Delegation

Ansible Advanced

Agenda

- Delegation characteristics
- Delegated facts

Delegation characteristics

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Delegation

- Delegation in Ansible refers to the ability to execute tasks on a machine other than the one targeted by the current play or task
- In other words, even if a play targets a specific host or group of hosts, you can use delegation to perform certain tasks on a different host or hosts
- This feature is particularly useful in scenarios where, for example, you want to gather data from a machine but use that data on another machine, or when you want to perform an action on a machine in response to a state or change on another machine

How to Configure Delegation

- Delegation in Ansible is configured using the **`delegate_to`** keyword within a task

```
- name: Execute a task on another host
  command: /some/command
  delegate_to: another.host.com
```

- In the above example, even if the play targets **`hostA`**, the command will be executed on **`another.host.com`**.

Points to consider

- Facts Gathering
  - By default, facts gathered by the setup module reflect the target host and not the delegated host
  - If you want to gather facts for the delegated host, you'll need to run the setup module against that host with delegation
- Looping with Delegation
  - If you're using a loop in your task and you delegate the task, the task will be delegated for each item in the loop
- Error Handling
  - If a task fails on the delegated host, it will be considered a failure for the original host
- Connection and Privilege
  - The connection type (e.g., ssh, local) and privilege escalation (e.g., become) apply to the delegated host

Example

- Restarting a Service on a Load Balancer
- Imagine you have a scenario where you're deploying an application on a web server, and after the deployment, you want to restart a service on a load balancer.

```
- name: Deploy application
  git:
    repo: https://example.com/myapp.git
    dest: /var/www/myapp

- name: Restart load balancer service
  service:
    name: loadbalancer
    state: restarted
  delegate_to: loadbalancer.host.com
```

Delegated facts

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Delegated facts

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Delegate Facts

- Feature in Ansible that allows you to gather facts from a delegated host and then associate those facts with the original host in the inventory
- This can be particularly useful in scenarios where you need to make decisions or take actions on one host based on facts from another host

How it works

- When you use the **`delegate_to`** keyword in a task, you're instructing Ansible to execute that specific task on a different host than the one currently targeted by the play
- By default, if you gather facts using delegation (e.g., by running the setup module on a delegated host), those facts are stored under the delegated host's entry in the **`ansible_facts`** dictionary
- However, there might be scenarios where you want the facts from the delegated host to be associated with the original host
- This is where **`delegate_facts`** comes into play
- When you set **`delegate_facts: True`** in a task that uses **`delegate_to`**, the facts gathered from the delegated host will be stored under the original host's entry in the **`ansible_facts`** dictionary.

Use Cases

- Multi-tier Deployments
  - In scenarios where you're deploying applications across multiple tiers (e.g., web servers, application servers, databases), you might need to gather facts from one tier and use them in tasks targeting another tier
  - Using **`delegate_facts`**, you can associate facts from one tier with hosts in another tier
- Conditional Execution
  - You might want to execute certain tasks on a host based on facts from another host
  - For instance, you might decide to deploy an application on **`hostA`** only if **`hostB`** has a certain amount of free disk space.
- Network Scenarios
  - In network automation tasks, you might want to gather data from a network device and use that data in tasks targeting servers or other devices
  - Using **`delegate_facts`**, you can associate network device data with server hosts.

Demo: Delegation

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