

RED HAT
SUMMIT

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

People | Processes | Tech

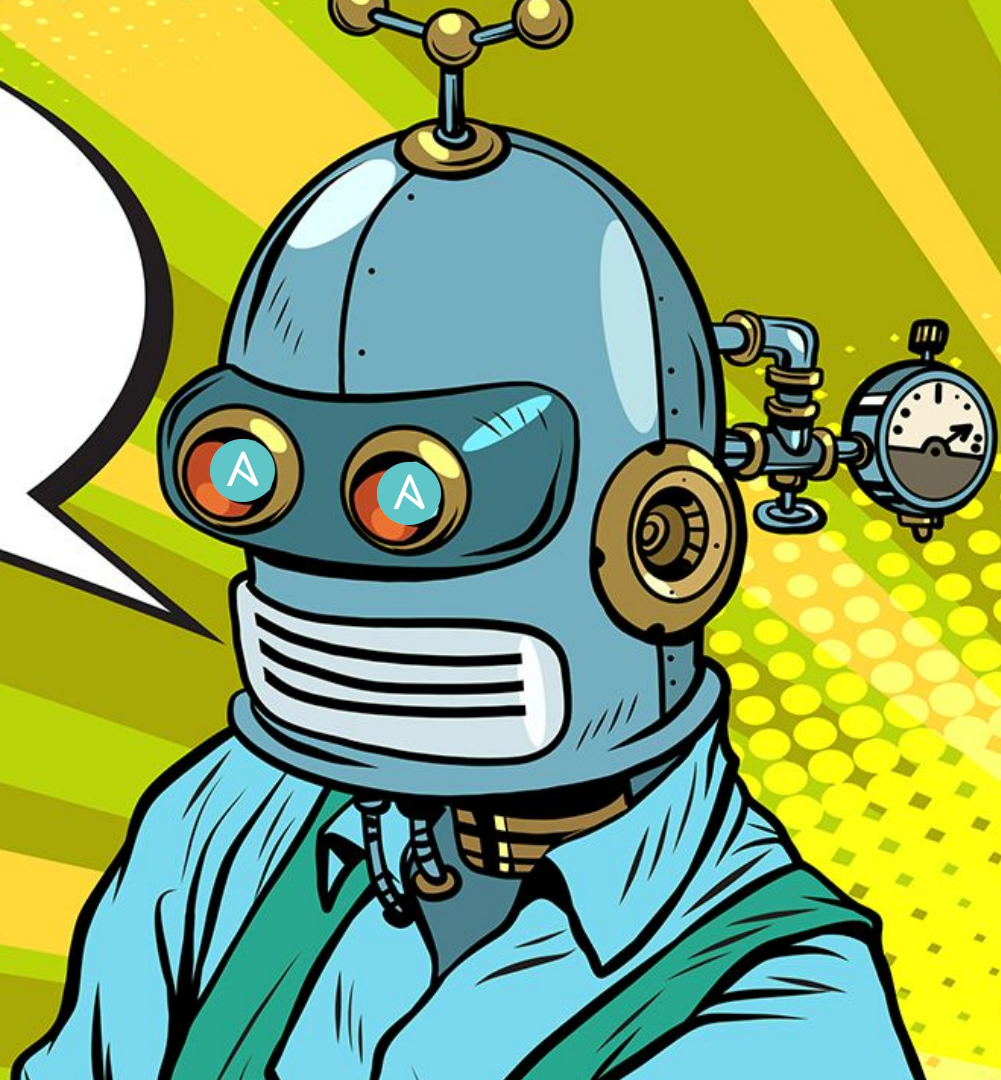
Tom Hudak

Senior Platform Engineer - Best Buy

Mike Dahlgren

Senior Cloud Solution Architect - Red Hat


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



Today's Agenda

Who are we?

-Two people with a long history in retail



"The future is already here, it's just not widely distributed"

MIKE D

TWEET ME:
[@mikedahlgren](https://twitter.com/mikedahlgren)



I've been using a Deprecated automation tool for a decade.

