Splunk Configuration Management and Deployment with Ansible

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Intros

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Agenda

- Deploying Splunk with Ansible
- Git for Configuration Management
- Git for Configuration Monitoring
- Demo
- Take Away

Deploying Splunk with Ansible

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Deployment Tools

- Why use a deployment tool?
  - Automate Deployment (full lifecycle)
    - Provision systems and Operating System
    - Create users and the application environment
    - Deploy/update binaries and scripts
    - Deploy/update configuration files
    - Control – start/stop/restart services
  - Deployment Server?
    - Only deploys Splunk configurations under $SPLUNK_HOME/etc/apps

Many choices:

- Ansible
- Puppet
- Chef
- CFEngine
- Salt
- BladeLogic
- ……

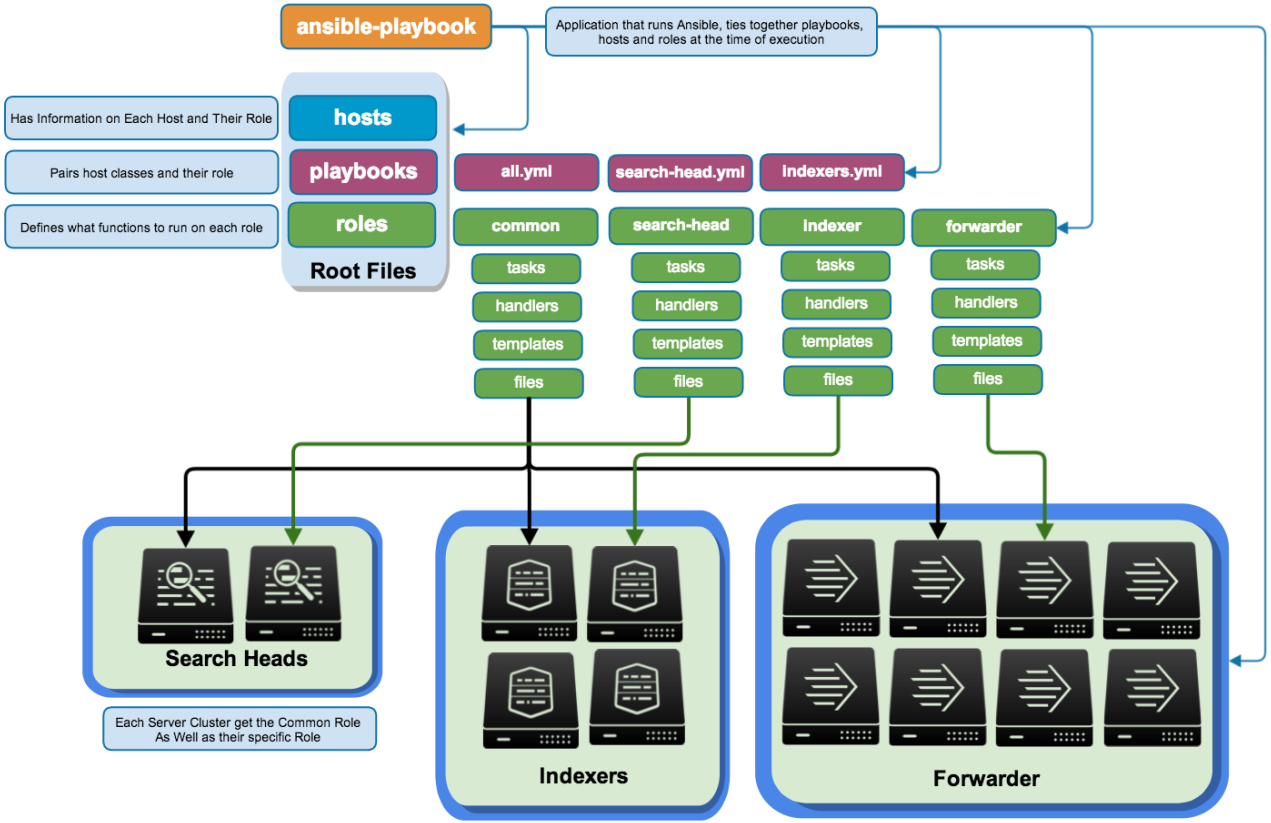
Why Ansible?

