DATE : 09.04.2025

DT/NT : DT

LESSON : ANSIBLE

SUBJECT: FACTS-VAULT-DYNAMIC INVENTORY

BATCH : B 303

AWS-DEVOPS

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Ansible Facts

- In Ansible, facts are the data collected from remote hosts that can be used by Ansible playbooks to make decisions. These facts can be related to hardware, network, software, or any other information that can be queried from a remote host.

- Ansible facts are collected by the setup module, which is a built-in module in Ansible. The setup module collects a wide range of information from the remote host such as hardware details, operating system details, IP address, disk usage, and much more.

Ansible Facts

- Facts are stored in memory for the duration of the playbook execution and can be accessed as variables in tasks, plays, and templates. You can also use the “debug” module to display facts collected by Ansible.

- To collect facts for a specific host, you can use the “**gather_facts**” parameter in the play definition. This parameter can be set to “yes” or “no”. If it is set to “yes”, Ansible will collect facts before executing any tasks on the host.

Ansible Facts

```
- name: Gather facts and display IP address
  hosts: webserver
  gather_facts: yes
  tasks:
    - name: Display IP address
      debug:
        var: ansible_default_ipv4.address
```

- In the above example, we're using the "debug" module to display the IP address of the webserver. The IP address is accessed using the "ansible_default_ipv4.address" variable, which is a fact collected by Ansible.

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Ansible Facts

```
ansible all -m setup
```

```
ansible all -m setup -a 'filter=ansible_distribution'
```

```
- hosts: all
  tasks:
    - name: Install Nginx on RedHat
      package:
        name: "nginx"
        state: present
      when: ansible_facts["os_family"] == "RedHat"

    - name: Install Nginx on Debian/Ubuntu
      package:
        name: "nginx"
        state: present
      when: ansible_facts["os_family"] == "Debian"
```

```
- hosts: all
  tasks:
  - debug:
      var: ansible_facts["distribution"]
```

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Ansible Vault

Description and Purpose:
Ansible Vault is a tool that allows you to securely store and distribute encrypted information within Ansible. You can safely use sensitive data such as passwords, certificate keys, etc. in playbooks.

Key Features: Ability to encrypt and decrypt files.Possibility to use encrypted data in Ansible configurations such as playbooks, variable files and roles.

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Ansible Vault

```
cherry@ubuntu:~$
cherry@ubuntu:~$
cherry@ubuntu:~$ ansible-vault create secrets.yml
New Vault password:
Confirm New Vault password:
cherry@ubuntu:~$
cherry@ubuntu:~$
cherry@ubuntu:~$
```


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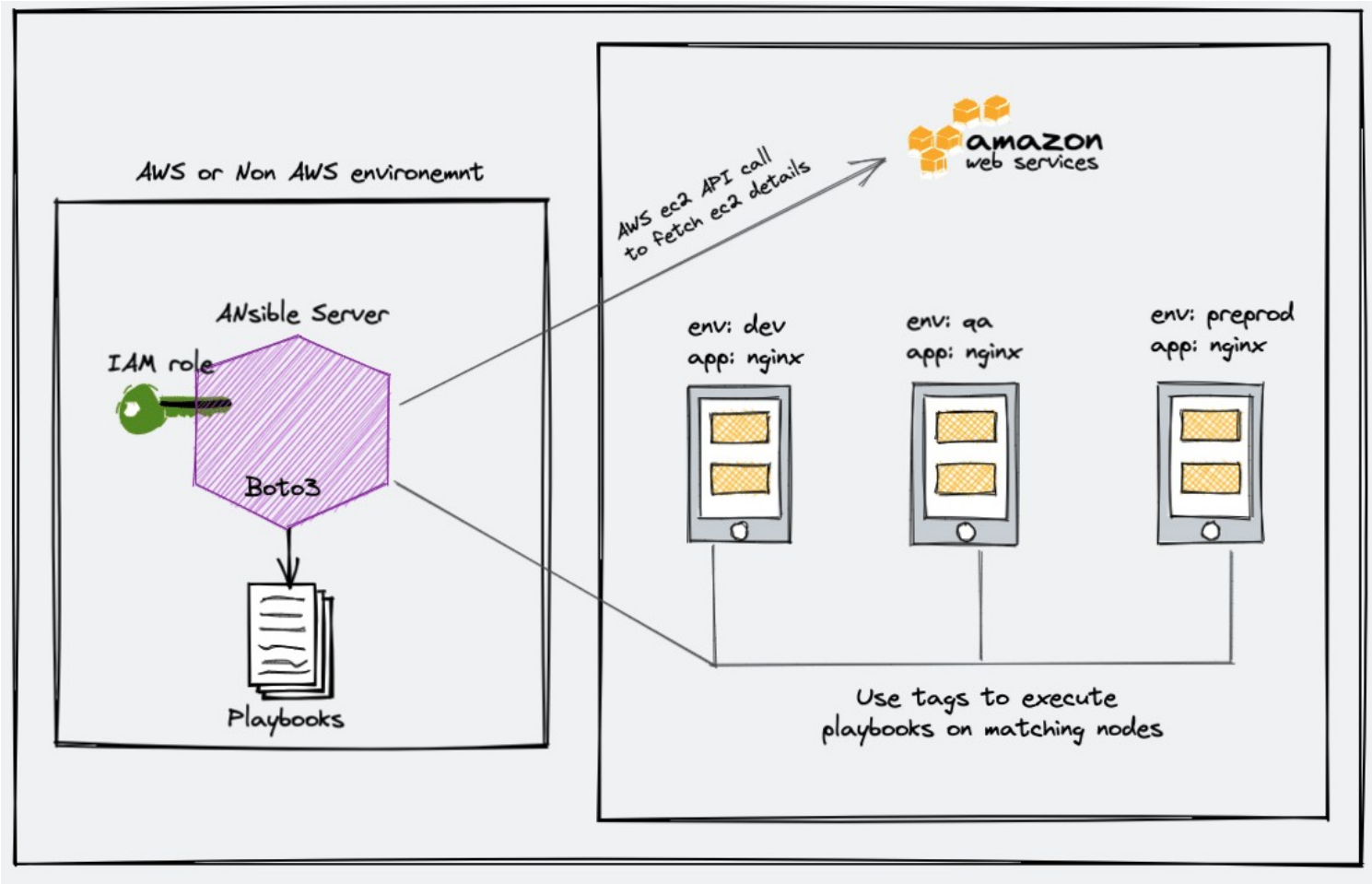
Dynamic Inventory

