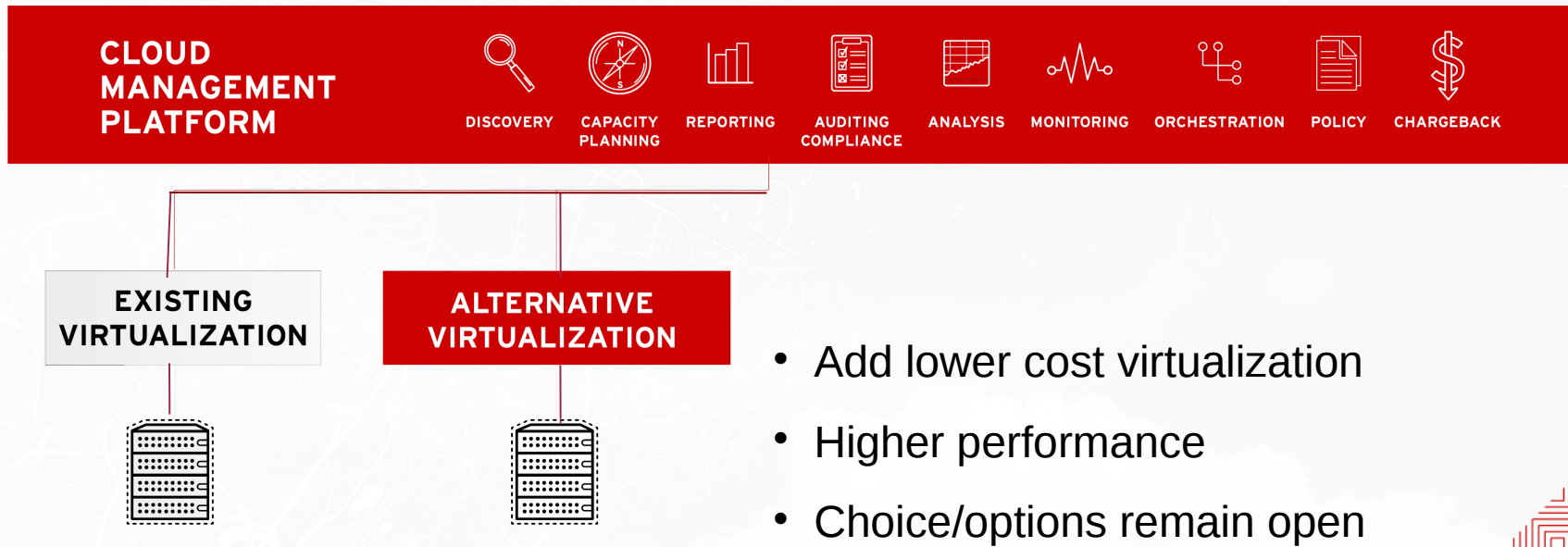
**EXISTING  
VIRTUALIZATION**



## CMP Capabilities

- Self-Service Automated Provisioning
- Service Catalog
- Chargeback
- Capacity Management
- Performance Management
- Configuration & Change Management
- Life-cycle Management
- Orchestration
- External Cloud Connection

# ADDITIONAL VIRTUALIZATION CAPACITY



# TRADITIONAL APPLICATIONS / WORKLOADS

Heterogeneous Virtual Platforms

**CLOUD MANAGEMENT PLATFORM**

- DISCOVERY
- CAPACITY PLANNING
- REPORTING
- AUDITING COMPLIANCE
- ANALYSIS
- MONITORING
- ORCHESTRATION
- POLICY
- CHARGEBACK

**EXISTING VIRTUALIZATION**

**ALTERNATIVE VIRTUALIZATION**



TRADITIONAL APPLICATION

# OPENSTACK

## CLOUD MANAGEMENT PLATFORM



DISCOVERY



CAPACITY PLANNING



REPORTING



AUDITING COMPLIANCE



ANALYSIS



MONITORING



ORCHESTRATION

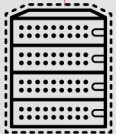


POLICY



CHARGEBACK

EXISTING  
VIRTUALIZATION

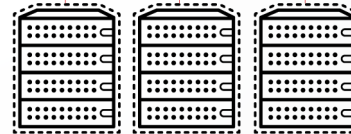


TRADITIONAL APPLICATION

ALTERNATIVE  
VIRTUALIZATION



OPENSTACK  
PLATFORM



CLOUD ENABLED APPLICATION

- Add large scale cloud workloads
- Add application resource self-adapting
- Rapid innovation

