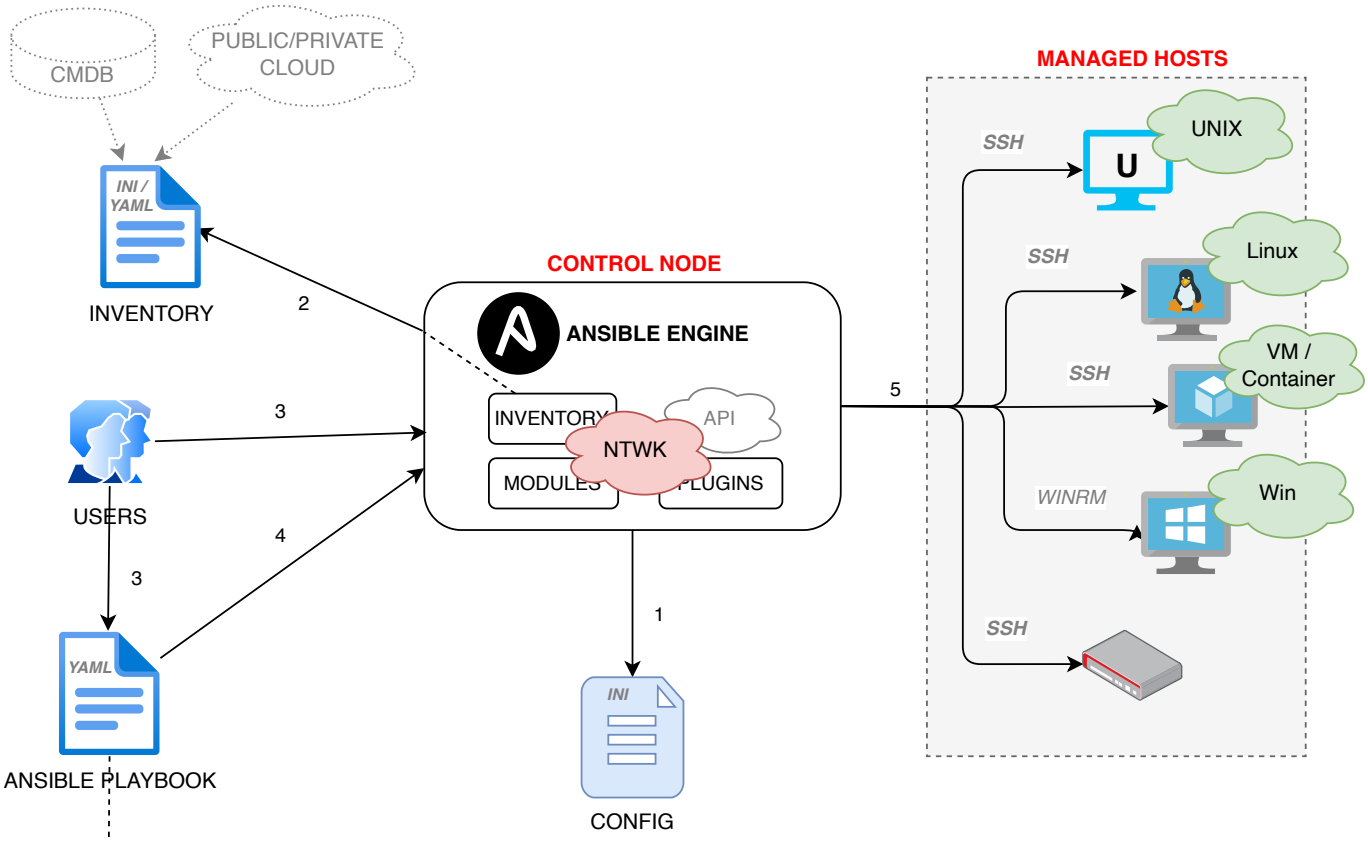
ANSIBLE ARCHITECTURE




```
- name: Play 1
  hosts:
    - HOST a
    - HOST b
    - GROUP c
  tasks:
    - name: Task 1
    - name: Task 2
    - name: Task 3
- name: Play 2
  hosts:
    - Host b
    - Host d
  tasks:
    - name: Task 1
    - name: Task 2
...
```

THE BASICS

1. A playbook contains a LIST of PLAYs
2. A PLAY contains a LIST of TASKS to be performed on the listed HOSTS within the PLAY.
3. A TASK is A MODULE (singular, 1 task = 1 module). Modules are written in Python Language.

