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# Getting Started Building Private Red Hat Clouds

Scott Collier, RHCA  
Principal Software Engineer

Vinny Valdez, RHCA  
Principal Software Engineer

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Principal Software Engineer

May 2011

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# Agenda

- **Why Are We Here?**
- Red Hat Reference Architecture Team
- Cloud Terminology
- Products and Strategy
- Red Hat Cloud Foundations: IaaS Clouds
- Requirements
- Deploying RHCF
- Conclusion

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# Why Are We Here?

- Building Private IaaS Clouds with Red Hat
- Red Hat Cloud Foundations
- Where This Fits With CloudForms
- Technical Audience 3/5

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# History of Red Hat Cloud Foundations

- Original Reference Architecture
- Automating Private Clouds
- Hybrid Cloud
- RHCF The Movie
- RHCF Update

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# Red Hat Reference Architecture Team

- Collaborate with Engineering, Marketing, Partners
- Hardware Lab
- Existing Reference Architectures
- What We Do
- Our Consumers

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# NIST Cloud Terminology

- Essential Characteristics
- Service Models
- Deployment Models

Time: 3-5 min

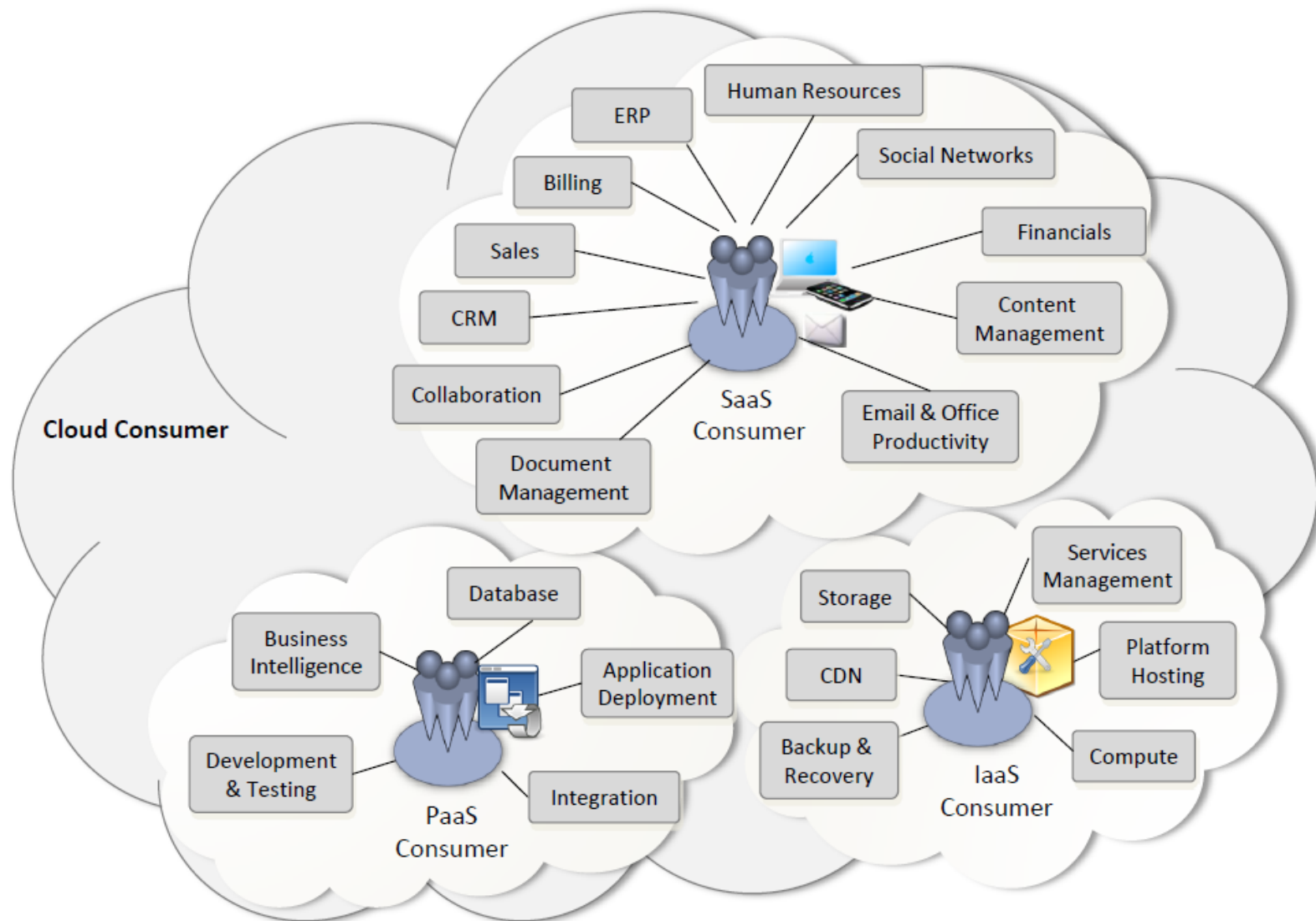
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# NIST Service Models



