Changing the way we do IT at Best Buy: Using Ansible by Red Hat for automation

People | Processes | Tech

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Who are we?
Why are we here?
Why Ansible?
What did we solve?
What did we learn?
Who are we?

-Two people with a long history in retail
"The future is already here, it's just not widely distributed"
I’ve been using a Deprecated automation tool for a decade.

TWEET ME: @madhakish
• **EVERYONE** is now an IT company (especially retail)
• Traditionally IT was **OUTSOURCED** as a commodity
• **CONTRACTORS** come and go, **POLICIES** and **PROCESSES** stay
  o Knowledge transfer is a huge problem
  o Different teams come with different tooling
  o Not fully utilizing tooling
Developers
Operations

WHY?

A
simple things should be simple & HARD THINGS POSSIBLE

ALAN KAY
An operation that has [no additional effect] if it is called more than once with the same "input parameters".
SIMPLE
- Human Readable
- No Special Coding Skills

POWERFUL
- App Deployment
- Config Management

AGENTLESS
- Uses SSH or WinRM
- No Agent to exploit
Ansible Mgmt
Node

Host
Inventory
10.0.15.21
10.0.15.22
10.0.15.23

laptop
desktop
server

Playbook
web

SSH Trust

web
10.0.15.21

web
10.0.15.12

web
10.0.15.13

web
10.0.15.14

web
10.0.15.15

web
10.0.15.16
NOW THIS IS A TREND!
- Consider IT as a core competency
- Learning vs buying skills
- Focus on automation

TIME TO DOUBLE DOWN ON INTERNAL SKILL SETS
AUTOMATE ALL THE THINGS
“Chicken and an Egg”

Bootstrapping automation … Implies that there is no automation.

Solved a “new to us” use case - one-time automation.

Powerful new pattern for developing SOP’s into repeatable, manageable Playbooks.
Install the puppet Client how hard can it be?
Security does not allow auto registration! You will have to reproduce all that logic in Ansible!
- name: Generate certificate request
  command: /opt/….bin/puppet agent -t --noop arg1
  args:
    creates: "/..../certificate_requests/{{ ansible_fqdn }}.pem"
  register: puppet_agent
  changed_when: puppet_agent.rc == 1
  failed_when: puppet_agent.rc != 1 and puppet_agent.rc != 0
  notify: sign client certificate
  tags:
    - agent
name: sign client certificate
delegate_to: "{{ puppet_ca }}"
command: /opt/..../puppet cert --sign {{ ansible_fqdn }}
2>/dev/null arg1

args:
create: "#/etc/..../ssl/ca/signed/{{ ansible_fqdn }}.pem"
register: sign_client
changed_when: sign_client.rc == 24 or sign_client.rc == 0
failed_when: sign_client.rc != 24 and sign_client.rc != 0
notify: puppet first run
- name: puppet first run
  command: /opt/…./bin/puppet agent -t --noop arg1
  register: first_run
  changed_when: first_run.rc !=0
  failed_when: first_run.rc !=0 and first_run.rc != 1
  args:
    creates: "/etc/…./ssl/certs/{{ ansible_fqdn }}.pem"
CASE STUDY # 2

RED HAT® SATELLITE.5 >>> RED HAT® SATELLITE.6
We must install new tools & register thousands of servers.

We only need to do this one time

Ok, maybe two times.

Whatever you do, make sure you do it at night!
The Easy Sat5 -> Sat6 solution!

1. Check for and remove rhnsd Daemon
2. Install the new package bundle
3. Register to Sat 6 (With correct orgs)
4. Refresh yum, Install katello agent, and run yum cleanup

rpm says no but,
rpm --force --nodeps says YES!
● Not all systems were registered with Sat 5
● Not all have subscription manager installed
● RHEL versions have different dependencies
● Some missing RHEL release certificates
● Different parameters for Prod vs Non-Prod
● Some had full partitions (e.g. /var)
● After you remove satellite 5,
  - how do you update?

What’s a snowflake?
CASE STUDY # 3
OPENSHIFT
LOADING...
At this point we’ve been using Ansible for some time

First time Ansible is used for Install/config/deploy and post tasks

Familiar landscape, familiar language, and familiar approach

I’ve waited my whole life to manage containers with Ansible!
WHAT DID WE LEARN?
Automation Challenges - “Half of being smart is knowing what you’re dumb about.” - Solomon Short

- Automation will expose limitations and you will find all the things
- Fight the urge to boil the ocean
- Change is scary, automation is change, thus automation is scary!
Lessons Learned w/ Automation

- Get buy in early!
- Change is hard!
- No longer the domain of one person
- Must think big picture (holistically)
What if internal IT teams focus was on **INNOVATION** not task management?

The **80/20 Rule!**
I need 10,000 strong robot army stat!

- Computers follow directions $\sim 100\%$ of the time, 80% of the time
- Iteration lets humans think more critically about solutions
- Consistency becomes the norm
- Inconsistency becomes very apparent
● The importance of common shared language!
  ○ Operations
  ○ Development
  ○ Change Management
  ○ QA Testing
  ○ App Teams

● Collaboration! (Open Source and Interoffice)

● Value of Internal Knowledge and Culture

You have been learned!
LEARN. NETWORK.
EXPERIENCE
OPEN SOURCE.

Special thanks to Ray Hansen for all the help, we couldn’t do it without you!