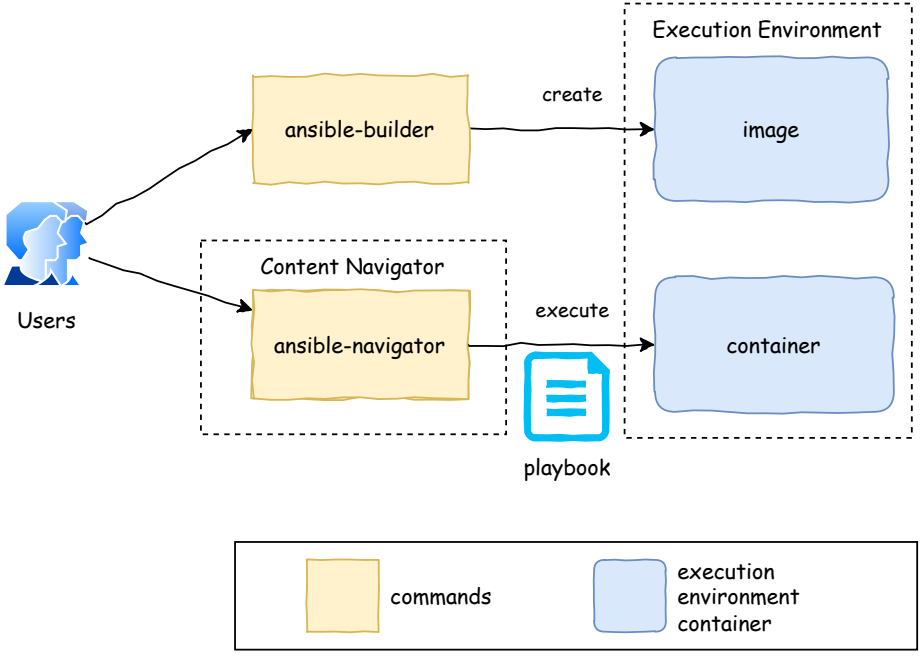
A bit more info :)

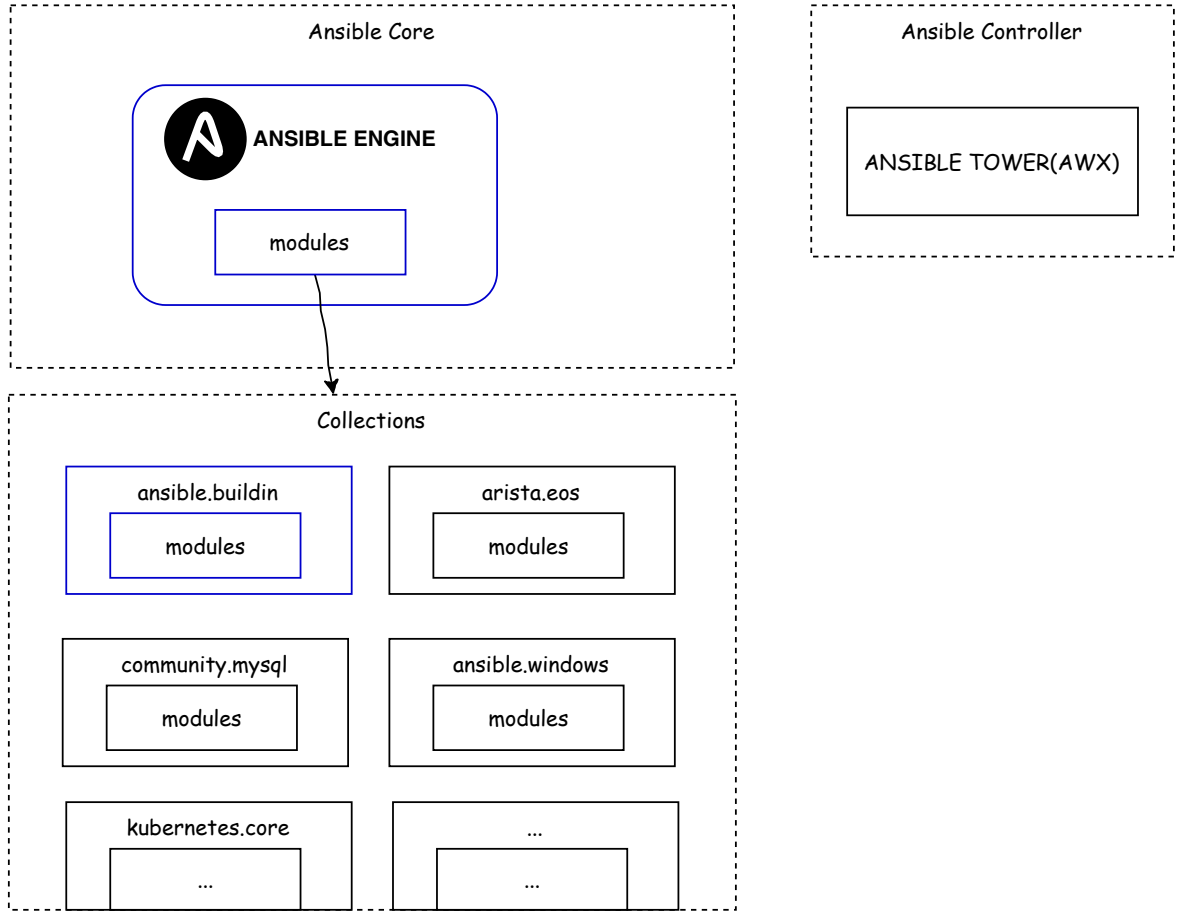
In EACH PLAY:

1. Tasks are executed sequentially (within the PLAY).
2. Each Task will be performed on ALL HOSTS concurrently (depends on *fork* setting).
3. Hosts that fails a tasks will not proceed to the next task.

```
- hosts:
    - spines,!vyos
    - serverc
  vars:
    abc: def
    msg: helo world
  tasks:
    - name: task1
      vars:
        value1: 100
      ios_command:
        commands:
          - show clock
          - sh run | i host

    - name: task2
      ios_ping:
        dest: 192.168.0.1

    - name: task3
      debug:
        msg: This is task3
  name: play 1

- name: play 2
  hosts: groupB
  tasks:

- name: play 3
  hosts: serverc
  tasks:
```

```
- name: My Play 1
  hosts:
    - servera
    - serverb
  vars:
    abc: def
  tasks:
    - name: Task 1
      copy:
        src: ./files/{{ abc }}
        dest: /etc/myapp/abc.conf
        mode: 0640

    - name: Task 2
      MODULE2:
        OPT: VALUE

- name: Second Play
  hosts: serverc
  tasks:
    - name: Task A
```


Execution Environment
ansible-builder
create
image
Users
Content Navigator
ansible-navigator
execute
container
playbook
commands
execution
environment
container


Ansible Core
ANSIBLE ENGINE
modules
Ansible Controller
ANSIBLE TOWER(AWX)
Collections
ansible.buildin
modules
arista.eos
modules
community.mysql
modules
ansible.windows
modules
kubernetes.core
...
...
...