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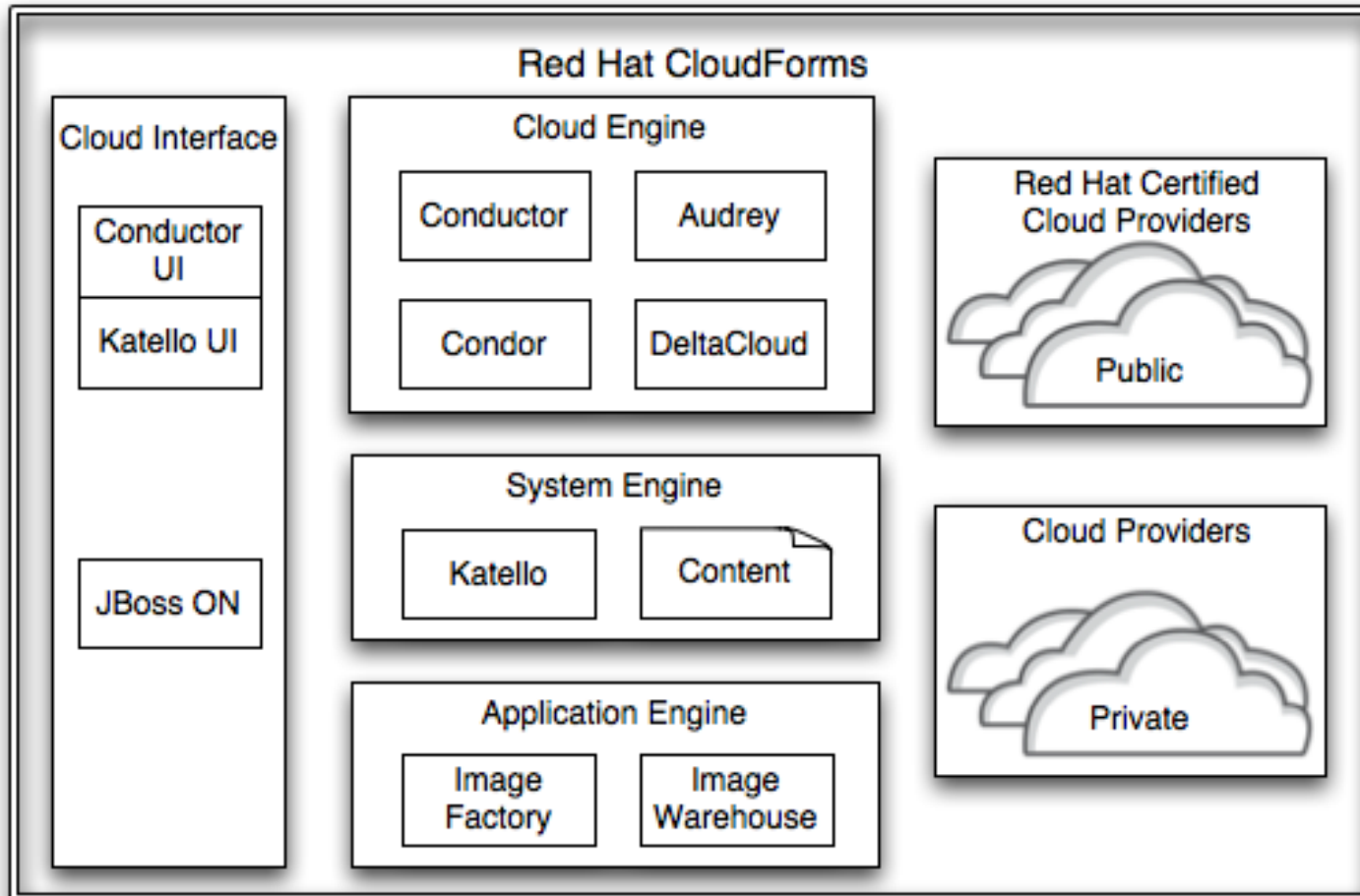
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# Red Hat CloudForms