TWEET ME:
@madhakash



- **EVERYONE is now an IT company (especially retail)**
- **Traditionally IT was OUTSOURCED as a commodity**
- **CONTRACTORS come and go, POLICIES and PROCESSES stay**
 - **Knowledge transfer is a huge problem**
 - **Different teams come with different tooling**
 - **Not fully utilizing tooling**



WHY?



Operations

Developers



What he said!

WHAT IS



simple things should be simple
&

HARD THINGS POSSIBLE

ALAN KAY



*Idempotent
jokes are funny
every time you
tell them...*

IDEMPOTENCE

/ ɪdemˈpɒt(ə)nt, ˈēdemˌpɒt(ə)nt /

*An operation that has
[no additional effect] if it is
called more than once with the
same “input parameters”*



VS.

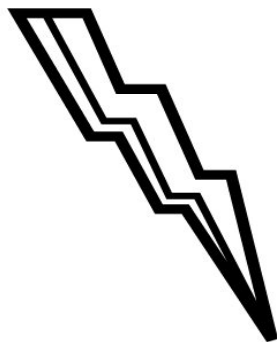




SIMPLE

Human Readable

No Special Coding Skills



POWERFUL

App Deployment

Config Management



AGENTLESS

Uses SSH or WinRM

No Agent to exploit



Mgmt
Node

laptop
desktop
server

SSH

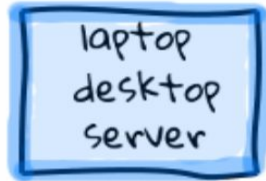


VM

web

10.0.15.21

Ansible Mgmt