Ansible Configuration

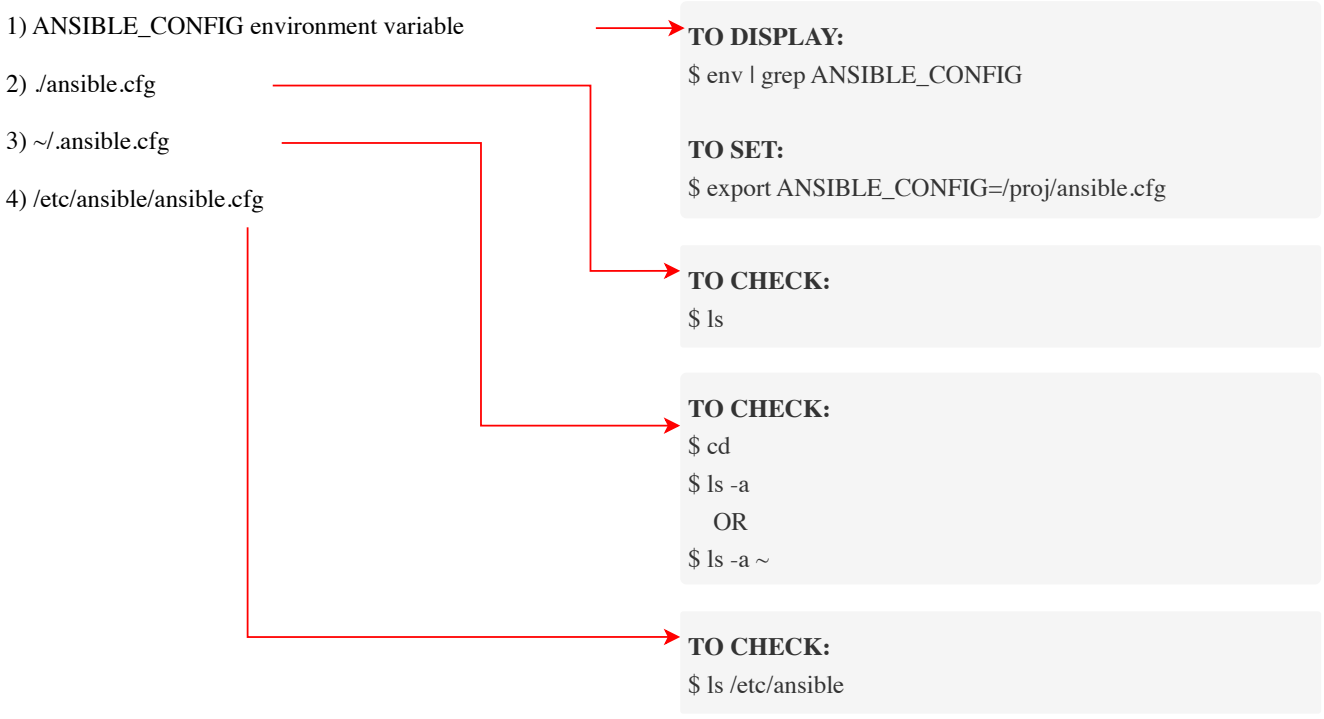
Precedence

1) ANSIBLE_CONFIG environment variable

2) ./ansible.cfg

3) ~/.ansible.cfg

4) /etc/ansible/ansible.cfg



ansible.cfg

```
[defaults]
inventory       = ./hosts           # location of inventory. can be file/diretory
remote_user     = operator          # login user on managed hosts
ask_pass        = False             # using passwordless login?
host_key_checking = False           # managed hosts already in ~/.ssh/known_hosts?
gathering       = explicit          # Don't use gather facts for network devices
transport       = network_cli       # Better to set using group_vars

[privilege_escalation]
become          = False             # change to become_user by default?
become_user     = admin             # Better to set using {group,host}_vars
become_method   = enable            # *nix=su,sudo; win=runas,psexec; ntdev=enable
become_ask_pass = False             # need to provide password when switching user?

[ssh_connection]
ssh_args        = -o ControlMaster=auto -o ControlPersist=60s
pipelining      = True              # REQUIRES requiretty sudo option
```

Inventory (single)

./myinventory

```
host_0

[group_a]
host_[1:3]
192.168.0.1

[group_b]
host_[a:c]
10.0.[1:2].254

[big_group:children]
group_a
groub_b
```

