Hybrid cloud management with Ansible and CloudForms

Subheading goes here

Presenter
Presenter’s title
Date
Moises has been in Red Hat for more than 6 years and he is still as felt in love as the first day.

Works as a Solutions Architect in different verticals and his expertise is related with infrastructure, storage and cloud.
Victor joined Red Hat back in 2015 as a CloudForms Specialist Solution Architect for EMEA and since 2017 work for the BU.

Victor used to work with AIX for a long time until he discovered THE CLOUD in 2010.
MANAGEMENT & AUTOMATION
reducing complexity of the hybrid cloud
AUTOMATION IS CRITICAL

86%

Automation is either mission critical or very important to their future Cloud strategy

79%

Of IT organizations will need to deploy new management and automation software between now and 2020

Source: IDC Infobrief sponsored by Red Hat, Automation, DevOps and the Demands of a Multicloud World, March 2018
N= 1171 Worldwide IT Operations Decision Makers
CLOUDFORMS DELIVERS SERVICES ACROSS HYBRID ENVIRONMENTS

**SERVICE AUTOMATION**
Streamline complex service delivery processes, saving time and money.

**POLICY & COMPLIANCE**
Draws on continuous monitoring and deep insights to raise alerts or remediate issues.

**OPERATIONAL VISIBILITY**
Complete lifecycle and operational management that allows IT to remain in control.

**UNIFIED HYBRID MANAGEMENT**
Deploy across virtualization, private cloud, public cloud and container-based environments.
HYBRID CLOUD MANAGEMENT

DEVELOPER

OPERATIONS

SYS/CLOUD ADMIN

COMPLIANCE

CloudForms

Self Service
Provisioning,
Service Catalog,
Ops Console

Discovery,
Monitoring &
Relationship
Mapping

Governance,
Reporting,
Cost,
Inventory

PUBLIC CLOUDS

HYBRID INFRASTRUCTURE
ON-PREMISE/PRIVATE CLOUD

aws

Google

RHOSP

#redhat #rhsummit
AUTOMATE EVERYTHING
RED HAT ANSIBLE

THE MOST POPULAR OPEN SOURCE AUTOMATION PLATFORM

Goal:
Unify provisioning, configuration, and application deployment

Result: Ansible
A python-based command line engine that interprets and executes YAML-based “Playbooks” that contain one or more “plays” or tasks.
THE UNIVERSAL LANGUAGE
DAY 1 DEPLOYMENT DEMO
ENVIRONMENT

CloudForms

RHVM

RHV HOST1

RHV HOST X

ituser
TASKS

- Task #1. Deploy VMs.
  - CF will deploy a bundle made of:
    - 1 LB on RHV
    - 1 Web Server on RHV
    - 1 Web Server on OSP
DAY 2 OPERATIONS DEMO
ANSIBLE TOWER

TOWER EMPOWERS TEAMS TO AUTOMATE

CONTROL
Scheduled and centralized jobs

KNOWLEDGE
Visibility and compliance

DELEGATION
Role-based access and self-service

SIMPLE
Everyone speaks the same language

POWERFUL
Designed for multi-tier deployments

AGENTLESS
Predictable, reliable, and secure

AT ANSIBLE’S CORE IS AN OPEN-SOURCE AUTOMATION ENGINE

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DUTIES

IT Operators

- HTTP GET CONFIG
- HTTP START
- HTTP STOP
- HTTP RESTART

IT Admin Operators

- ENVIRONMENT DEPLOY
- HTTP MODIFY CONFIG
TASKS

- Task #1. Environment Deploy.
  - Deploy HTTP Servers and HAproxy server.

- Task #2. Modify Configuration.
  - Modify HTTP configuration.

- Task #3. Integration with third party tools.
  - Run a Template using Ansible Tower API.
TASK #1 - Environment Deploy

GitHub
Config & Ansible
Playbook
Repository

HTTP Server
apache1
Minimal RHEL.
yum repo: repo

Load Balancer
haproxy
Minimal RHEL.
yum repo: repo

HTTP Server
apache2
Minimal RHEL.
yum repo: repo

tower

nagios

repo

ityoperator

itadminoperator

itroot
TASK #1 - Environment Deploy - After

- **Load Balancer**
  - haproxy
- **HTTP Server**
  - apache1
  - apache2
- **Monitoring HTTP Servers**
  - (apache[1..2])
- **GitHub**
  - Config & Ansible Playbook Repository
- **Minimal RHEL. yum repo: repo**
- **HAproxy listen :80**
- **Monitoring HTTP**
- **itoperator**
- **itadminoperator**
- **itroot**