By default, ansible deals with the static inventory but in the production environment, the application runs on the auto-scaling groups so, the IPs of the servers keep changing so in that time dynamic inventory comes into the picture. Ansible dynamic inventory connects to the cloud provider and it will get the available virtual machines IP and then it will run the playbook on them.

Dynamic Inventory



Dynamic Inventory

```
plugin: aws_ec2

aws_access_key: <YOUR-AWS-ACCESS-KEY-HERE>
aws_secret_key: <YOUR-AWS-SECRET-KEY-HERE>

regions:
  - us-west-2

keyed_groups:
  - key: tags
    prefix: tag
  - prefix: instance_type
    key: instance_type
  - key: placement.region
    prefix: aws_region
```

```
plugin: aws_ec2
regions:
  - us-east-1
  - us-west-2
keyed_groups:
  - key: tags
    prefix: tag
compose:
  ansible_host: public_ip_address
```

inventory_aws_ec2.yml

```
ansible-inventory -i aws_ec2.yml --graph
```

```
[ec2-user@ip-172-31-7-57 ~]$ ansible-inventory --graph
@all:
  |--@aws_ec2:
  |  |--ec2-37-37-71-28.us-west-2.compute.amazonaws.com
  |  |--ec2-32-162-164-204.us-west-2.compute.amazonaws.com
  |  |--ec2-32-161-37-202.us-west-2.compute.amazonaws.com
  |  |--ec2-51-37-105-53.us-west-2.compute.amazonaws.com
  |--@aws_region_us_west_2:
  |  |--ec2-37-37-71-28.us-west-2.compute.amazonaws.com
  |  |--ec2-32-162-164-204.us-west-2.compute.amazonaws.com
  |  |--ec2-32-161-37-202.us-west-2.compute.amazonaws.com
  |  |--ec2-51-37-105-53.us-west-2.compute.amazonaws.com
  |--@instance_type_t2_micro:
  |  |--ec2-37-37-71-28.us-west-2.compute.amazonaws.com
  |  |--ec2-32-161-37-202.us-west-2.compute.amazonaws.com
  |--@instance_type_t2_nano:
  |  |--ec2-51-37-105-53.us-west-2.compute.amazonaws.com
  |--@instance_type_t2_small:
  |  |--ec2-32-162-164-204.us-west-2.compute.amazonaws.com
  |--@tag_Name_Ansible:
  |  |--ec2-37-37-71-28.us-west-2.compute.amazonaws.com
  |--@tag_Name_Ansible_Client:
  |  |--ec2-51-37-105-53.us-west-2.compute.amazonaws.com
```

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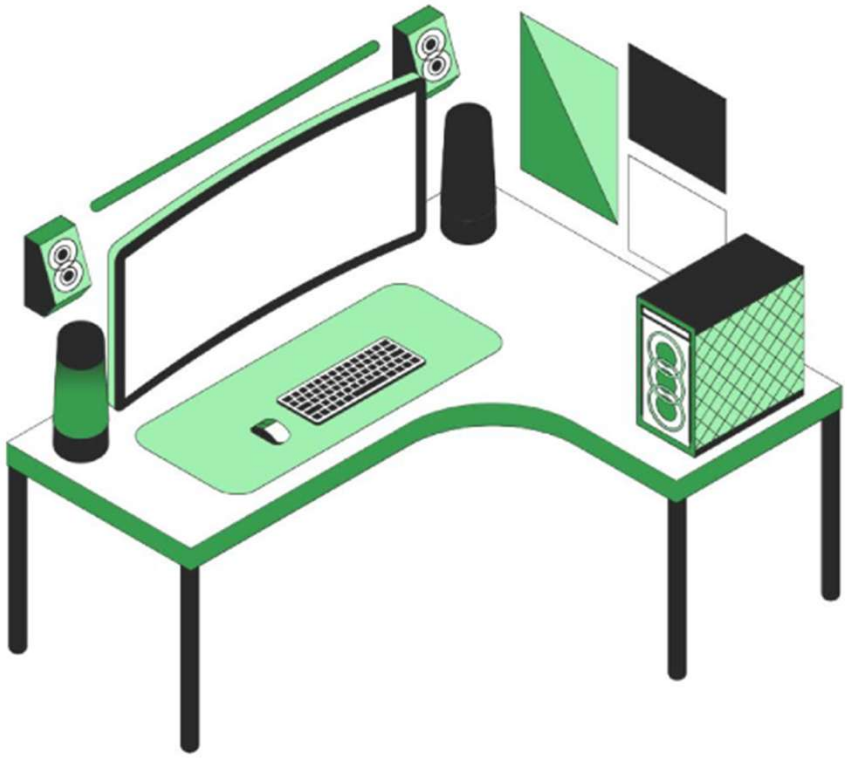

Do you have any questions?

Send it to us! We hope you learned something new.