Node



SSH Trust



VM



10.0.15.21



Host
Inventory
10.0.15.21



Playbook
web

Ansible Mgmt Node

laptop
desktop
server

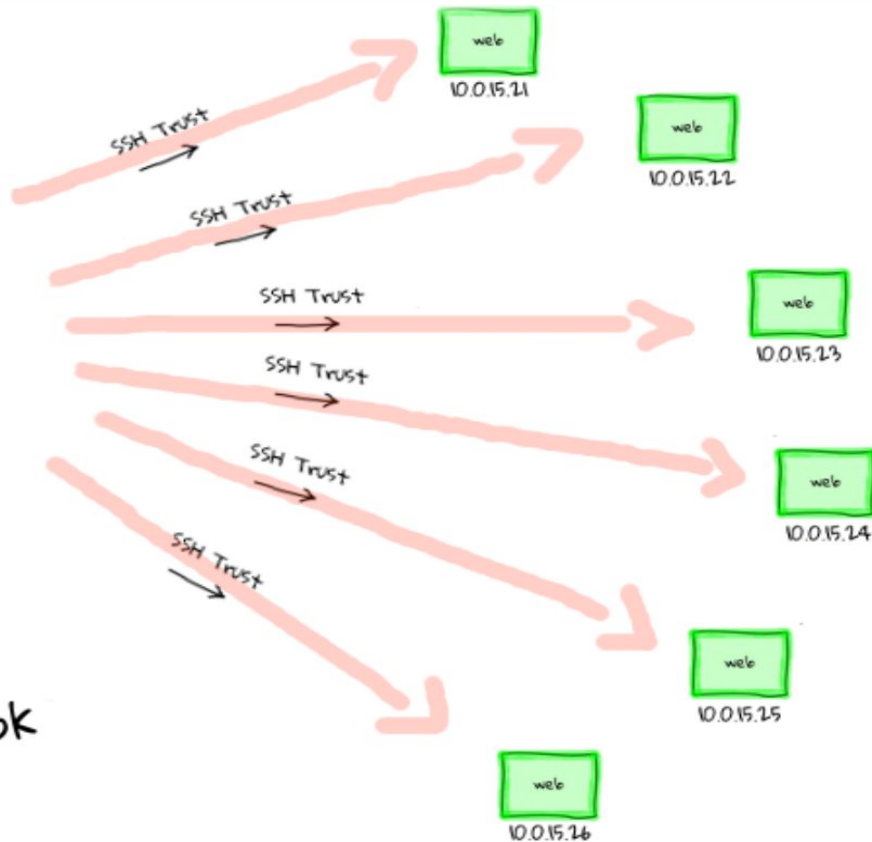


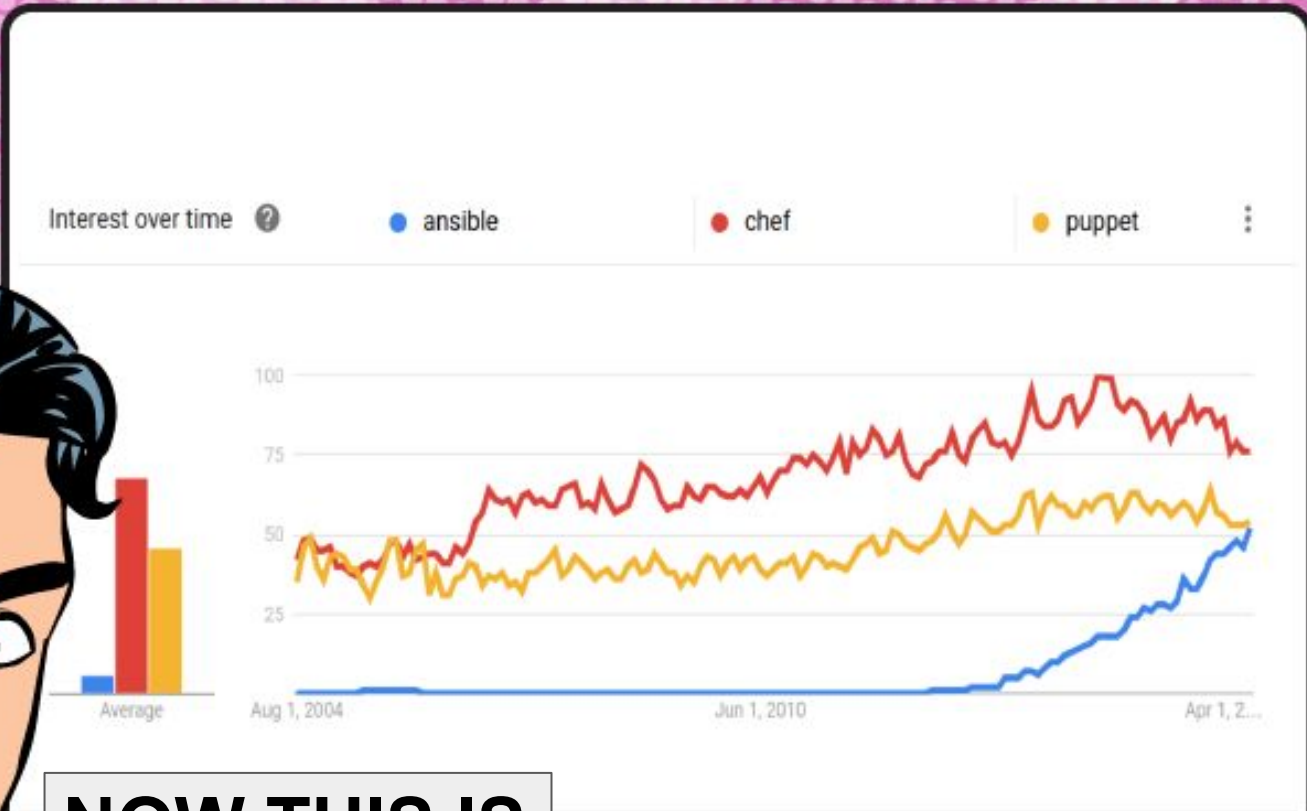
Host
Inventory

10.0.15.21
10.0.15.22
10.0.15.23



Playbook
web



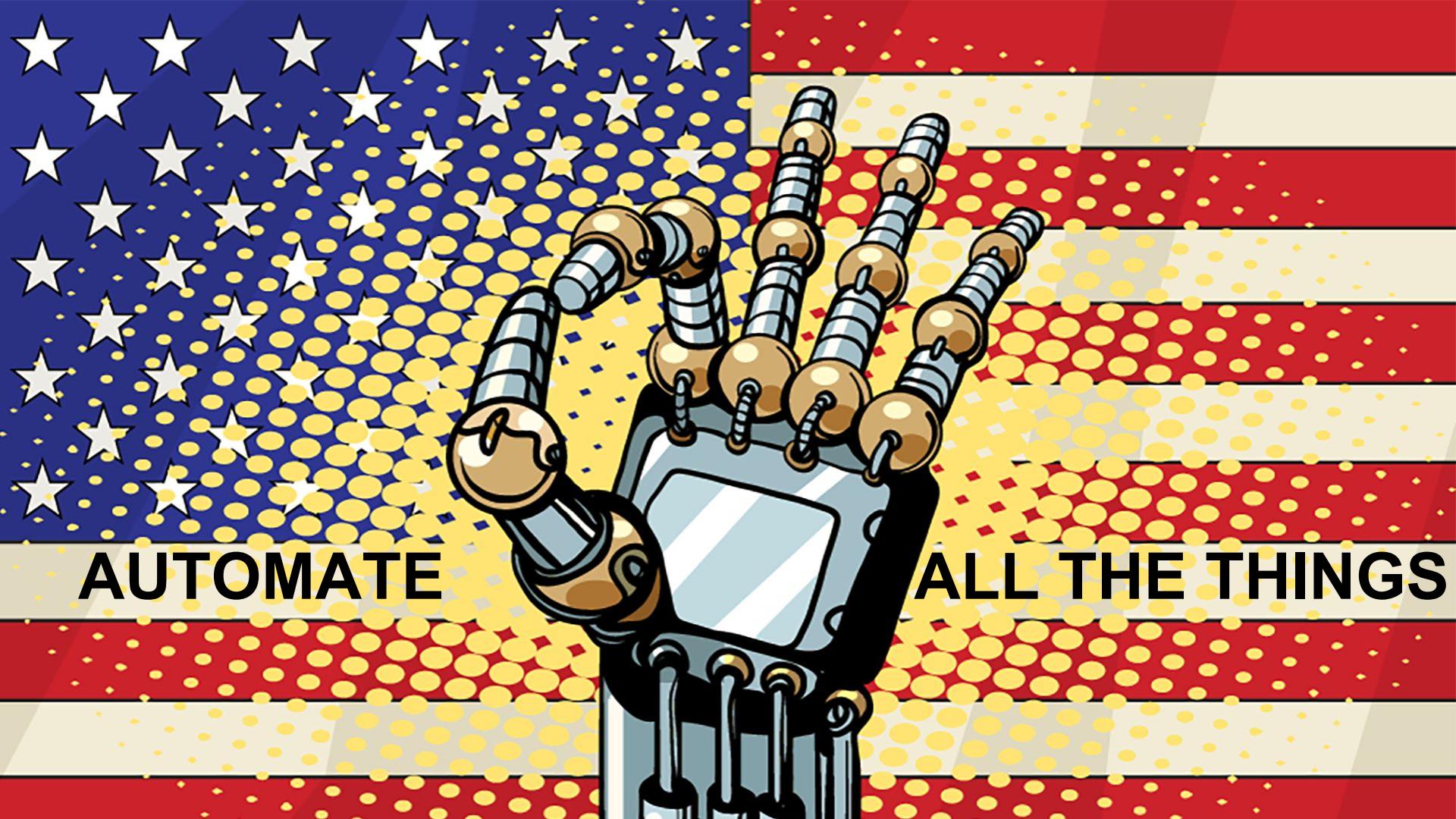


**NOW THIS IS
A TREND!**

**TIME TO DOUBLE
DOWN ON INTERNAL
SKILL SETS**

- **Consider IT as a core competency**
- **Learning vs buying skills**
- **Focus on automation**