- No Agent Required
- Uses SSH as Transport
- Easy to pickup
- Low overhead and scales to huge deployments
- Python Base
- Windows deployments via Powershell

Ansible Primer

- Ansible-playbook: Ansible executable which runs the playbooks etc..
- Hosts: INI file which contains the role/group and host mapping
- Playbooks: Ties in Roles, host groups and task together to create orchestrated actions on target hosts
- Roles: contains the actions each group will complete (this is where the deployment logic lives)

Ansible Structure



Running Ansible

Requirements:

- Ansible Installed
- Splunk-admin user updated with your keys under /playbooks/splunk_creds/splunk-admin.pub
- Root password of hosts to run Ansible in
- Make sure you have ssh keys generated for root
- Hosts inventory updated

Running Ansible, cont…

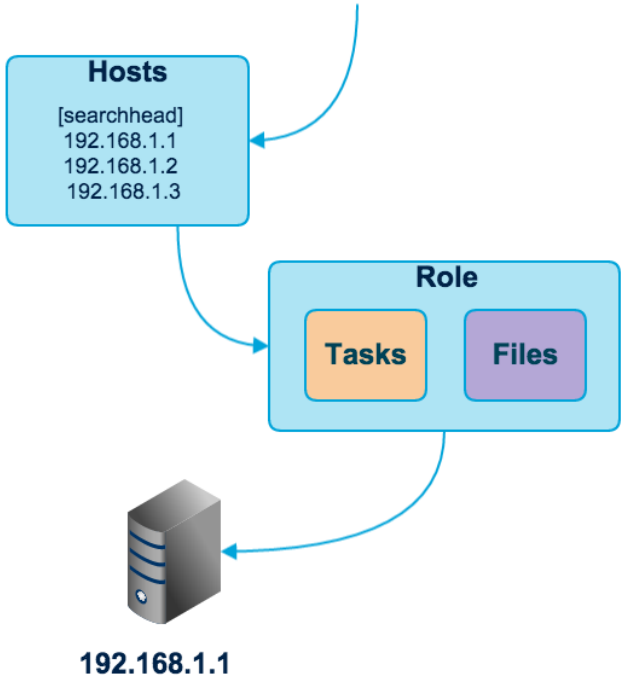
- Before running Ansible make sure that your environment is set correctly. Run:
- `. /opt/ansible/hacking/env-setup`

- To build a splunk server from scratch just run:
- `./ansible-playbook /etc/ansible/playbook/search_heads.yml`

- Make sure that you have hosts defined under hosts

Running a Playbook

ansible-playbook playbooks/searchhead.yml -l 192.168.1.1



Running Searchhead Playbook

```
/etc/ansible#ansible-playbook playbooks/search_heads.yml
PLAY [apply common configuration to all nodes] ********************************
GATHERING FACTS ***************************************************************
ok: [162.243.231.42]
TASK: [common | install security controls] *************************************
ok: [162.243.231.42] => (item=chkrootkit,rkhunter,clamav,fail2ban)
TASK: [common | install basic utilities] **************************************
ok: [162.243.231.42] => (item=vim,screen,iotop,htop,ioping,ntp)
TASK: [common | create splunk-admin] ******************************************
ok: [162.243.231.42]
TASK: [common | copy splunk-admin bash_profile] *******************************
ok: [162.243.231.42]
```