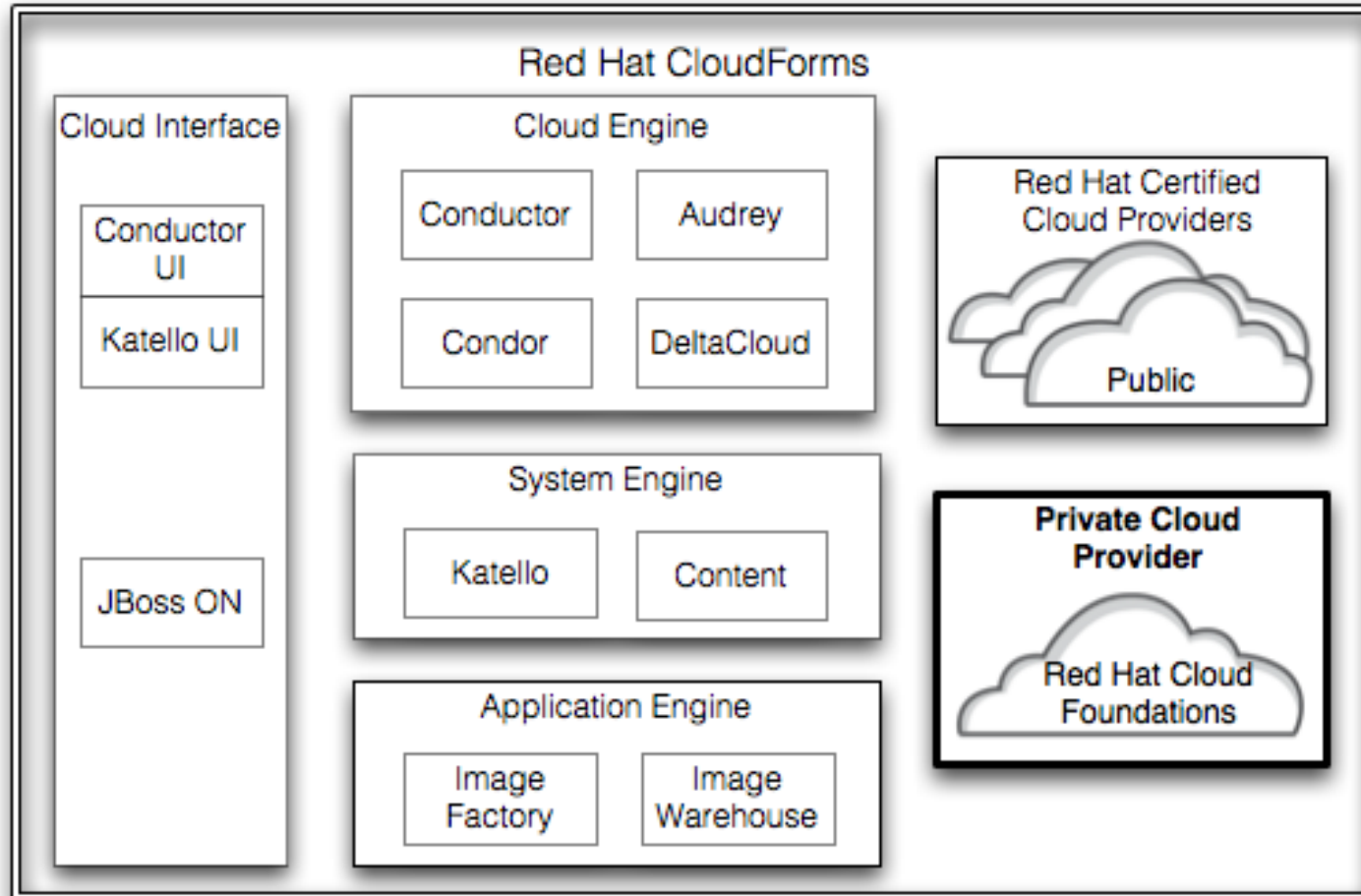
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# Red Hat Cloud Foundations



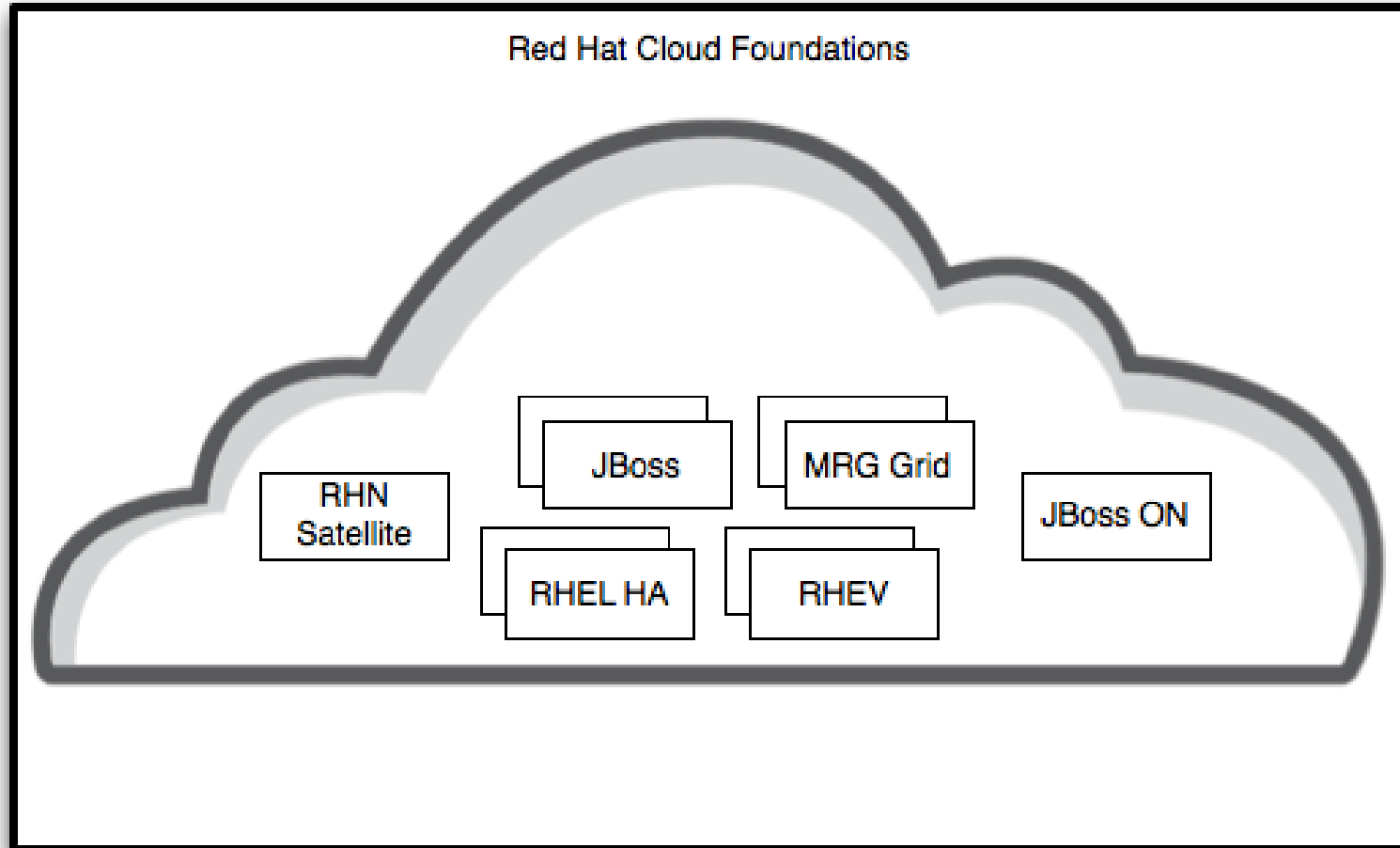
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# Red Hat Cloud Foundations Components