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**TASK #2 - Modify Configuration**

- **Load Balancer (haproxy)**
  - HTTP listen: 80

- **HTTP Server (apache1)**
  - Minimal RHEL
  - yum repo: repo
  - HTTP listen: 80

- **HTTP Server (apache2)**
  - Minimal RHEL
  - yum repo: repo
  - HTTP listen: 80

- **Monitoring HTTP Servers (apache[1..2])**

- **GitHub Config & Ansible Playbook Repository**

- **itoperator**, **itadminoperator**, **itroot**
TASK #2 - Modify Configuration - After

GitHub Config & Ansible Playbook Repository

Load Balancer

- haproxy
  - Minimal RHEL.
  - yum repo: repo
  - HTTP listen:80

Monitoring HTTP Servers (apache[1..2])

HTTP Server

- apache1
  - Minimal RHEL.
  - yum repo: repo
  - HTTP listen:xxxx

- apache2
  - Minimal RHEL.
  - yum repo: repo
  - HTTP listen:xxxx

repo

tower

nagios

repo

itoperator

itadminoperator

itroot
TASK #3 - Integration with Nagios - After

GitHub Ansible Playbook Repository

HTTP Server

apache1
- Minimal RHEL.
- yum repo: repo
- HTTP listen :xxxx

Load Balancer

haproxy
- Minimal RHEL.
- yum repo: repo
- HAproxy listen :80

Monitoring HTTP

Servers

(repo) (apache[1..2])

HTTP Server

apache2
- Minimal RHEL.
- yum repo: repo
- HTTP listen :xxxx

tower

nagios

repo

itroot

itoperator

itadminoperator
BONUS TRACK - SSH interactive connections (ON/OFF)

GitHub
Ansible Playbook
Repository

Load Balancer
haproxy
Minimal RHEL.
yum repo: repo
HTTP listen: xxxx
SSH interactive: ON

HTTP Server
apache1
Minimal RHEL.
yum repo: repo
HTTP listen: xxxx
SSH interactive: ON

HTTP Server
apache2
Minimal RHEL.
yum repo: repo
HTTP listen: xxxx
SSH interactive: ON

Monitoring HTTP Servers
/apache{1..2}/

tower
repo
nagios
repo

itoperator
itadminoperator
itroot
BONUS TRACK - SSH interactive connections (ON/OFF) - After

- itoperator
- itadminoperator
- itroot

GitHub Ansible Playbook Repository

- tower
- nagios
- repo

Load Balancer
- haproxy
  - Minimal RHEL
  - yum repo: repo
  - HAProxy listen:80
  - SSH interactive: OFF

HTTP Servers
- apache1
  - Minimal RHEL
  - yum repo: repo
  - HTTP listen: xxx
  - SSH interactive: OFF
- apache2
  - Minimal RHEL
  - yum repo: repo
  - HTTP listen: xxx
  - SSH interactive: OFF

Monitoring HTTP Servers (apache[1..2])
A challenge for you...

Why don’t you try it at home?

https://github.com/MoyRivera/dcFailover
AUTOMATION & MANAGEMENT

Come see us in the Red Hat booth in the Ecosystem Expo

plus

‘Management - What’s New’
New products under development
INSERT DIVIDER COPY
ANSIBLE TOWER DEMO
Playbooks/Roles/uPlaybooks/Workflows

---
- hosts: "{{ host_or_group }}"
  remote_user: root
  vars_files:
    - vars/httpd_vars.yml
  tasks:
    - name: Download and install httpd pkg
      yum:
        name: {{ item }}
        state: present
      with_items:
        - apr
        - apr-util
        - httpd
    - name: Applying configuration
      template:
        src: templates/{{ file }}
        dest: {{ config_file_path }}
    - name: Activating service on boot
      service:
        name: httpd
        state: started
        enabled: yes
- ...
- ...

PLAYBOOK

uPLAYBOOKs

- apache-mng.yml
  Start, Stop, Reload, Restart
  HTTP service

- site_deploy.yml
  Deploy a site and the test page to check the HTTP service

- apply_conf.yml
  Apply the configuration

- apache_deploy.yml
  Install and activate HTTP service

- nagios-deploy.yml
  Add the server(s) to RH Insights

WORKFLOWs

- apache_deploy.yml
  Install and activate HTTP service

- apply_conf.yml
  Apply the configuration

- site_deploy.yml
  Deploy a site and the test page to check the HTTP service

- apache-mng.yml
  Start, Stop, Reload, Restart
  HTTP service

- nagios-deploy.yml
  Add the server(s) to RH Insights