Splunk and Git

Part 1: Configuration Management

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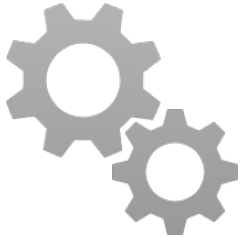
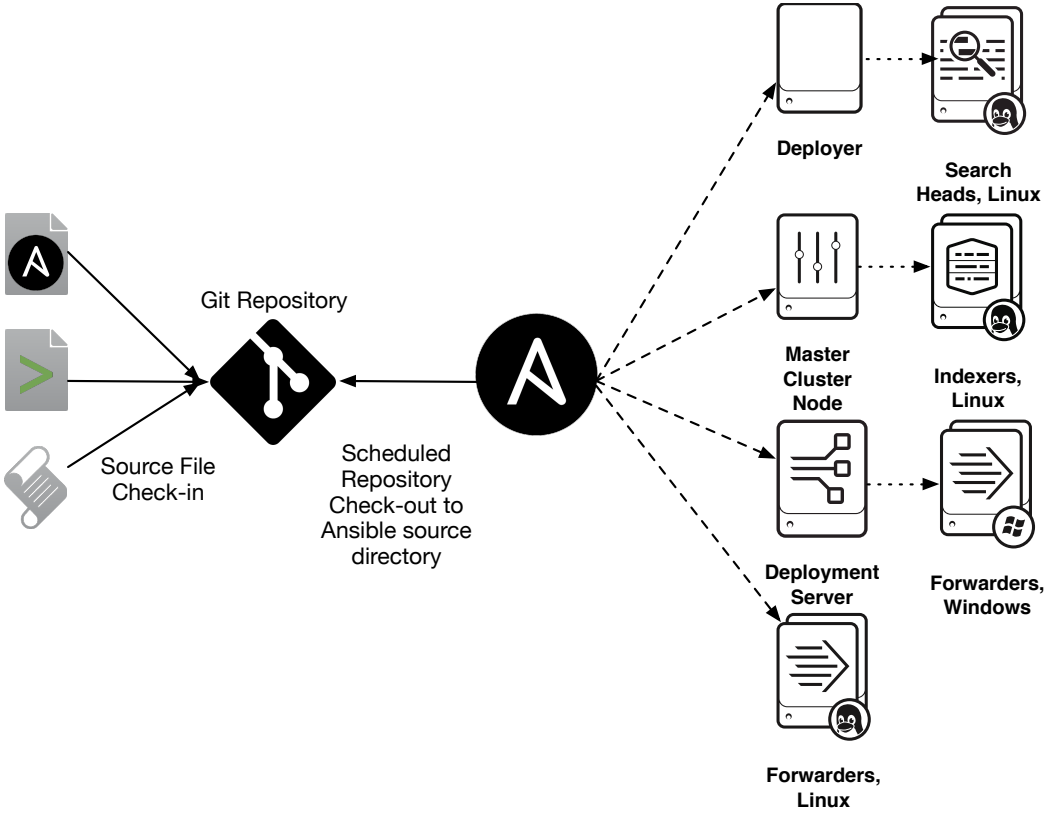
DevOps Approach

- Treat Configuration Files as code
  and test, deploy programmatically

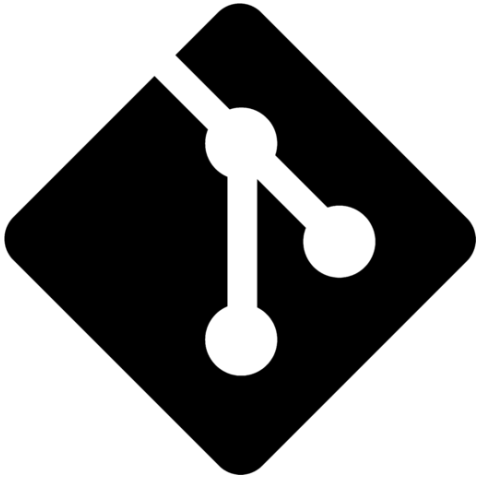


- Apply QA/change management controls
  - Gold reference copy
  - Check-ins and diffs (Who, What, When changed)
  - Combine with CM/Ticketing System (Who and Why)
  - Easy roll-back to known good state