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# Red Hat Cloud Foundations

- Red Hat Enterprise Linux
- High Availability
- RHN Satellite
- Red Hat Enterprise Virtualization
- JBoss Operations Network
- JBoss Enterprise Applications Platform

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# Cloud Concepts

- Management
- Virtualization
- Applications
- Automation
- High Availability
- On Demand Self-Service
- Resource Pooling
- Monitoring
- Archival Storage
- Reporting
- Rapid Elasticity

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# Cloud Concepts - RHCF

- **Management**
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# RHCF Components

- **Management**
- **Virtualization**
- **Applications**
- **Automation**
- **High Availability**

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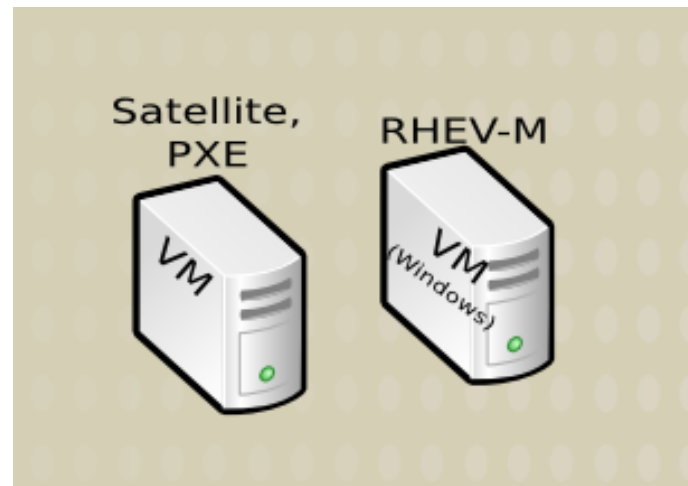
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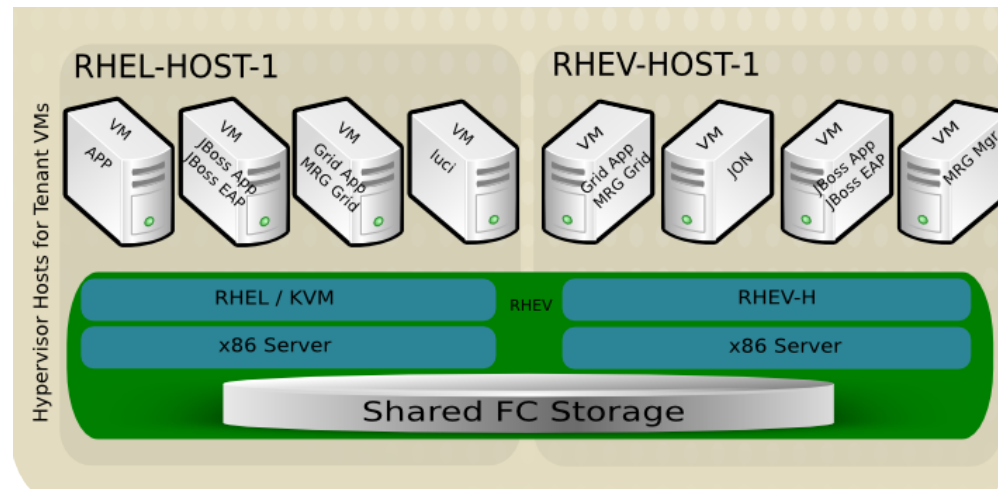
# RHCF Components - Management

- RHN Satellite
- JBoss ON
- MRG Manager
- RHEV-M
- HA Manager (luci)