AUTOMATE

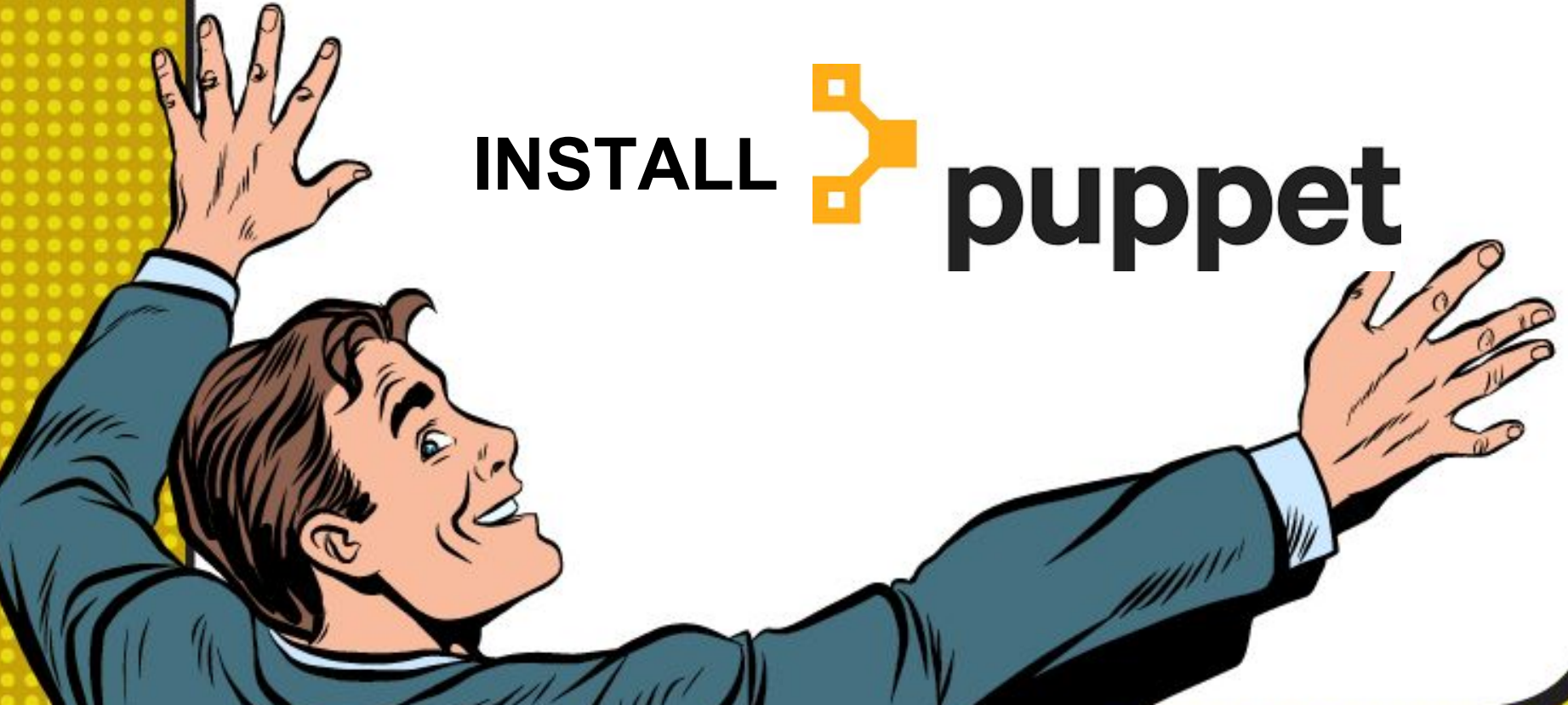
ALL THE THINGS

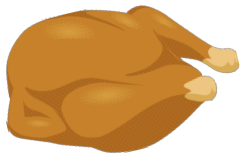
CASE STUDY # 1

INSTALL



puppet





“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!**

tasks/main.yml

...

