

The logo for Red Hat Summit, featuring the words "RED HAT" in a smaller font above "SUMMIT" in a larger, bold font, all contained within a white speech bubble shape.

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# THE INTEGRATED CLOUDS

Linking a Complex Infrastructure & Making it Work

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# Introduction

# About BJ's Wholesale



BJ's Wholesale Club first introduced the warehouse club concept to the northeastern U.S. in 1984. Since then we've expanded, moving north to Maine, south to Florida and as far west as Ohio. Today, we operate over 213 Clubs, 131 Gas Stations, and our locations are across 15 States.

In-Club and online, BJ's offers Members a huge selection of the very best products for home and business — from groceries, cleaning supplies and health & beauty to home goods, computers, electronics and more — at incredibly low prices every day.

BJ's is ranked first for retail customer experience according to the 2017 Temkin Experience Ratings.

# The Integrated Clouds

Linking a Complex Infrastructure & Making it Work

## How BJ's Wholesale found success in automation and integration

- Challenges
- The Solution
- Demo / Walkthru
- Q&A

# The Challenges



## Centralized Control and Governance



**Centralized Control and Governance**



**Networking Management**

**Centralized Control and Governance**



**Drift Control &  
Config Management**

**Networking Management**

**Centralized Control and Governance**

**Patching / Errata**



**Drift Control &  
Config Management**

**Networking Management**

**Centralized Control and Governance**

**Patching / Errata**

**Rapid Scale-out of New Services**



**Drift Control &  
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**Rapid Scale-out of New Services**



**Drift Control &  
Config Management**

**Networking Management**

**Access Controls**

**Centralized Control and Governance**

**Patching / Errata**

**Rapid Scale-out of New Services**



**Auditing / Compliance**

**Drift Control &  
Config Management**

**Networking Management**

**Access Controls**

**Centralized Control and Governance**

**Retirement & Cleanup of  
Decommissioned Systems**

**Patching / Errata**

**Rapid Scale-out of New Services**



**Auditing / Compliance**

**Drift Control &  
Config Management**

**Networking Management**

**Access Controls**

**We Need  
Some Better  
Tools...**



{php}  
IPAM



 **Nessus**<sup>®</sup>  
vulnerability scanner

 puppet

 Centrify<sup>®</sup>

  
vmware<sup>®</sup>



RED HAT  
ENTERPRISE  
VIRTUALIZATION 

RED HAT<sup>®</sup>  
SATELLITE

 **amazon**  
web services



All we've  
done is create  
**NEW SILOS!**



RED HAT  
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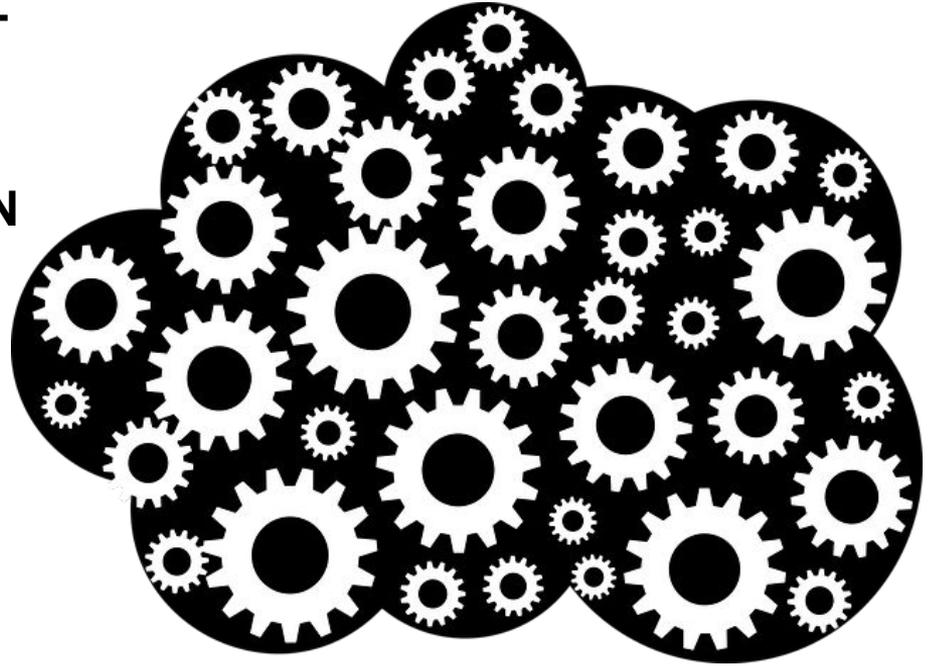
RED HAT®  
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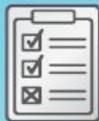