# RHCF Components - Virtualization

- Kernel Virtual Machine (KVM)
- Red Hat Enterprise Virtualization



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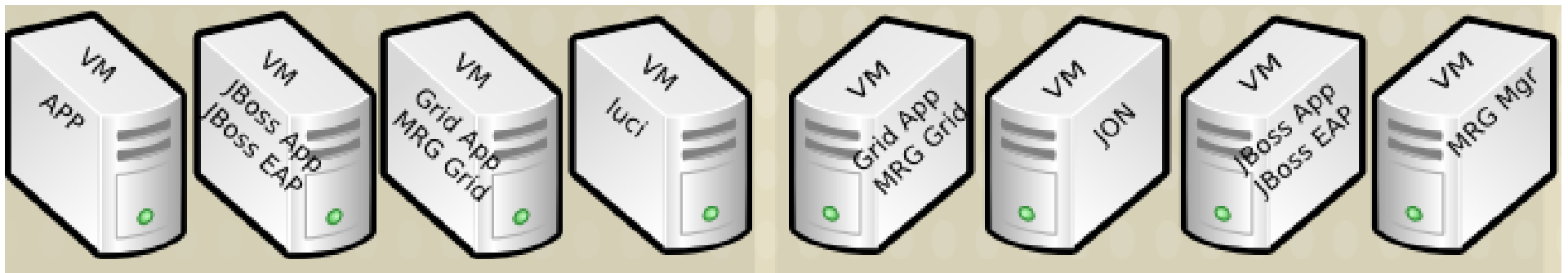
# RHCF Components - Applications

## Platforms

- JBoss EAP
- MRG Grid

## Applications

- Seam Booking App
- JavaApp
- Perfect Number
- Your App



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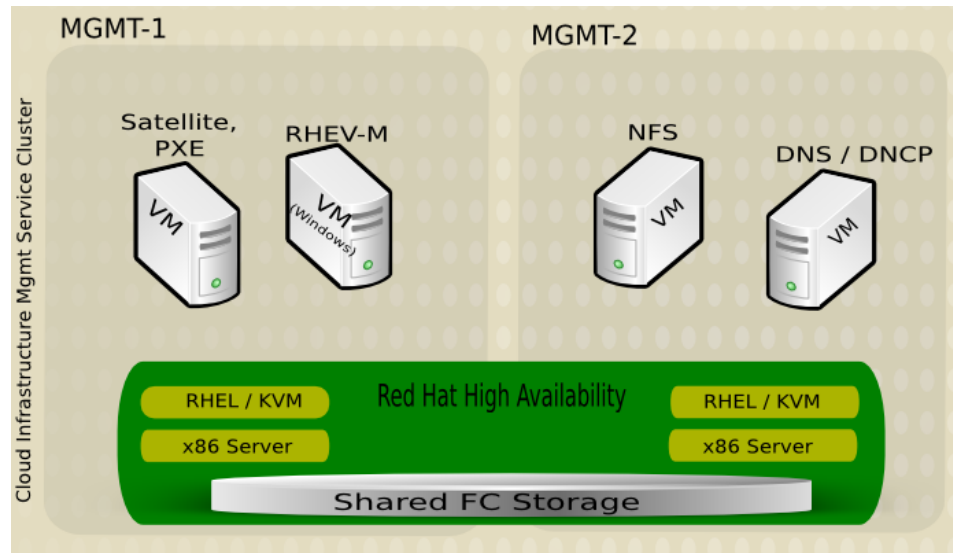
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# RHCF Components – High Availability

- Red Hat High Availability
- Red Hat Enterprise Virtualization
- JBoss Clustering



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# RHCF Components - Automation

- RHN Satellite
- RHN Satellite API
- RHEV-M API
- JBoss ON Bundles
- JBoss ON API

