Ansible Architecture

Ansible is AgentLess

Control Node/Workstation (Linux/Unix Only)
yum install ansible python -y

Python Installed

Inventory
- Static [static file with system name/IP] (yaml/ini)
- Dynamic [Active Directory, LDAP, Satellite CMDB, Openstack,AWS] via python script

Push a Task(Module with values) to Managed Hosts
1. Ad-Hoc Command (Development/Testing) One time NOT reusable
   ansible hostname -m Module_name -a 'option1=value1 option2=value2'
2. Playbook (Production) Reusable as many time
   ansible-playbook play1.yml

Playbook:
vim play1.yml
```
- name:  Playbook Purpose
  hosts: list_host
  tasks:
  - name: Install httpd
    Module_name:
          Module_options:
- name: Create user
  Module_name:
          Module_options:
```

INVENTORY:
Default File: /etc/ansible/hosts
Custom File: YOUR_CUSTOM_PATH

ANSIBLE Configuration File:
Default File: /etc/ansible/ansible.cfg Level 1
User file(Home Dir): ~/.ansible.cfg Level 2
Project specific: ./ansible.cfg Level 3
Define Env Variable: ANSIBLE_CONFIG #=/tmp/ansible.config Level 4

1. Copy module.py from Control Node to Managed Host (Temp Folder)
2. Change permission of module.py to executable via chmod u+x module.py
3. Check & Execute using python and make changes (Desired State) Idempotent Behaviour
4. Remove Module which was copied (rm -rf Module_path)

Managed Hosts/Nodes

Python Installed — Linux

devops user as root via sudo/su

```
become: true
become_user: root
become_method: sudo/su
become_ask_pass: true/false
```

DEFAULT if Nothing explicitly Mentioned
```
ansible_connection: ssh
ansible_port: 22 (depend)
ansible_user: devops  # remote_user=devops
ansible_password: redhat (SSH_KEY)
```

PowerShell Installed — Windows

```
ansible_connection: winrm
ansible_port: 5986
ansible_user: devops   (remote_user)
ansible_password: redhat (SSH_KEY)
become: true
become_user: administrator
become_method: runas
become_ask_pass: true/false
```

Python May/May Not — Network Device

```
ansible_connection: network_cli/netconf
ansible_port: 22 (Depend)
ansible_user: admin (remote_user)
ansible_password: student (SSH_KEY)
become: true
become_user: admin
become_method: enable
become_ask_pass: true/false
```

Idempotent Modules/Behaviour
Desired State (OK, Changed, Fatal, ignoring)
Check if the Managed Hosts has already those configs ?
If Yes, Nothing Happen
If No, Config Changed Done

In Network Device Case which doesn't have python(Normally):
1. Copy Module.py from Control Node to Itself(CN) (Temp Folder)
2. chmod u+x on the module copied
3. Check & Execute and create commands if changes required
4. Push Commands to Device and (On Control Node) Remove Module which was copied from localhost (Control Node) (rm -rf Module_path)

Cloud