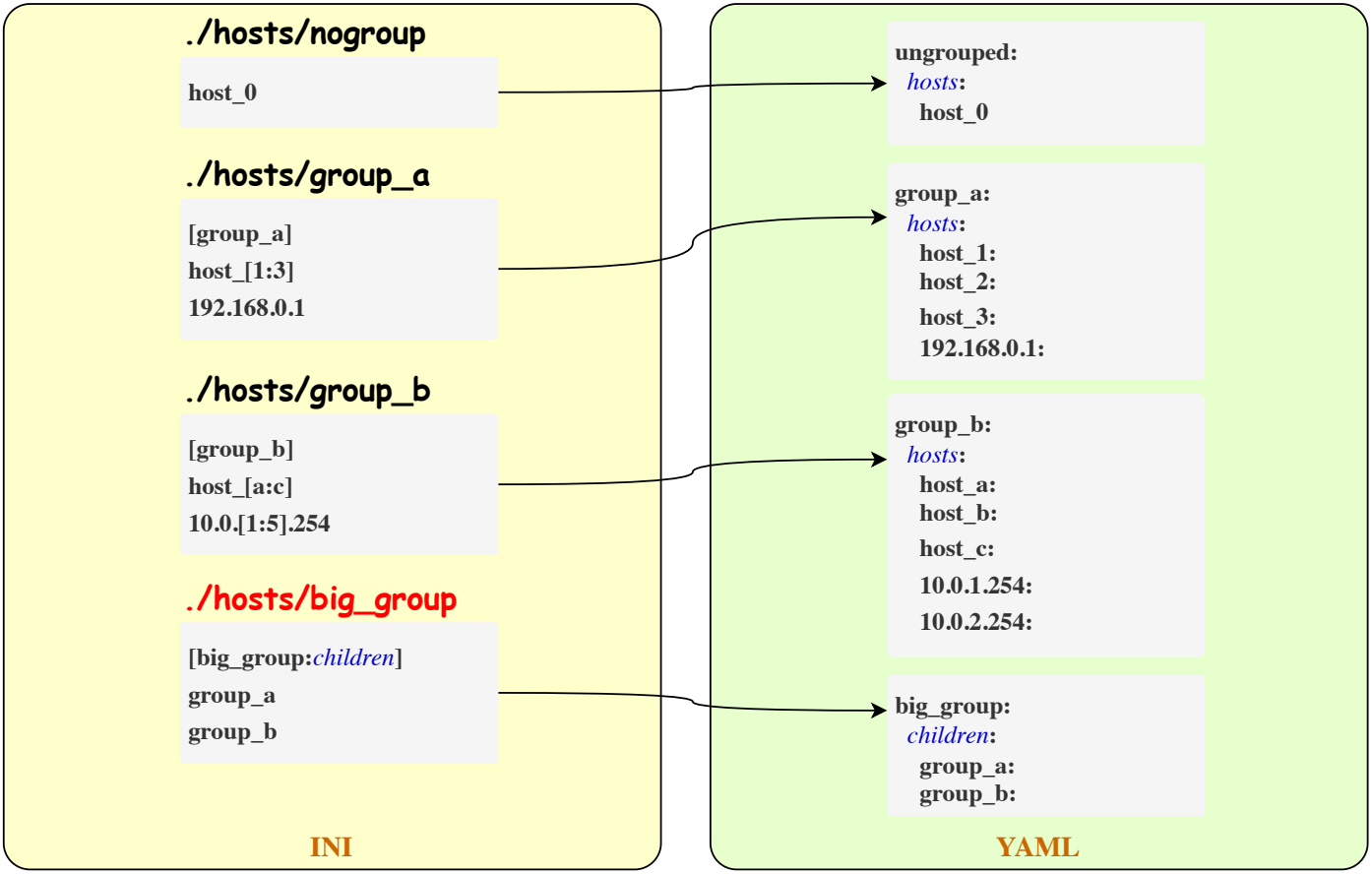
INI

./myinventory

```
all:
  children:
        ungrouped:
          hosts:
            host_0:
        big_group:
          children:
            group_a:
              hosts:
                host_1:
                host_2:
                host_3:
                192.168.0.1:
            group_b:
              hosts:
                host_a:
                host_b:
                host_c:
                10.0.1.254:
                10.0.2.254:
```

YAML

Inventory (single)



Inventory (single)