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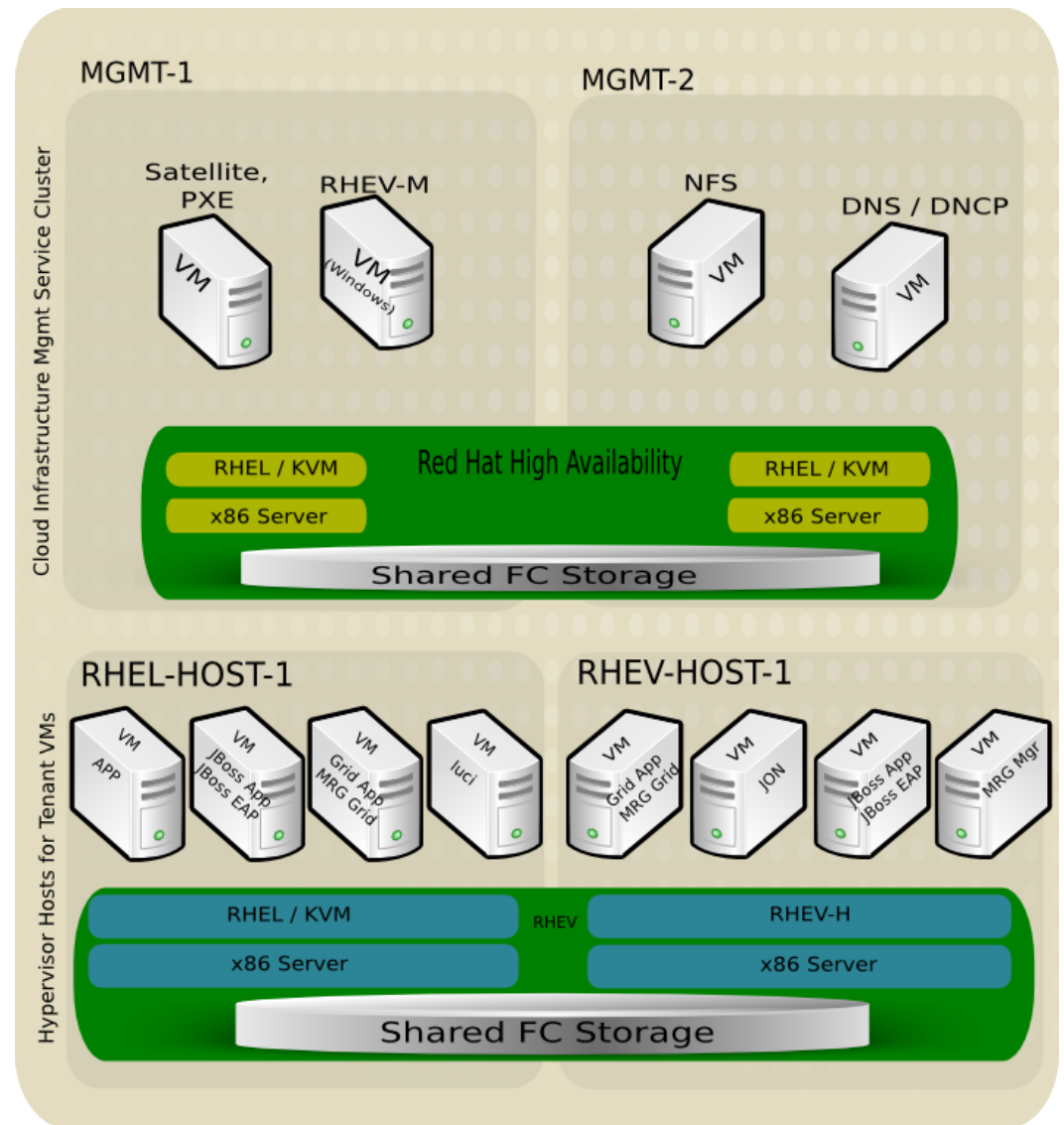
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# Requirements

- Hardware
- Software
- Scripts
- Configuration Files
- Applications
- Reference Architecture
- Support Contract (optional)



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# RHCF Hardware Requirements

Equipment	Roles
2 Servers with Hardware Virtualization Capabilities	Virtualization Hypervisors
2 Servers	Red Hat High Availability
Shared Storage	Space for Virtual Machines
NFS Storage	ISO Domain (optional)
Networking Equipment	Interconnect (NFS / iSCSI)

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# RHCF Software Requirements

- Red Hat Enterprise Linux 5.4+
- Red Hat Enterprise Linux 6.0
  - Resilient Storage, High Availability Add-ons
- Red Hat Enterprise Virtualization
- RHN Satellite
- JBoss ON, plug-ins
- JBoss EAP
- MRG Grid

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# RHCF Scripts

- rhq-agent-env.sh
- rhq-install.sh
- add-vms.ps1
- rhq-server.sh
- satellite-channel-sync.sh
- mrg-manager-install.sh
- mrg-exec-node-install.sh
- jboss-eap-install.sh
- jon-agent-install.sh

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# RHCF Configuration Files

- DNS
- DHCP
- multipathd.conf
- cluster.conf

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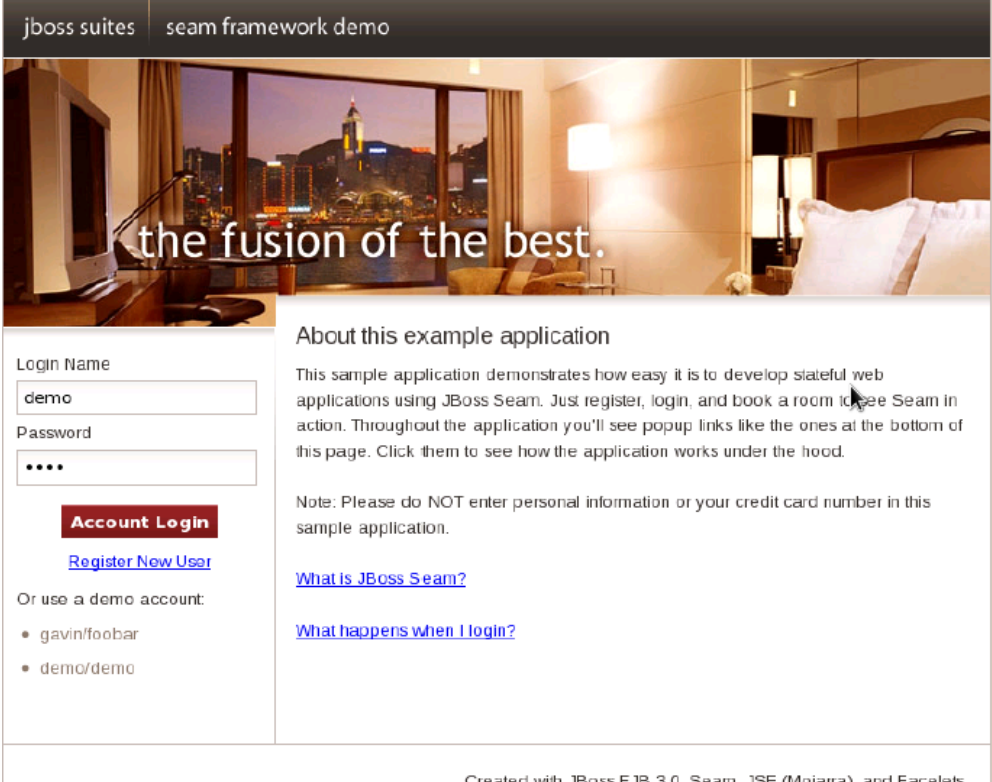
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# RHCF Applications

