Ansible, the missing piece

Managing agents and orchestrating remediation

Andrew Nelson
Senior Consultant
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- Introduction
- What is Ansible and Ansible Tower
- Using Zabbix as an inventory source
- Remediation of issues discovered by Zabbix
whoami

Senior Consultant with Red Hat in North America

Member of the Zabbix community for more than 15 years

Author of ZBXAPI, first ever Zabbix API library.

Maintainer of the original Zabbix bot in #zabbix (now back online)

Linux user since 1996
Ansible and Ansible Tower
Ansible

- Tool for agentless orchestration and configuration management
  - Clients need to have at least Python 2.6
  - Default access method is via SSH
- Design is functional in nature.
- Playbooks use a yaml format which provide the parameters for modules
- Core libraries are written in Ansible, but modules can be written in any language.
- Leverages the Jinja2 templating engine
Ansible Tower

- Web based fronted to Ansible
  - Provides a separation of permissions via a Role Based Access Control model. User may have permissions to run a privileged playbook, but will not have permission to view privileged credentials.
  - Ability to go back in time and review playbook runs
  - Provides a REST API interface
- Upstream project is AWX
  - https://github.com/ansible/awx
A brief introduction to Ansible

Following snippet will add a welcome message when logging in.

```yaml
---
- hosts: all
  become: true

tasks:
- name: Change /etc/issue message
  copy:
    contents: "Hello Ansible world!"
    dest: /etc/issue
    perms: 0444
    owner: root
    seuser: system_u
    serole: object_r
    setype: etc_t
```
Using Zabbix as an Inventory Source
The Need

- Zabbix lacks agent configuration management.
- Configure Zabbix agents when hosts are added to Zabbix.
- Deploy additional client configurations if required by for specific templates.
The Components

- Ansible provides a capability for dynamic inventories
- Scripting already exists for Ansible Core to use Zabbix as an inventory source
- Script requires modification to run in the current version of Tower.
  - Tower runs scripts in a dynamic /tmp directory, script needs the full path to it’s credential ini file.
- Groups and host names in Zabbix can contain spaces, this may cause challenges in Ansible
The Approach

- Create repository for Zabbix playbooks
The Approach

- Create repository for Zabbix playbooks
- Write playbook to configure agent

```yaml
---
- hosts: all
  become: true
  roles:
    - zabbix_agent
```
The Approach

- Create repository for Zabbix playbooks
- Write playbook to configure agent
- Write playbook to add template items to agent

---
- hosts: templ_Template_Squid
  become: true

roles:
- zabbix_squid
The Approach

- Create repository for Zabbix playbooks
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- Write playbook to add template items to agent
- Add project to Ansible Tower for playbooks
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- Create workflow job to run playbooks (Step 1 of 4)
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- Add Zabbix inventory script to Tower
- Create Job templates for agent playbooks (2 job templates)
- Create workflow job to run playbooks (Step 3 of 4)
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- Create repository for Zabbix playbooks
- Write playbook to configure agent
- Write playbook to add template items to agent
- Add project to Ansible Tower for playbooks
- Add Zabbix inventory script to Tower
- Create Job templates for agent playbooks (2 job templates)
- Create workflow job to run playbooks (Step 4 of 4)
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- Create repository for Zabbix playbooks
- Write playbook to configure agent
- Write playbook to add template items to agent
- Add project to Ansible Tower for playbooks
- Add Zabbix inventory script to Tower
- Create Job templates for agent playbooks (2 job templates)
- Create workflow job to run playbooks
- Configure workflow job to run every hour.
Brief Review

- Host added to Zabbix
- Agent configuration workflow runs hourly
  - Inventory updated
  - Agent configuration playbook is run
  - Playbook for template custom agent items is run
- Configuration workflow can be run at any time manually.
Automating Remediation
Remediating Issues with Tower

- Tower API can be leveraged to run playbooks from Zabbix
- tower-cli needs to be installed on Zabbix server.
- Remediation playbook will leave a message in Zabbix event history

Diagram:
- Tower
  - Runs Playbook
  - Alert Action
- Zabbix
  - Step 1: Perform remediation
  - Step 2: Log remediation attempt in event history
- Client
Configuring Remediation

- Create remediation playbook
  - Custom module was required

```yaml
---
- hosts: all
  become: true
  roles:
    - zabbix_agent
---
- hosts: all
  become: true
  tasks:
  - name: Restart squid
    service:
      name: squid
      state: restarted
  - name: Acknowledge alert
    become: false
    local_action:
      module: zabbix_ack
      server_url: "{{ server_url }}"
      login_user: "{{ login_user }}"
      login_password: "{{ login_password }}"
      eventid: "{{ eventid }}"
      message: "Remediation attempted via Ansible Playbook ({{ ansible_date_time.date }})
                  {{ ansible_date_time.time }})"
      close_event: False
```
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
  - Ensure template requires eventid
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
- Create Zabbix alert
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
- Create Zabbix alert
  - Make sure “tower-cli” is installed on Zabbix server
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
- Create Zabbix alert
- Test
Configuring Remediation

- Create remediation playbook
  - Custom module was required
- Create Job template for remediation
- Create Zabbix alert
- Test
Conclusion
Source Code

Scripts are available on github:
https://github.com/red-tux/zabconf2017
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