BATCH: 149

03/10/2023

DT/NT : DT

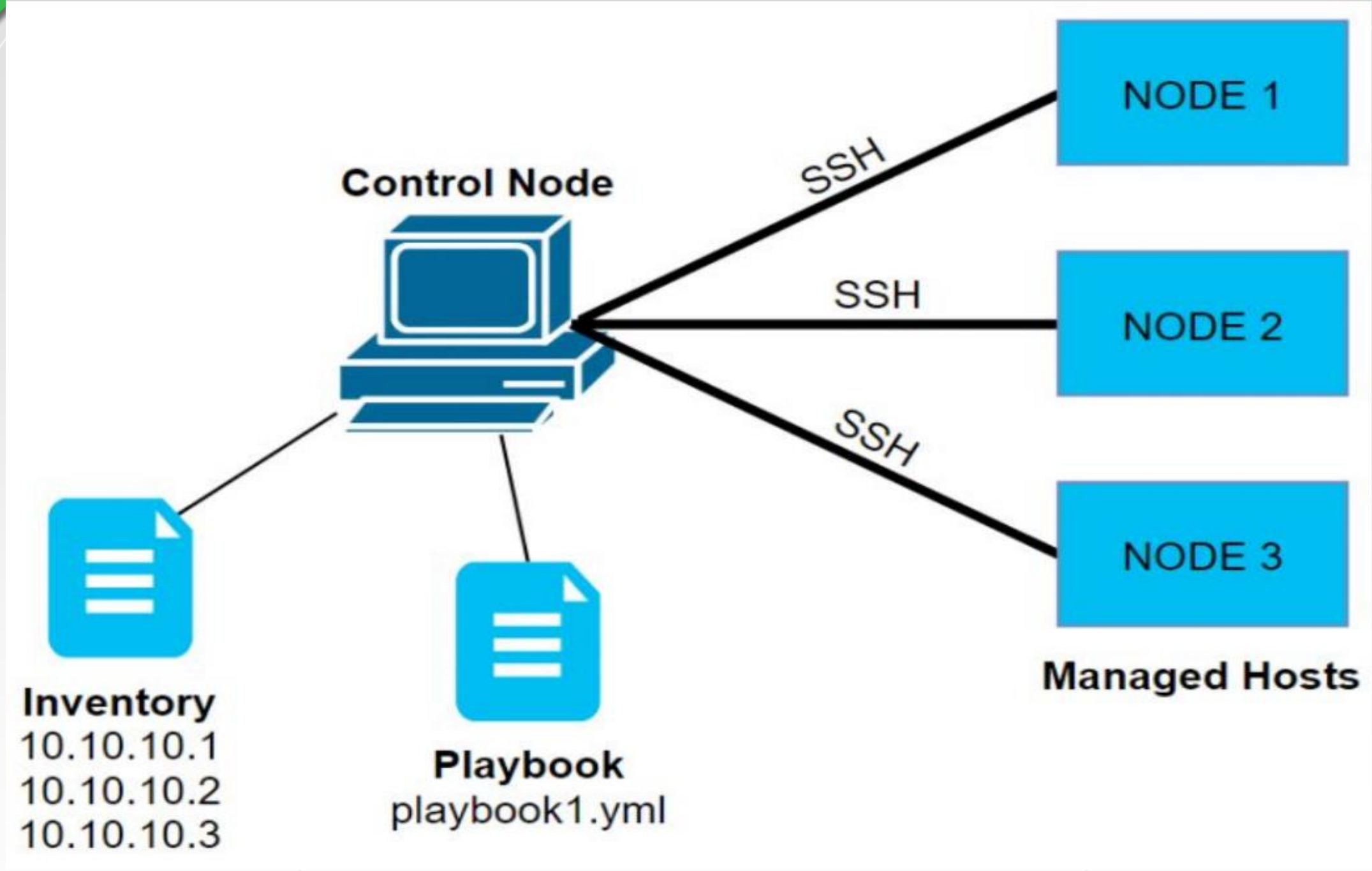
LESSON : DevOps

SUBJECT: Ansible 1

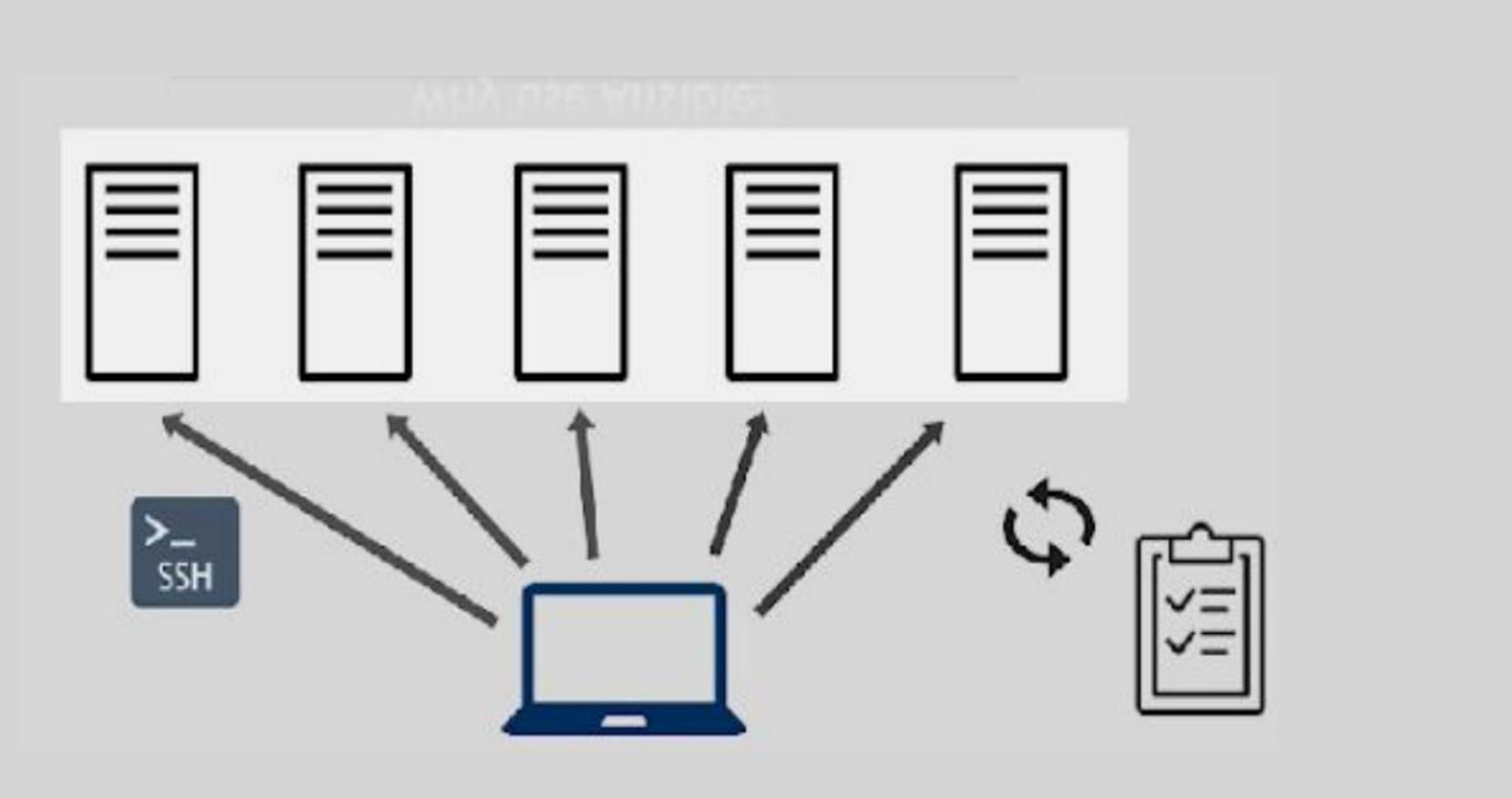
Install Ansible

Ad-hoc Commands

TECHPRO EDUCATION


Control Node
SSH
SSH
SSH
NODE 1
NODE 2
NODE 3
Managed Hosts
Inventory
10.10.10.1
10.10.10.2
10.10.10.3
Playbook
playbook1.yml