# CLOUD ENABLED APPLICATIONS / WORKLOADS

OpenStack

## CLOUD MANAGEMENT PLATFORM



DISCOVERY



CAPACITY PLANNING



REPORTING



AUDITING COMPLIANCE



ANALYSIS



MONITORING



ORCHESTRATION

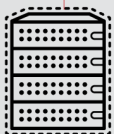


POLICY



CHARGEBACK

EXISTING  
VIRTUALIZATION

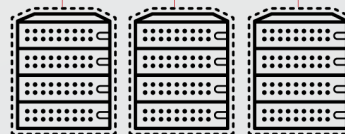


TRADITIONAL APPLICATION

ALTERNATIVE  
VIRTUALIZATION



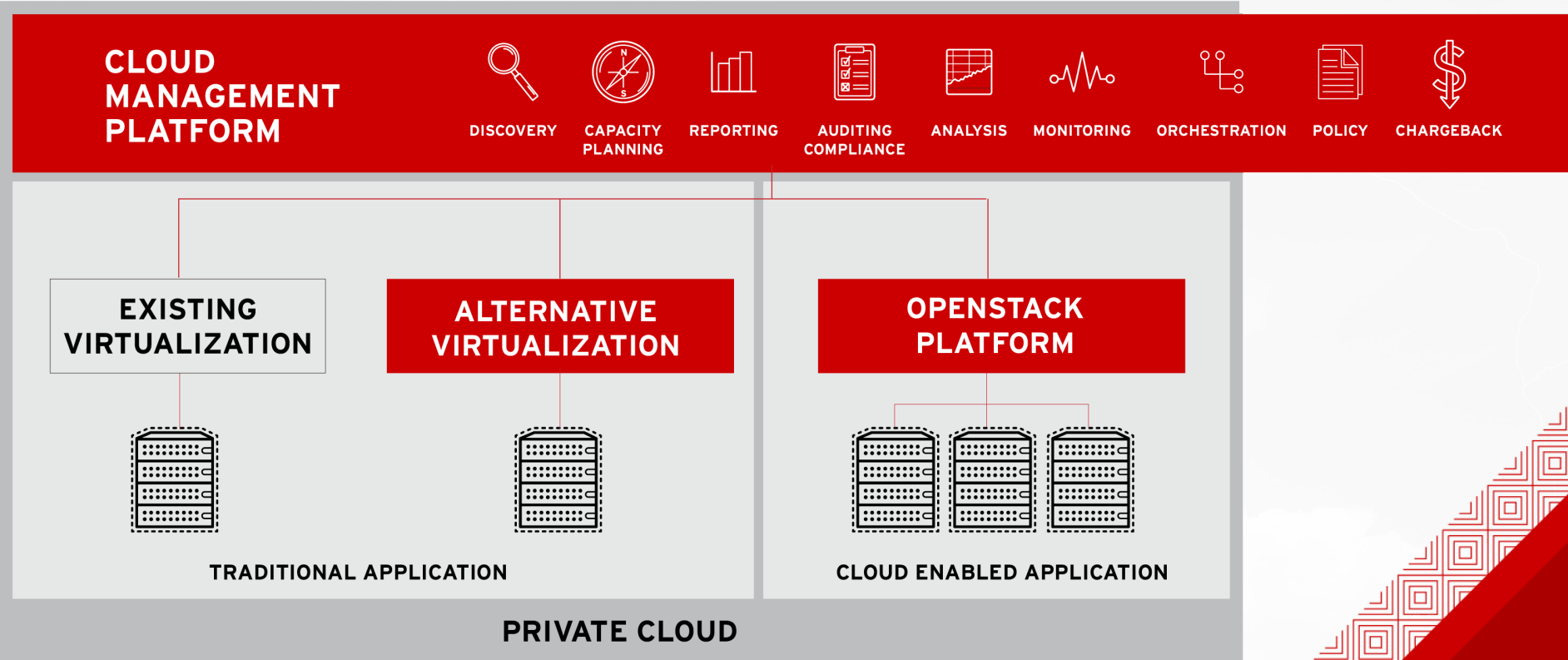
OPENSTACK  
PLATFORM



CLOUD ENABLED APPLICATION

# PRIVATE CLOUD

## Traditional & Cloud Enabled Applications



# PUBLIC CLOUD CAPACITY

## CLOUD MANAGEMENT PLATFORM



DISCOVERY



CAPACITY PLANNING



REPORTING



AUDITING COMPLIANCE



ANALYSIS



MONITORING



ORCHESTRATION

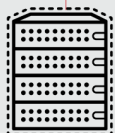


POLICY



CHARGEBACK

EXISTING  
VIRTUALIZATION

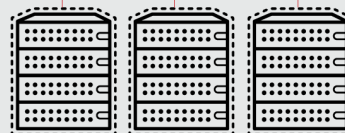


TRADITIONAL APPLICATION

ALTERNATIVE  
VIRTUALIZATION



OPENSTACK  
PLATFORM



CLOUD ENABLED APPLICATION

PUBLIC  
CLOUD



PRIVATE CLOUD



# TRADITIONAL & CLOUD ENABLED APPLICATIONS

Public Cloud

## CLOUD MANAGEMENT PLATFORM



DISCOVERY



CAPACITY PLANNING



REPORTING



AUDITING COMPLIANCE



ANALYSIS



MONITORING



ORCHESTRATION

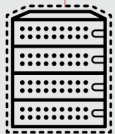


POLICY



CHARGEBACK

EXISTING  
VIRTUALIZATION



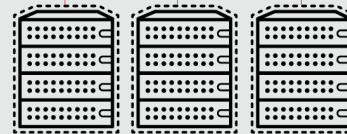
TRADITIONAL APPLICATION

ALTERNATIVE  
VIRTUALIZATION



PRIVATE CLOUD

OPENSTACK  
PLATFORM



CLOUD ENABLED APPLICATION

PUBLIC  
CLOUD



TRADITIONAL AND CLOUD  
ENABLED APPLICATION

# HYBRID CLOUD

Private Cloud + Public Cloud

## CLOUD MANAGEMENT PLATFORM



DISCOVERY



CAPACITY PLANNING