- 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



handlers/main.yml

...

```
- name: sign client certificate
  delegate_to: "{{ puppet_ca }}"
  command: /opt/....puppet cert --sign {{ ansible_fqdn }}
2>/dev/null arg1
  args:
    creates: "/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
```

handlers/main.yml (Continued)

- 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"

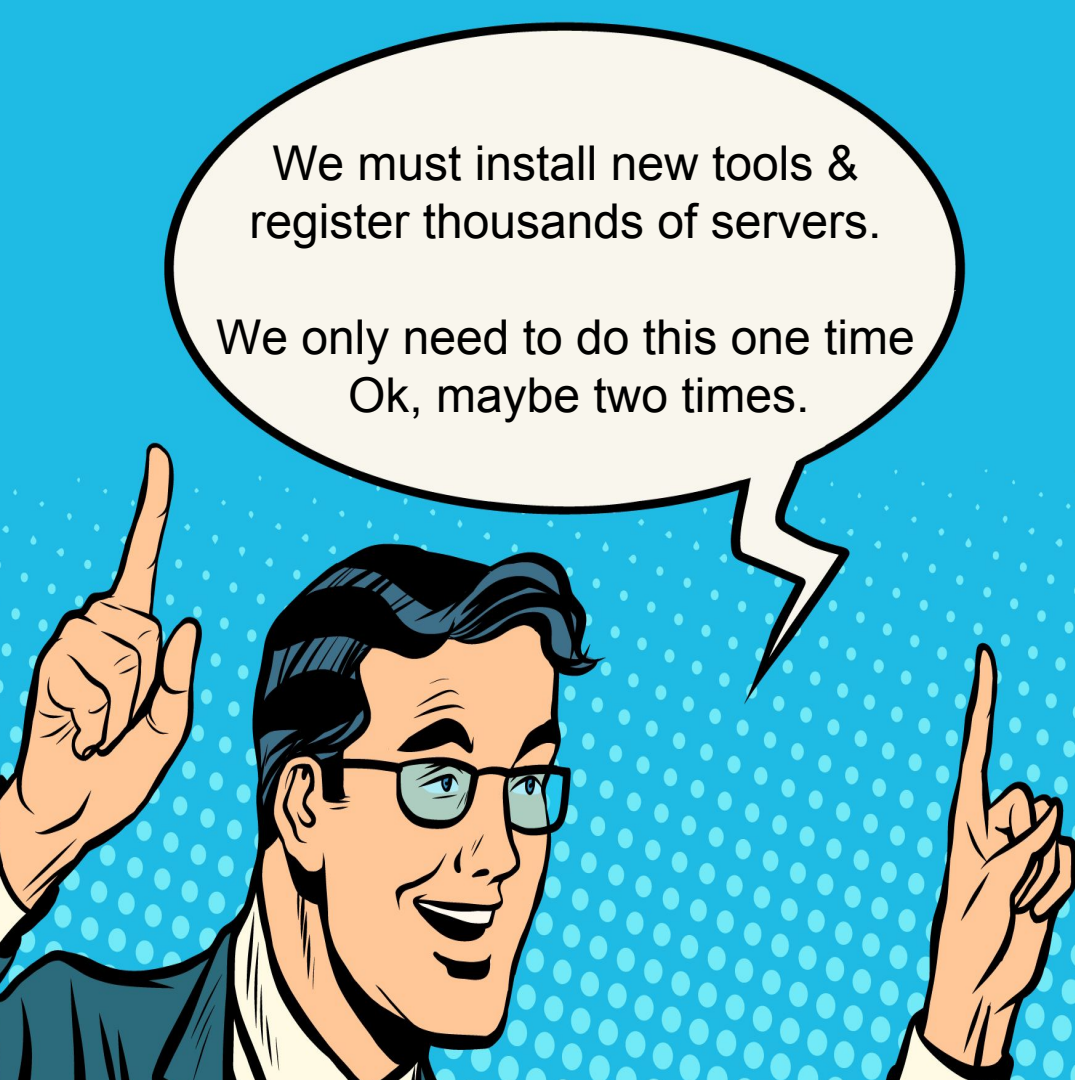


CASE STUDY # 2

RED HAT®
SATELLITE.5 >>>


RED HAT®
SATELLITE.6





We must install new tools &
register thousands of servers.