What did I do the last time? 🤔



About Ansible

Scripts

- Time
- Coding Skills
- Maintenance

- **Simple**
- **Powerfull**
- **Agentless**

About Ansible

Scripts

```
#!/bin/bash
# Script to add a user to Linux system
if [ $(id -u) -eq 0 ]; then
   $username=johndoe
   read -s -p "Enter password : " password
   egrep "^$username" /etc/passwd >/dev/null
   if [ $? -eq 0 ]; then
      echo "$username exists!"
      exit 1
   else
      useradd -m -p $password $username
      [ $? -eq 0 ] && echo "User has been added
to system!" || echo "Failed to add a user!"
   fi
fi
```

Playbook

```
- hosts: all_my_web_servers_in_DR
  tasks:
    - user:
        name: johndoe
```

Installation

We can install Ansible using **yum** and **apt** package managers.

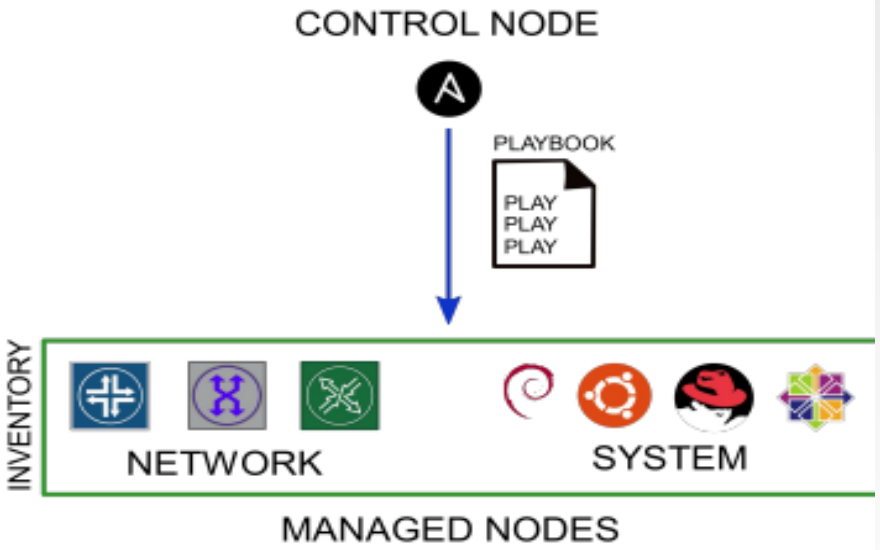
For install with **yum**:
sudo yum -y install ansible

For install with **apt**:
sudo apt-get -y install ansible

Ansible Concepts

Control node:

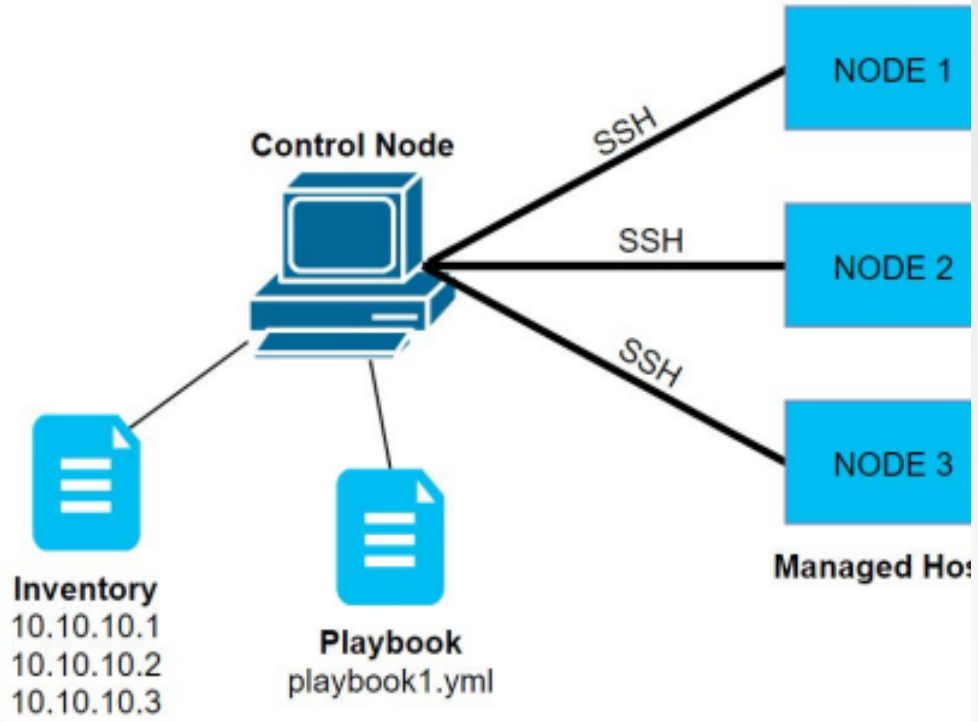
Any machine with Ansible installed. You can run commands and playbooks, invoking /usr/bin/ansible or /usr/bin/ansible-playbook, from any control node. You can use any computer that has Python installed on it as a control node - laptops, shared desktops, and servers can all run Ansible. However, you cannot use a Windows machine as a control node.



Ansible Concepts

Managed Nodes:

The network devices (and/or servers) you manage with Ansible. Managed nodes are also sometimes called **hosts**. Ansible is not installed on managed nodes.



Ansible Concepts

Inventory:

A list of managed nodes. An inventory file is also sometimes called a **hostfile**. Your inventory can specify information like IP address for each managed node. An inventory can also organize managed nodes, creating and nesting groups for easier scaling.

The inventory file

Where it is located

/etc/ansible/hosts

What is the format

[mailservers]
mail.example.com

[webservers]
foo.example.com ansible_ssh_user = user001
bar.example.com ansible_ssh_private_key_file = /.ssh/ansible_key001

[dbservers]
one.example.com
two.example.com
db-[a:f].example.com

Ansible Concepts

Group hosts for easier inventory selection and less conditional tasks -- the more groups the better.

WHAT

```
[db]
db[1:4]

[web]
web[1:4]
```

```
db1 = db, east, dev
```

WHERE

```
[east]
db1
web1
db3
web3

[west]
db2
web2
db4
web4
```

WHEN

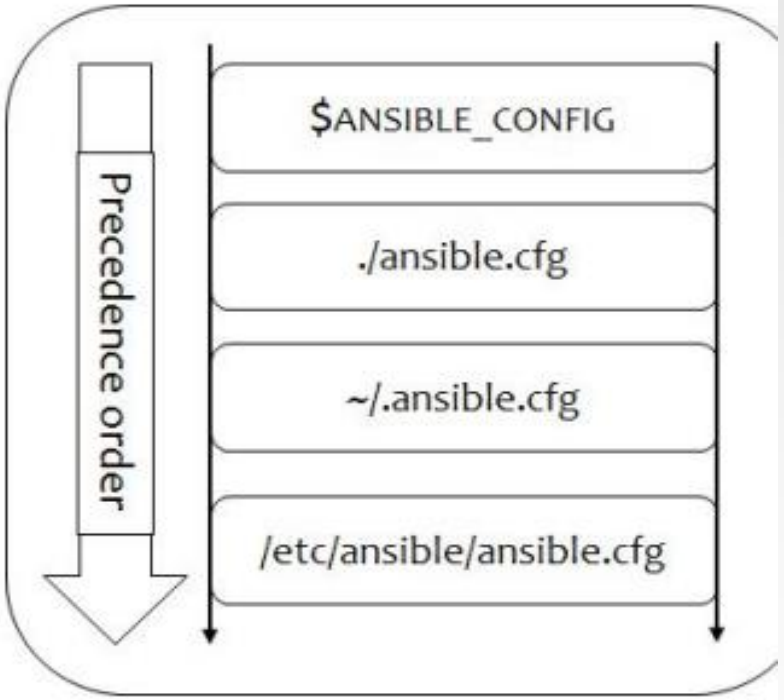
```
[dev]
db1
web1

[test]
db3
web3

[prod]
db2
web2
db4
```