- JBoss Seam Booking
- Generic Java Application
- Perfect Number Search



The screenshot shows a web application interface for a hotel booking demo. The header includes "jboss suites" and "seam framework demo". The main content area features a large image of a hotel room with a view of a city skyline at night, overlaid with the text "the fusion of the best.". Below the image, there is a login form with fields for "Login Name" (containing "demo") and "Password" (containing "...."). A red "Account Login" button is present, along with a blue link "Register New User". Below the login form, there is a section for "Or use a demo account:" with two bullet points: "gavin/foobar" and "demo/demo". To the right of the login form, there is a section titled "About this example application" with a paragraph of text and a note. Below this section, there are two blue links: "What is JBoss Seam?" and "What happens when I login?". At the bottom right of the page, there is a small text: "Created with JBoss EJB 3.0, Seam, JSF (Mojarra), and Facelets".

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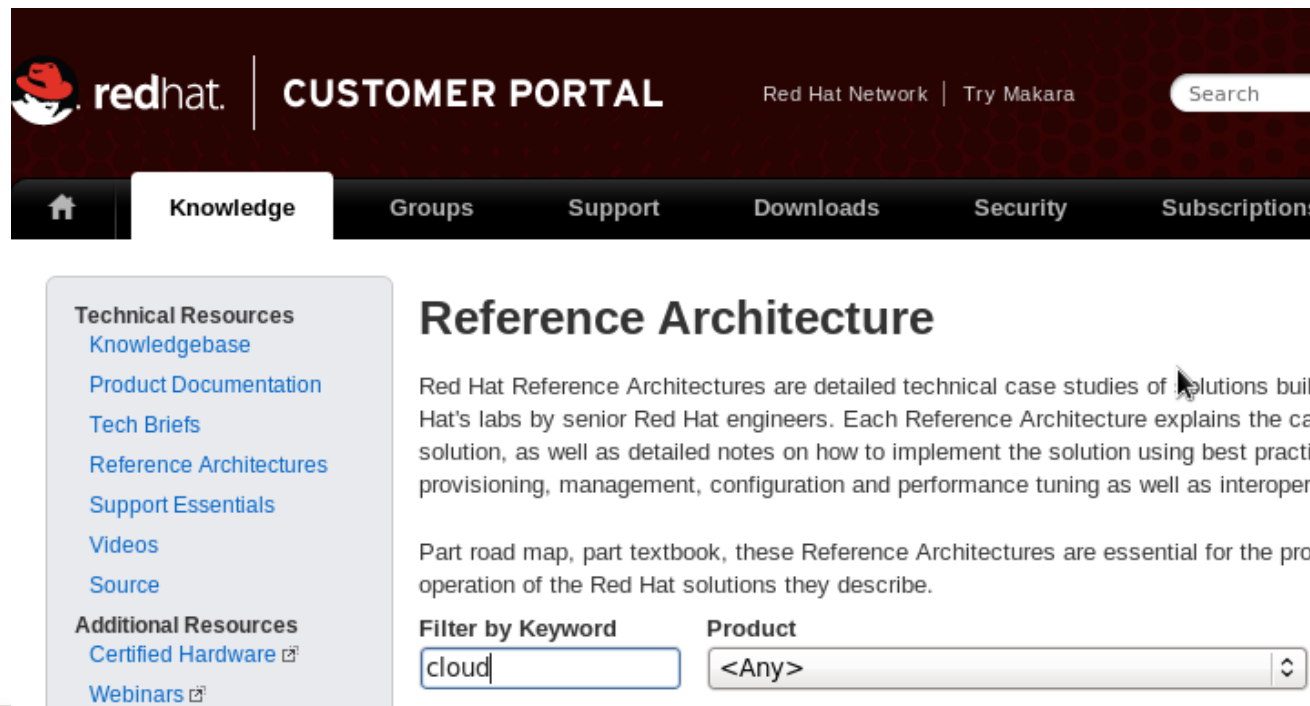
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# RHCF Instructional Manual