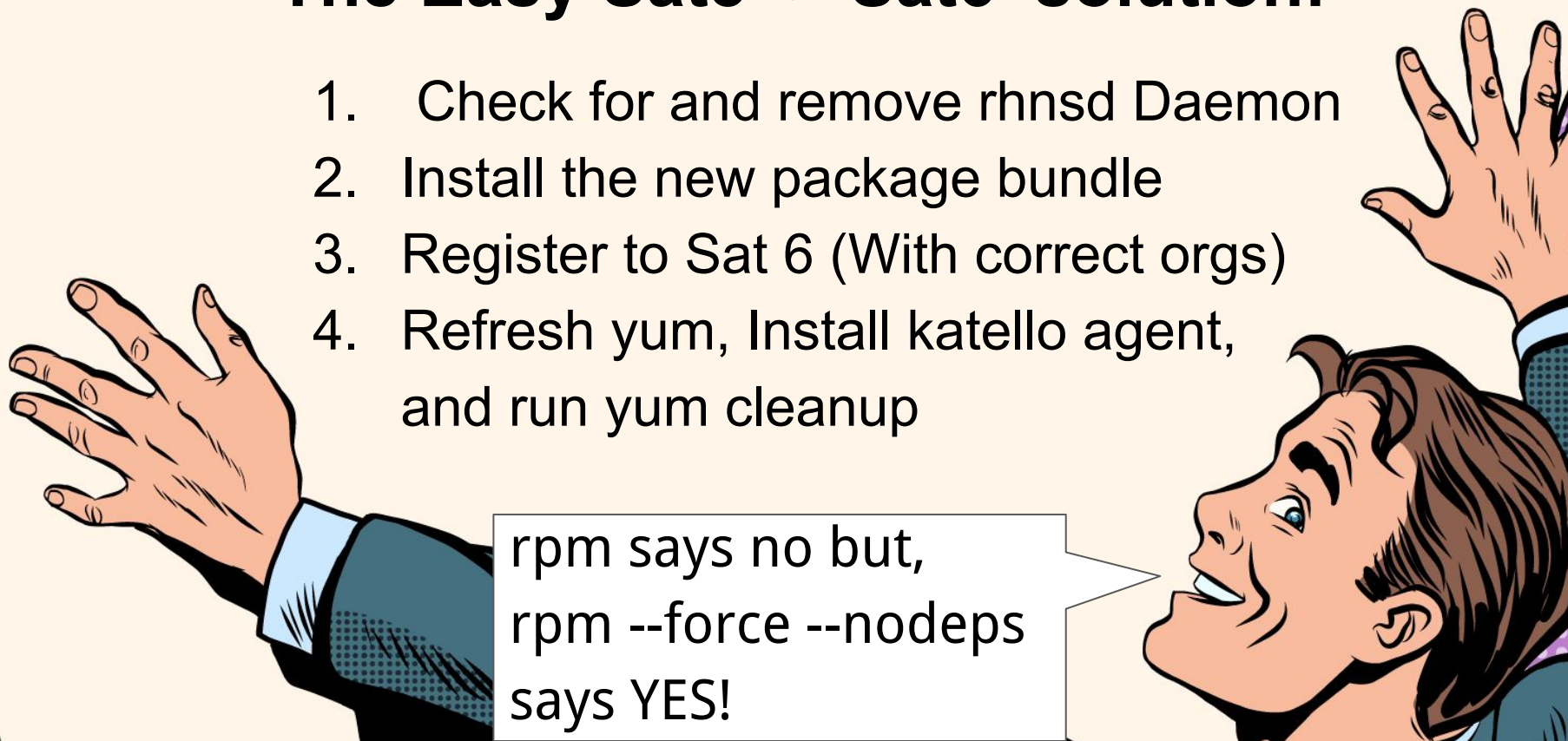
We only need to do this one time
Ok, maybe two times.



**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!



What's a snowflake?

Easy... except for all the snowflakes!