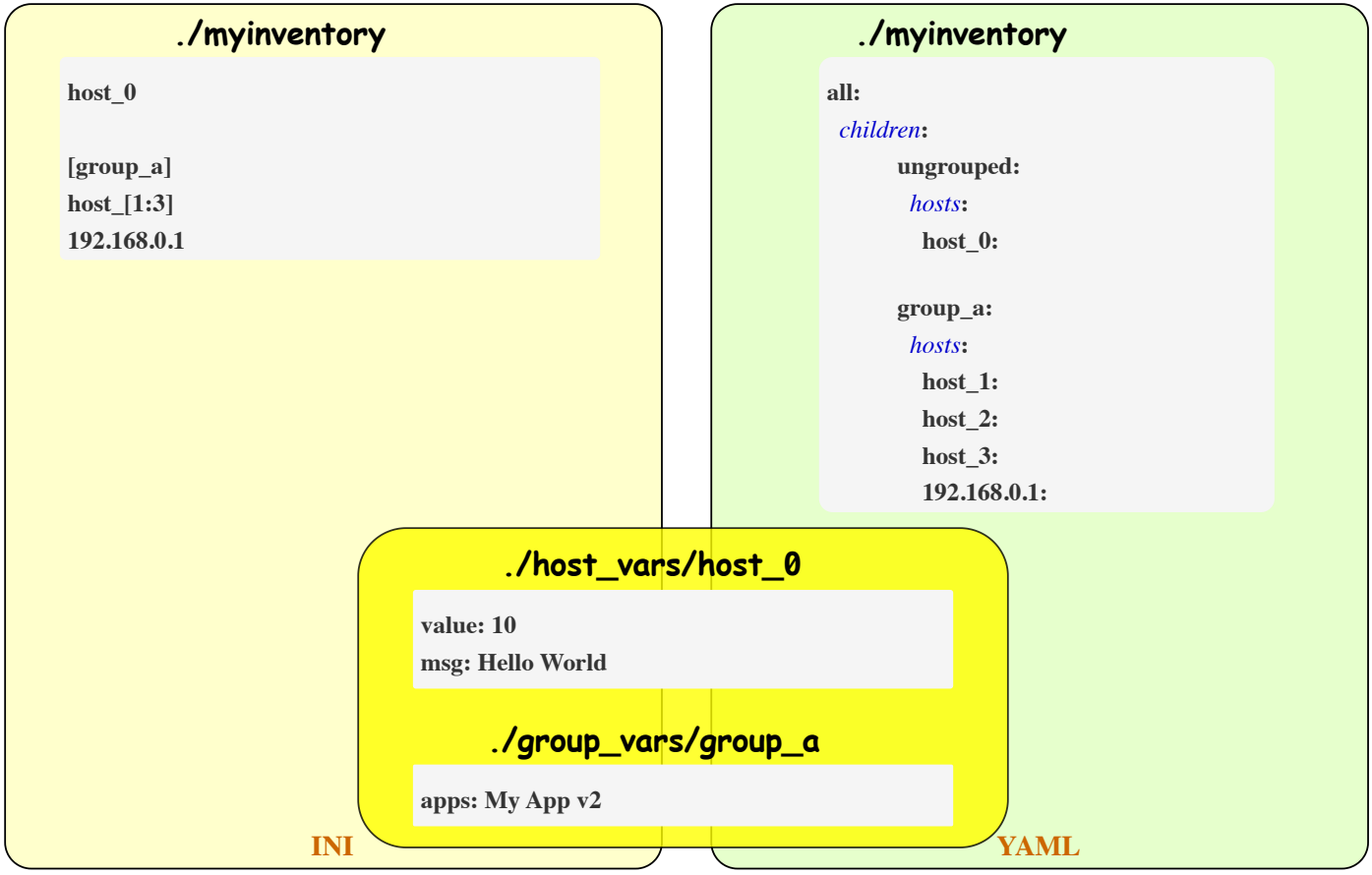
```
host_0   value=10 msg="Hello World"

[group_a]
host_[1:3]
192.168.0.1

[group_a:vars]
apps = My App v2
```

INI

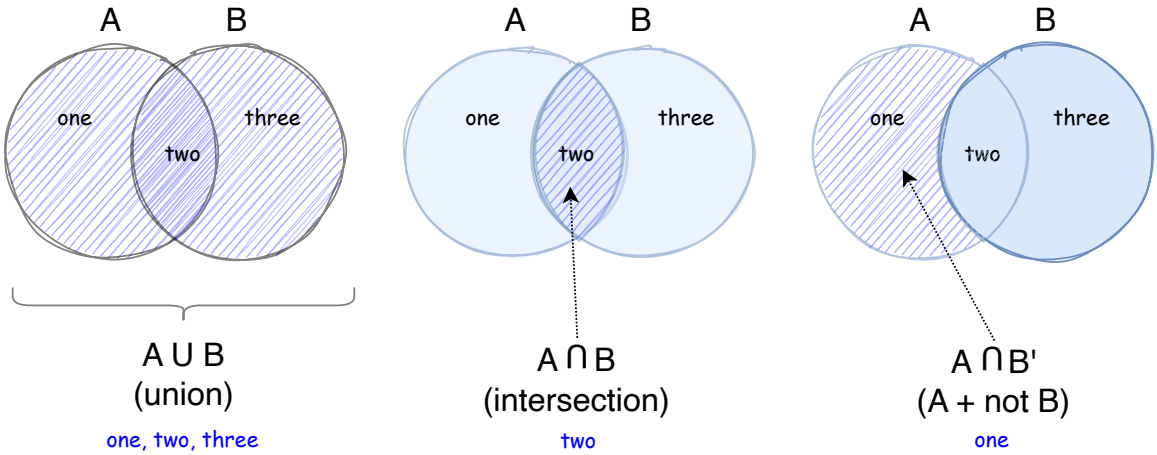
```
all:
  children:
        ungrouped:
          hosts:
            host_0:
              value: 10
              msg: Hello World
        group_a:
          hosts:
            host_1: {}
            host_2: {}
            host_3: {}
            192.168.0.1: {}
          vars:
            apps: My App v2
```