REPORTING



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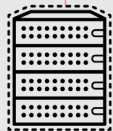


POLICY



CHARGEBACK

EXISTING  
VIRTUALIZATION

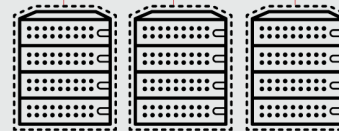


TRADITIONAL APPLICATION

ALTERNATIVE  
VIRTUALIZATION



OPENSTACK  
PLATFORM



CLOUD ENABLED APPLICATION

PUBLIC  
CLOUD



TRADITIONAL AND CLOUD  
ENABLED APPLICATION

PRIVATE CLOUD

HYBRID CLOUD

# RED HAT CLOUD INFRASTRUCTURE

Cloud Management – Alternative Virtualization – OpenStack

**RED HAT®  
CLOUDFORMS**



DISCOVERY



CAPACITY  
PLANNING



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MONITORING



ORCHESTRATION

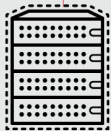


POLICY



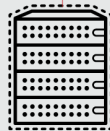
CHARGEBACK

**vmware**

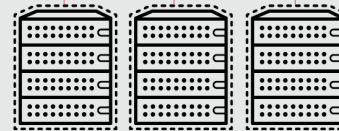


TRADITIONAL APPLICATION

**RED HAT®  
ENTERPRISE  
VIRTUALIZATION**



**RED HAT®  
ENTERPRISE LINUX®  
OPENSTACK® PLATFORM**



CLOUD ENABLED APPLICATION



TRADITIONAL AND CLOUD  
ENABLED APPLICATION

**PRIVATE CLOUD**

**HYBRID CLOUD**

# CLOUDFORMS – Customer Success



## Unified Monitoring, Management & Automation to Create a Global Cloud

### Key Objectives:

- Accelerate service delivery
- Increase ops efficiency – reduce admin overhead
- Maximize utilization of compute resources & IT investment

## KEY CHARACTERISTICS

- One of the world's leading financial services companies
- Broad range of financial products
- 64,000 employees; offices in 50 countries
- Very Large, distributed, IT infrastructure – Americas, EMEA, APAC
- 7 DCs / 600 Hosts / 5,000 VMs (goal: 30,000 VMs)
- Mixed environment – Linux, Windows