# The Solution

# The Solution: Centralize The Automation Tools

- CONFIGURATION MANAGEMENT
- PATCH MANAGEMENT
- IPAM
- CENTRALIZED AUTHENTICATION
- SECURITY COMPLIANCE
- MONITORING
- TEMPLATES
- CLOUD-INIT
- CLOUDFORMATIONS
- SHOWBACK





**GOVERNANCE AND COMPLIANCE**



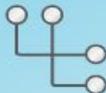
**IT SERVICE CATALOGS**



**METERING, CHARGEBACK, QUOTAS**



**EXECUTIVE AND OPS DASHBOARDS**



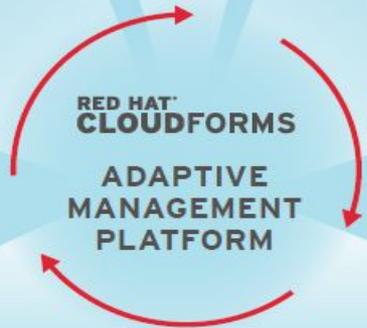
**IT PROCESS ORCHESTRATION**



**MONITORING, ANALYTICS, ALERTING**



**OUT-OF-THE-BOX INTEGRATION**



**amazon** web services **EC2**



**vmware**



**redhat.**



**Microsoft**



**openstack**

# CloudForms Delivers IT Management Across Platforms

- RBAC Enforced - Multi-group - Multi-cloud Management
- Provisioning with Quota Controls
- Automatic Retirement ( Ability to over rule )
- Modification of Deployed Systems
- Capacity Planning
- Security / Compliance
- Approval Workflows
- Drift Management
- User/Self-service Portal with Extensive Service Catalog
- Centralized Cross-system Tagging
- Reporting
- Event-based Triggers (Especially when changes happen outside CF)

# Our Third Party Integrations

- PHP IPAM
- Puppet Enterprise
- Red Hat Satellite 6
- Centrify
- Microsoft Azure
- AWS
- VMware
- RHEV
- Tenable/Nessus
- Ansible Core (On the CloudForms Appliance Itself)

# RBAC Restrict Views

- 🏠 EvmGroup-user
- 🏠 EvmGroup-user\_limited\_self\_service
- 🏠 EvmGroup-user\_self\_service
- 🏠 EvmGroup-vm\_user
- 🏠 IT - UNIX** >
- > 👤 Roles
- > 🏠 Tenants

---

> Diagnostics

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> Database

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- ▼ 📁 Parent Folder Path (VMs & Templates)
  - 📁 Datacenters/Somerville/vm/Discovered virtual machine
  - 📁 Datacenters/Somerville/vm/Linux/Dev
  - 📁 Datacenters/Somerville/vm/Linux/QA
  - 📁 Datacenters/Somerville/vm/Linux/Perf
  - 📁 Datacenters/Somerville/vm/Linux
  - 📁 Datacenters/Somerville/vm/Windows
  - 📁 Datacenters/Somerville/vm/Linux/Sandbox
  - 📁 Datacenters/Somerville/vm
  - 📁 Datacenters/Somerville/vm
  - 📁 Datacenters/Somerville/vm/Citrix
  - 📁 Datacenters/Somerville/vm/Appliance