YAML

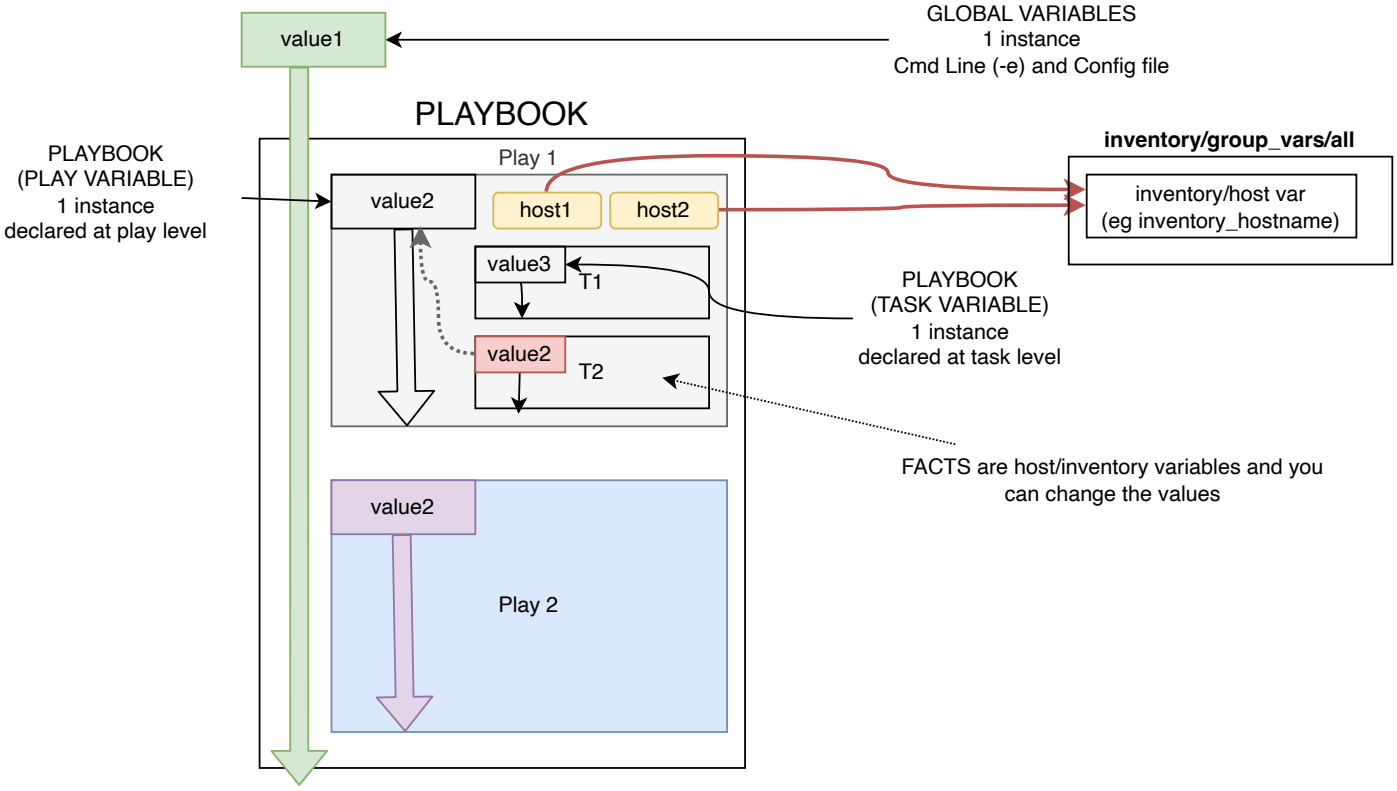
Inventory (vars - best practice)



'A,B' 'A,&B' 'A,!B'




```
ansible 'A,&B' -m vyos_config -a 'lines="set system host-name {{ inventory_hostname }}"'
```


value1
GLOBAL VARIABLES
1 instance
Cmd Line (-e) and Config file
PLAYBOOK
PLAYBOOK
(PLAY VARIABLE)
1 instance
declared at play level
Play 1
value2
host1
host2
inventory/group_vars/all
inventory/host var
(eg inventory_hostname)
value3
T1
PLAYBOOK
(TASK VARIABLE)
1 instance
declared at task level
value2
T2
FACTS are host/inventory variables and you
can change the values
value2
Play 2

LAB ENVIRONMENT