Configuration Deployment



Git Repository Tree



```
ansible-splunk-simple]
└── $tree -L 3 -d
.
├── group_vars
├── images
├── playbooks
│   ├── splunk_binaries
│   └── splunk_creds
│       ├── splunk_binaries
│       └── splunk_creds
└── roles
    ├── cluster_master
    │   ├── files
    │   ├── handlers
    │   └── tasks
    ├── common
    │   ├── files
    │   ├── handlers
    │   ├── tasks
    │   ├── templates
    │   └── vars
    ├── ec2
    │   ├── defaults
    │   ├── handlers
    │   ├── meta
    │   ├── tasks
    │   └── vars
    ├── indexer
    │   ├── files
    │   ├── handlers
    │   └── tasks
    ├── license_master
    │   ├── files
    │   ├── handlers
    │   └── tasks
    ├── search_head
    │   ├── files
    │   ├── handlers
    │   └── tasks
    └── universal_forwarder
        ├── files
        ├── handlers
        └── tasks
```

Git: Clone, Sample And Create Your Own Repository

- `git clone <repo> /etc/ansible`
- `rm -rf .git`
- `git init`
- `git add *`
- `git commit -m 'my first commit'`
- `git remote add origin <your new repo url>`
- `git push -u origin masterFile check-in`

Git: Checking Updated Files

- `git status`

```
[redacted]nsible:/etc/ansible$ git status
On branch rc
Your branch is up-to-date with 'origin/rc'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        modifiedfile.txt

nothing added to commit but untracked files present (use "git add" to track)
```

- `git add modifiedfile.txt`

```
[redacted]@ansible:/etc/ansible$ git status
On branch rc
Your branch is up-to-date with 'origin/rc'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   modifiedfile.txt
```

- `git commit -m 'add your commit message here'`
- `git push origin master`

Git: Checkout to Ansible Source

- On the Ansible server run the following in a script via cron

- `git fetch --all`
- `git reset --hard origin/master`

Splunk and Git

Part 2: Configuration Monitoring

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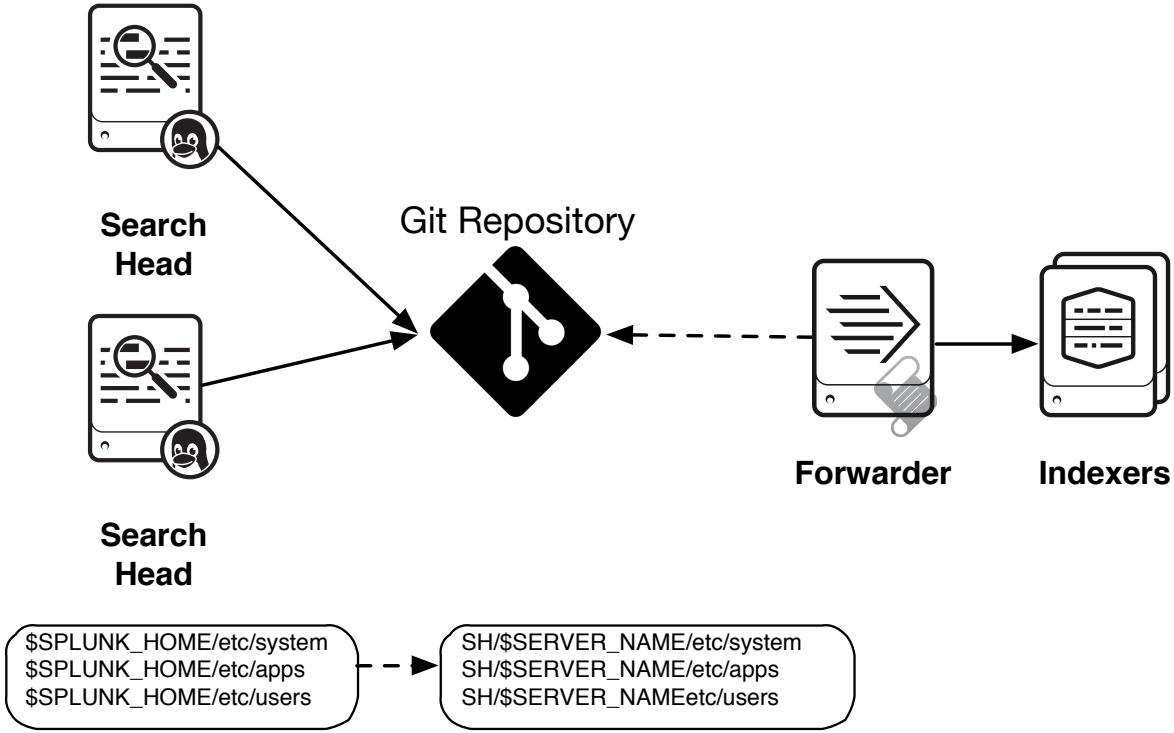
Problem: Search Load Gone Crazy?