- Visit Customer Portal <http://access.redhat.com>
- Knowledge -> Reference Architectures
  - <https://access.redhat.com/knowledge/refarch/>



The screenshot shows the Red Hat Customer Portal interface. At the top, the Red Hat logo and 'CUSTOMER PORTAL' are visible, along with 'Red Hat Network | Try Makara' and a search bar. A navigation bar includes 'Knowledge', 'Groups', 'Support', 'Downloads', 'Security', and 'Subscriptions'. The 'Knowledge' section is expanded, showing a sidebar with links to 'Technical Resources' (Knowledgebase, Product Documentation, Tech Briefs, Reference Architectures, Support Essentials, Videos, Source) and 'Additional Resources' (Certified Hardware, Webinars). The main content area is titled 'Reference Architecture' and contains introductory text about Red Hat Reference Architectures as detailed technical case studies. Below the text are two filter boxes: 'Filter by Keyword' with the value 'cloud' and 'Product' with a dropdown menu set to '<Any>'. The Red Hat logo is also present in the bottom right corner of the page.

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# Deployment Overview

1. Management server
2. Obtain software
3. RHN Satellite
4. Management VMs
5. RHEV
6. RHEL HA
7. Applications



# Management Server

- RHEL 6
- Network Bridge
- KVM and virt-tools
- Staging server
- Shared Storage



# Obtain Software

- Download
  - Installation media
  - Licenses
  - Scripts
  - Applications
- Make available on network

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# RHN Satellite

- Virtual Machine
- Install RHN Satellite
- Synchronize all channels
- Kickstart files
- Scripts
- Activation Keys



# Red Hat Enterprise Virtualization

- RHEL 5.5+
- RHEL + KVM
- RHEVH
  - Stateless
- RHEV-M
  - Storage
  - Clusters
  - Data Center



# Red Hat High Availability

- Shared Storage
- RHEL 6.0 +
- Hosts Virtual Machines



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# Applications

- javaApp
- MRG
- JBoss
- JBoss ON



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# Completing the Cloud

- **Management**
- **Virtualization**
- **Applications**
- **Automation**
- **High Availability**
- **On Demand Self-Service**
- **Resource Pooling**
- **Monitoring**
- **Archival Storage**
- **Reporting**
- **Rapid Elasticity**

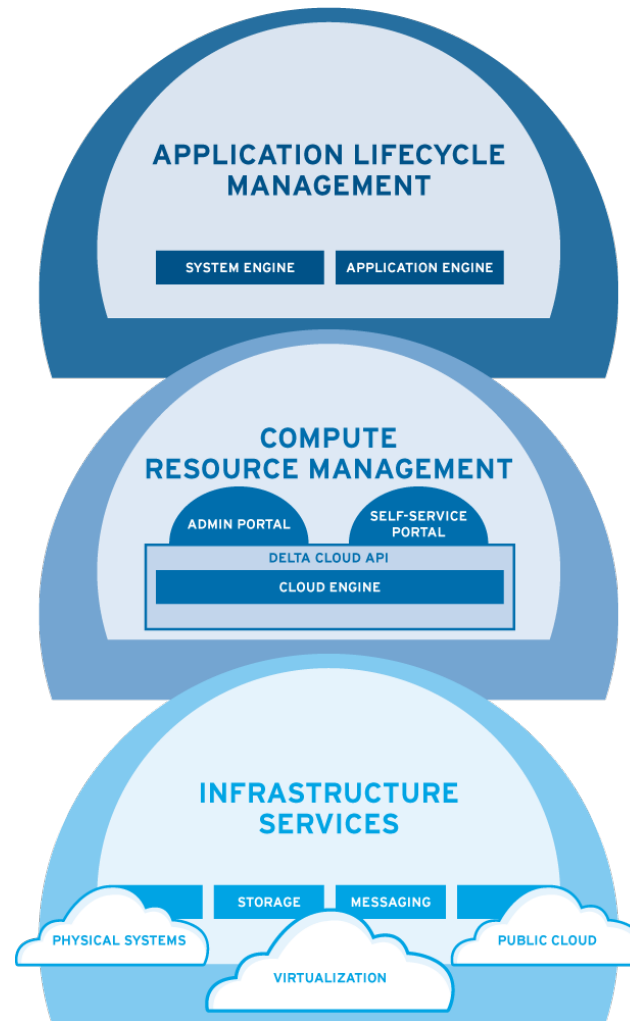
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# Red Hat CloudForms



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# Q & A



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# Conclusion

- Survey please! (or else)
- Campground Session 1: 11:00am - 12:00pm
- Twitter: @VinnyValdez @collier\_s
- <http://people.redhat.com/vvaldez/rhcf>
- Reference Architecture [refarch-feedback@redhat.com](mailto:refarch-feedback@redhat.com)
  - <https://access.redhat.com/knowledge/refarch/>
  - <https://engage.redhat.com/forms/cloud-video>
  - RHCF, CloudForms Architectural Overview
- Consulting, Training

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