## CHALLENGES FACED

- Lack of visibility across global virtual infrastructure
- Business requests taking weeks to fulfill
- Trouble managing current capacity & planning future capacity needs
- Manual reconfiguration of workloads – inefficient, time consuming
- Unable to enforce admin access policies in compliance with corporate standards
- Unable to offer self-service provisioning; no integration into Service Catalog

## BENEFITS GAINED

- Implemented single-pane global visibility to easily monitor entire global virtual infrastructure
- Improved service delivery from 3 weeks to 15 minutes – self-service
- Fully integrated CloudForms & Service Now service catalog
- Enabled fully automated workload & resource management
- Strictly enforced management policies – SmartTagging & classification

# CLOUDFORMS – Customer Success



## Global Cloud for Development, Test & Support Centers

### Key Objectives:

- Increase service delivery
- Increase ops efficiency
- Maximize utilization of compute resources

## KEY CHARACTERISTICS

- Global provider of customer communications
- Supplier of a range of equipment, software & services
- 29,000 employees; offices in 100 countries
- Datacenters in the US, England & India
- 80 Hosts / 1,000s of VMs
- Mixed environment – Linux, Windows

## CHALLENGES FACED

- Lacked consolidated view of the infrastructure
- Existing provisioning platform decommissioned by vendor
- Multiple tools for provisioning versus operations
- Inefficient use of existing capacity, over-allocation, under utilized storage
- No way to enforce standards for both configuration & operations

## BENEFITS GAINED

- Tool consolidation through implementation of a single plane of glass portal for provisioning & operations
- Policy-based automation of workload and placement
- Increased infrastructure density by identification of brownfield over-provisioned workloads
- Increased efficiency through enforcement of configuration & operational standards

# CLOUDFORMS – Customer Success



## Cloud for Development and Test Environments

### Key Objectives:

- Increase productivity
- Increase ops efficiency – reduce admin overhead
- Maximize utilization of compute resources

## KEY CHARACTERISTICS

- World's leading analytics data solution company
- Broad range of data warehousing and analytics products & services
- 10,000 employees; offices in 42 countries
- Large R&D organization – 80+ teams; Multiple products/platforms
- Rapid build up and tear down of servers
- 110 Hosts / 3,000 VMs (fluctuates based on release cycles)
- Mixed environment – Linux, Windows

## CHALLENGES FACED

- R&D IT unable to keep up with requests
- Time wasted “cleaning” systems
- Trouble managing current capacity & planning future capacity needs
- Manual “cleaning” of workloads – inefficient, time consuming
- Unable to enforce quotas on users & teams, no workload lifecycle control
- Users granted access to platform administrative tools

## BENEFITS GAINED

- Implemented a Cloud for dev & test teams to scale systems for continuous testing across multiple features & releases
- Reduced service delivery times with self-service provisioning & integrated build processing
- Increase infrastructure utilization with automated quotas & lifecycle policies. Average servers “in use” grew 5x in 2011
- Increased productivity & quality through “clean systems” provisioning
- Freed up IT to delivery new services; i.e. training platform across engineering

# CLOUDFORMS – Customer Success



## Policy-based Virtual Infrastructure Management

### Key Objectives:

- Ensure compliance
- Increase infrastructure efficiency
- Increase service levels

## KEY CHARACTERISTICS

- Global leader in diversified healthcare
- Research, development & manufacturing of medicines & vaccines
- 100,000 employees; offices in 100 countries
- Distributed R&D organization – 3 large datacenters, 30-40 midsize datacenters
- 100 Hosts / 1,000s of VMs
- Mixed environment – Linux, Windows

## CHALLENGES FACED

- Unable to enforce operational compliance so some workloads could not be virtualized
- No consolidated view of distributed infrastructure making capacity management & planning difficult
- Over allocated workloads with unidentified waste
- Problem determination difficult with no intra-workload visibility
- Users granted access to platform administrative tools

## BENEFITS GAINED

- Automated policy enforcement ensures compliance & allowed for the increase of workload virtualization
- Reduced MTTR with workload insight
- Increased infrastructure utilization with automated snapshot policies & identification of over-allocated VMs
- Consolidated capacity management & planning
- Management dashboards & reporting