# RBAC ROLES

Granular control over what groups or users can or cannot do

- ▼  📁 VM Access Rules
  - >  🔍 View
  - ▼  🛑 Operate
    - 🛑 Analysis
    - 🛑 Check Compliance
    - 🛑 Cockpit Console
    - 🛑 Console using MKS
    - 🛑 Console using VMRC
    - 🛑 Console using VNC
    - 🛑 Edit Tags
    - 🛑 Extract Running Processes
    - 🛑 Manage Policies
    - 🛑 Pause
    - 🛑 Policy Simulation
    - 🛑 Power Off
    - 🛑 Power On
    - 🛑 Refresh
    - 🛑 Reset
    - 🛑 Restart Guest
    - 🛑 Retire VMs
    - 🛑 Set Ownership
    - 🛑 Set Retirement Date
    - 🛑 Shutdown Guest
    - 🛑 Suspend
  - >  🔍 Modify
- ▼  📁 Snapshots
  - >  🔍 View
  - ▼  🛑 Operate
    - 🛑 Create new Snapshots
    - 🛑 Delete All Existing Snapshots
    - 🛑 Delete Snapshots
    - 🛑 Revert to selected snapshot

# Service Catalog



- Dashboard
- My Services 45
- My Requests 175
- Service Catalog 22

Name

Catalog Name

22 Results

<p>SAP_HANA AWS_SAP_PROD</p> 	<p>SAP_RHEL7 AWS_SAP_PROD</p> 	<p>DB2_DEV AWS-Ecom</p> 	<p>Ecom_dev_stack AWS-Ecom</p> 	<p>ENDECA_DEV AWS-Ecom</p> 
<p>IHS_DEV AWS-Ecom</p> 	<p>WAS_DEV AWS-Ecom</p> 	<p>CS_DEV_RHEL6.7 Bjs_Development</p> 	<p>CS_DEV_RHEL7.2 Bjs_Development</p> 	<p>CS_DEV_WIN2K12 Bjs_Development</p> 

# Default AWS Stack Provisioning Code

## Data

```
1 #
2 # Description: This method prepares arguments and parameters for orchestration provisioning
3 #
4
5 $evm.log("info", "Starting Orchestration Pre-Provisioning")
6
7 service = $evm.root["service_template_provision_task"].destination
8
9 # Through service you can examine the orchestration template, manager (i.e., provider)
10 # stack_name, and options to create the stack
11 # You can also override these selections through service
12
13 $evm.log("info", "manager = #{service.orchestration_manager.name} (#{service.orchestration_manager.id})")
14 $evm.log("info", "template = #{service.orchestration_template.name} (#{service.orchestration_template.id})")
15 $evm.log("info", "stack name = #{service.stack_name}")
16 # Caution: stack options may contain passwords.
17 # $evm.log("info", "stack options = #{service.stack_options.inspect}")
18
19 # Example how to programmatically modify stack options:
20 #service.stack_name = 'new name'
21 #stack_options = service.stack_options
22 #stack_options[:disable_rollback] = false
23 #stack_options[:timeout_mins] = 2 # this option is provider dependent
24 # stack_options[:parameters]['flavor'] = 'ml.small'
25 # # Important: set stack options
26 # service.stack_options = stack_options
27
28 # BJs custom code
29 service.stack_name = "miq-#{service.id}"
30
```