- 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?

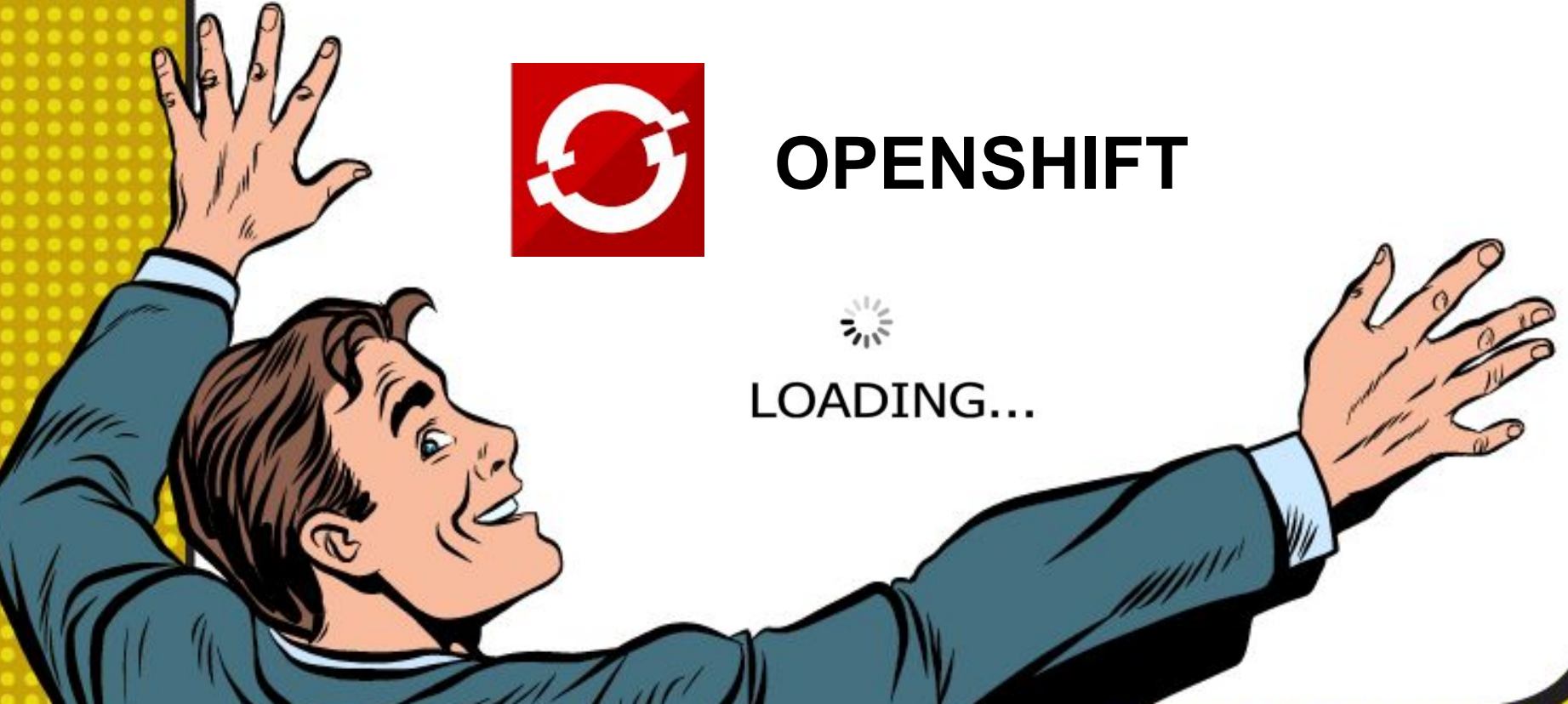
CASE STUDY # 3



OPENSIFT




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 ~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!

The logo consists of a red speech bubble shape pointing downwards, containing the text "RED HAT" in a smaller font above "SUMMIT" in a larger, bold font, both in white.

RED HAT
SUMMIT

LEARN. NETWORK.
EXPERIENCE
OPEN SOURCE.

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