# RED HAT MANAGEMENT PORTFOLIO

## Cloud Management Platform

**RED HAT<sup>®</sup>  
CLOUDFORMS**



DISCOVERY



CAPACITY  
PLANNING



REPORTING



AUDITING  
COMPLIANCE



ANALYSIS



MONITORING



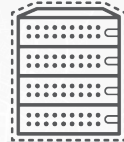
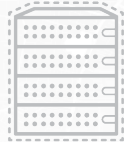
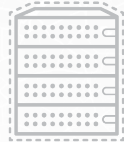
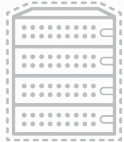
ORCHESTRATION



POLICY



CHARGEBACK



Virtualization  
Management

**RED HAT<sup>®</sup>  
ENTERPRISE  
VIRTUALIZATION**

- High Availability
- Load Balancing
- Power Saver
- Deployment (image)

Linux guest

RED HAT



VIRTUAL  
MACHINE

RED HAT



VIRTUAL  
MACHINE

RED HAT KVM  
LINUX KERNEL

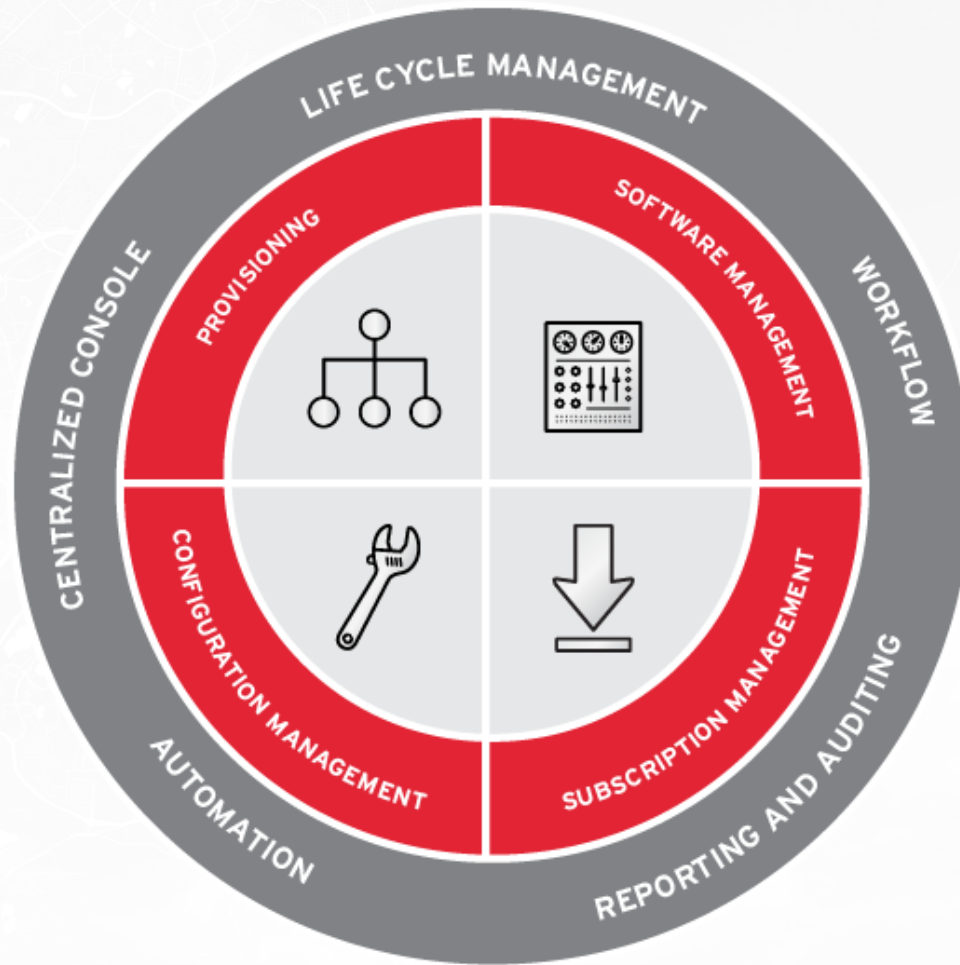
**RED HAT<sup>®</sup>  
SATELLITE**

- Lifecycle Management
- Provisioning (build)
- Software Management
- Configuration Management
- Subscription Management

Cloud Systems  
Management



# RED HAT SATELLITE 6.0



**THANK YOU**