# Results in AWS

CloudFormation ▾ Stacks

Create Stack ▾

Actions ▾

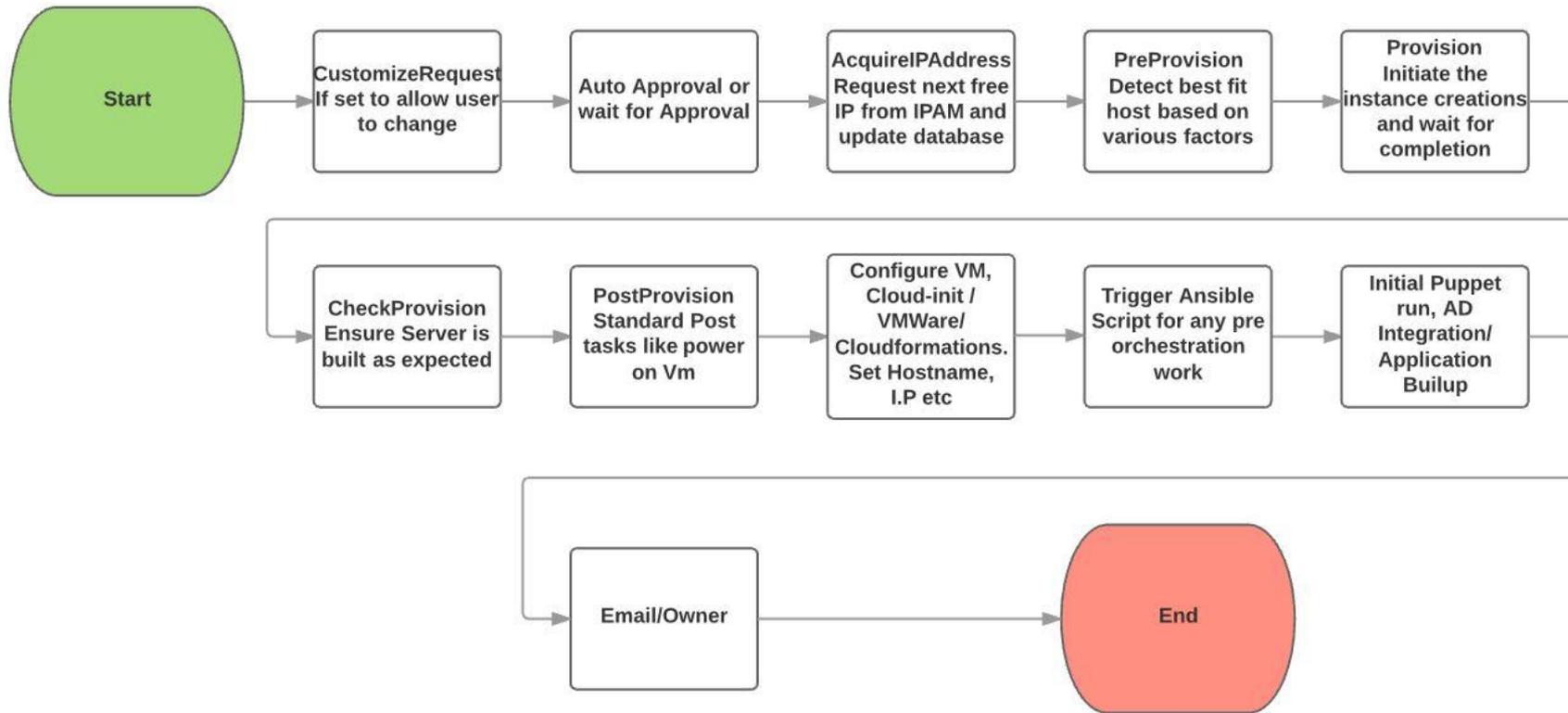
Design template

Filter: Active ▾

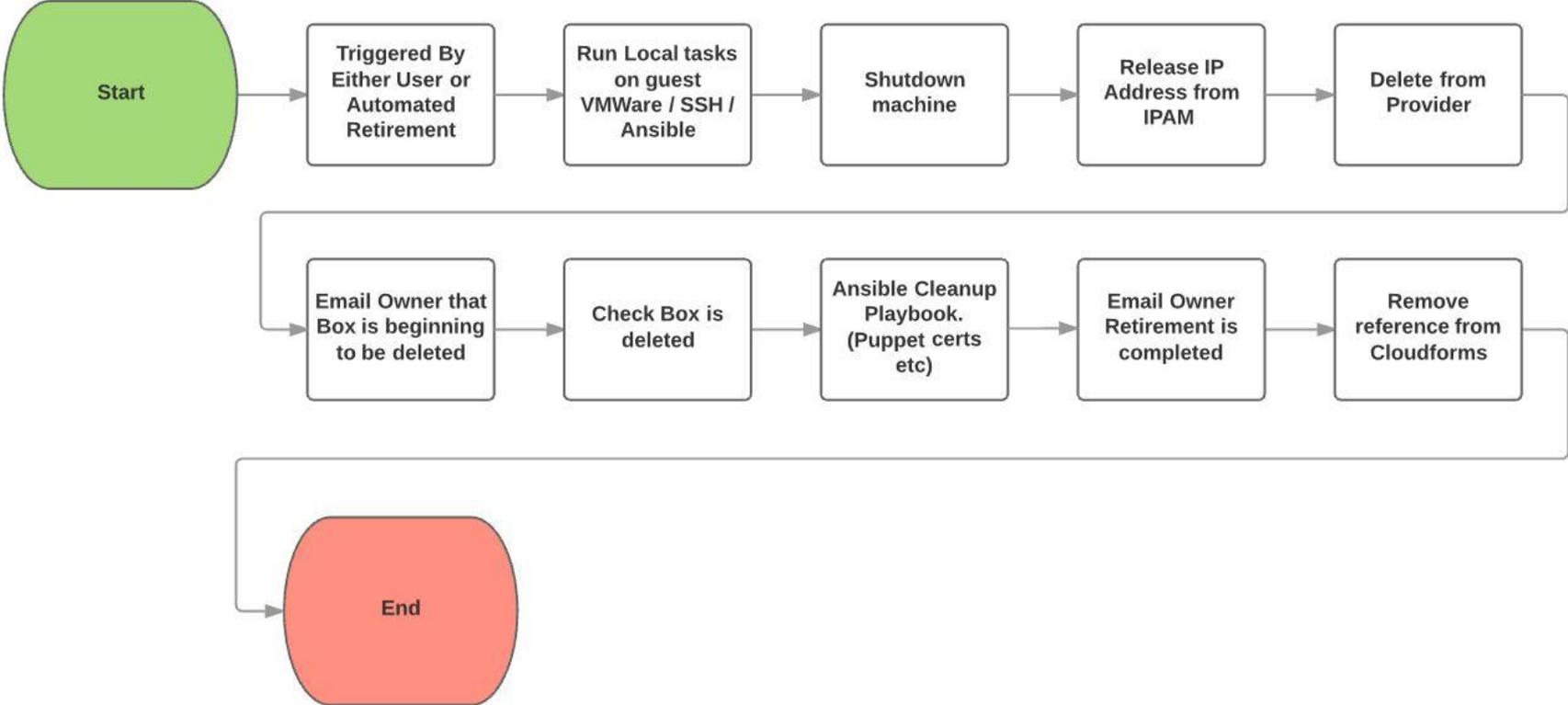
By Stack Name

	Stack Name	Created Time	Status	Description
<input type="checkbox"/>	miq-1000000000184	2017-04-03 21:53:38 UTC-0400	CREATE_COMPLETE	AWS CloudFormation Template for Ecommerce Development
<input type="checkbox"/>	miq-1000000000182	2017-04-03 21:52:25 UTC-0400	CREATE_COMPLETE	AWS CloudFormation Template for Ecommerce Development
<input type="checkbox"/>	miq-1000000000183	2017-04-03 21:52:25 UTC-0400	CREATE_COMPLETE	AWS CloudFormation Template for Ecommerce Development
<input type="checkbox"/>	miq-1000000000181	2017-04-03 21:50:47 UTC-0400	CREATE_COMPLETE	AWS CloudFormation Template for Ecommerce Development

# CLOUDFORMS PROVISION FLOW



# CLOUDFORMS RETIREMENT FLOW



# Demo / Walkthru

# Q & A

# Additional Resources

**Phil Avery's Blog**

<http://averytechguy.com>

**Peter McGowan's Book (Mastering CloudForms Automation)**

<https://www.gitbook.com/@pemcg>

**Christian Jung's Blog**

<http://www.jung-christian.de>

**The Official Red Hat CloudForms Blog**

<http://CloudFormsBlog.com>

**Matt St. Onge's Blog**

<http://MattTheITGuru.com>

**Kevin Morey's GitHub Page**

<https://github.com/ramrexx>



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**LEARN. NETWORK.  
EXPERIENCE  
OPEN SOURCE.**