- One or many users have created or modified a dashboard search or saved scheduled that is creating excess load on your Splunk servers
- How do you find which search is the culprit?

Solution: Monitoring Changes to Search Configs

- On search heads setup a cron script to check-in any changes Git on the following directories:
- `$SPLUNK_HOME/etc/system`
- `$SPLUNK_HOME/etc/apps`
- `$SPLUNK_HOME/etc/users`
- Use a scheduled scripted input on a forwarder to collect regular file changes and index the changes in Splunk
- `git whatchanged`
- Once indexed you can search for changes over a time window

Splunking Searchhead Config Changes



Putting it in Action

Demo Time

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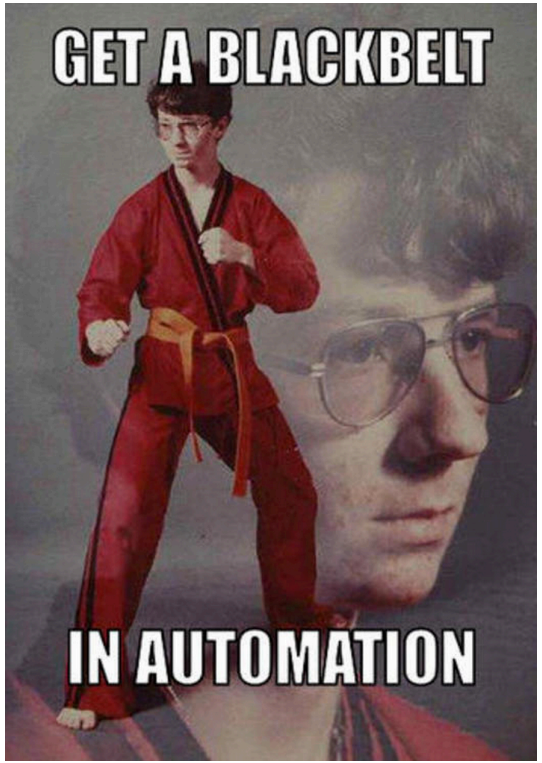
Take Away

- Automation with Ansible takes some work up from, but will will make life simpler in the long run
- Using Git for Splunk/Ansible configuration management allows for change management and simplified roll backs.
- Checking in Searchhead configs into Splunk provides the ability to detect Admin and User Search changes

Resources

- Deploying Splunk Securely with Ansible Config Management – Part 1
- http://blogs.splunk.com/2014/07/12/deploying-splunk-securely-with-ansible-config-management-part-1/
- Deploying Splunk Securely with Ansible Config Management – Part 2
- http://blogs.splunk.com/2015/02/09/deploying-splunk-securely-with-ansible-config-management-part-2/



What Now?

Related breakout sessions and activities…

THANK YOU

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