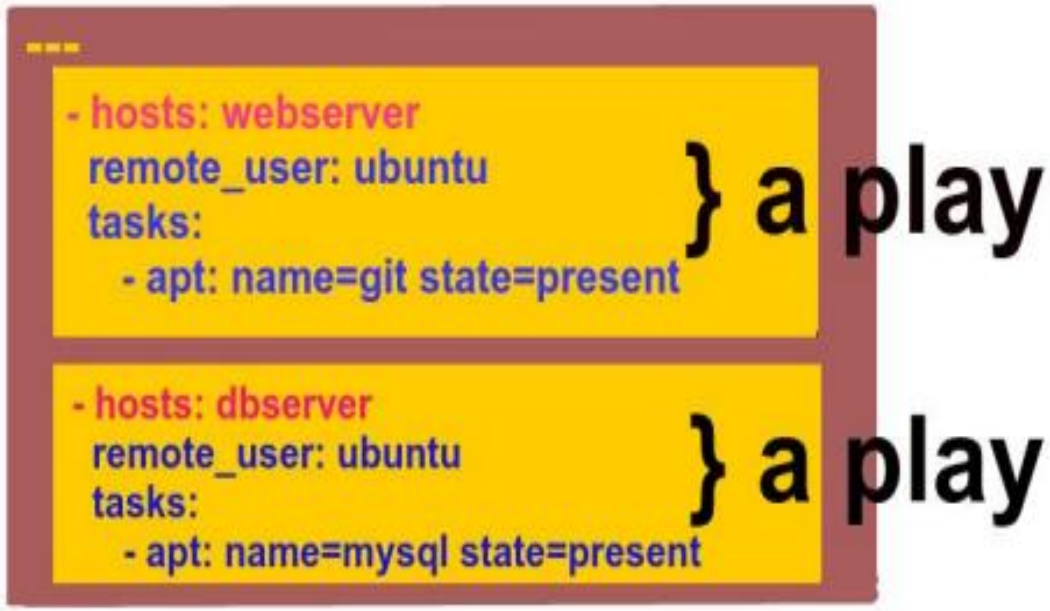
Configuring Ansible

- Ansible supports several sources for configuring its behavior, including a file named ansible.cfg, environment variables, command-line options, playbook keywords, and variables.
- Certain settings in Ansible are adjustable via a configuration file (ansible.cfg).
- Changes can be made and used in a configuration file which will be searched for in the following order:



Playbooks:

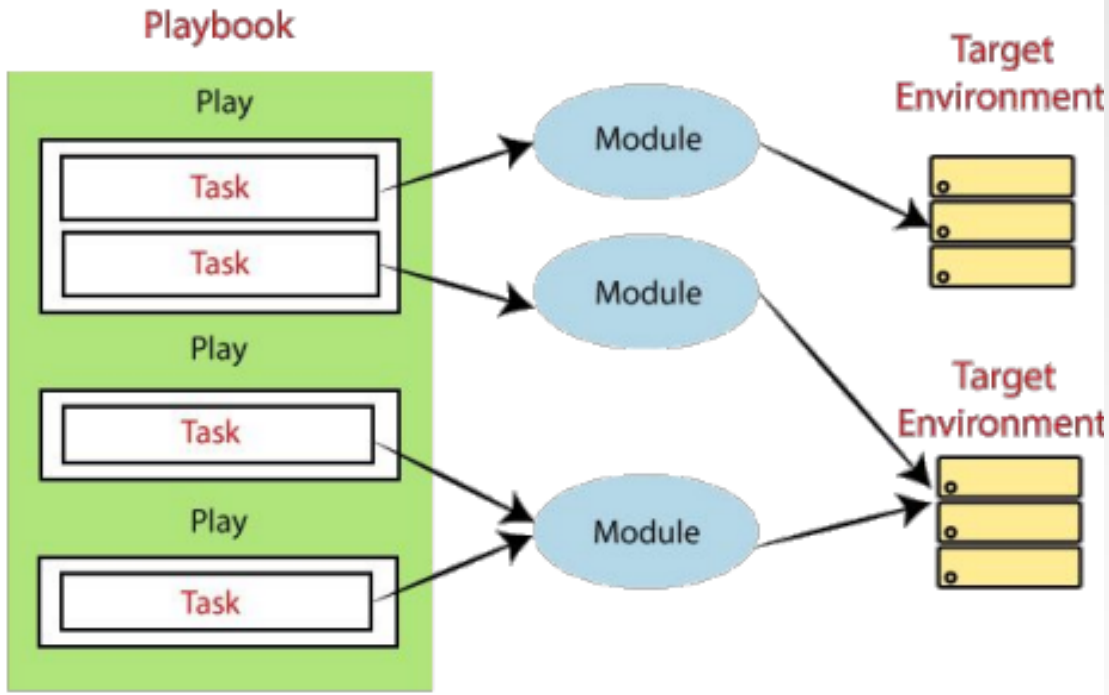
Ordered lists of tasks, saved so you can run those tasks in that order repeatedly. Playbooks can include variables as well as tasks. Playbooks are written in YAML and are easy to read, write, share and understand.



Ansible Concepts

Tasks:

The units of action in Ansible. You can execute a single task once with an ad-hoc command.



Ansible Concepts

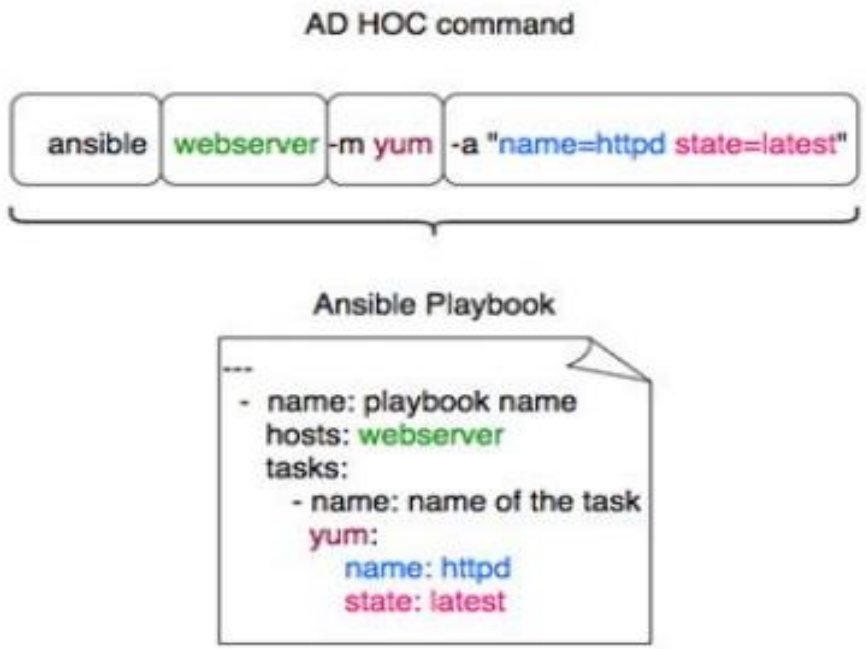
Modules:

The units of code Ansible executes. Each module has a particular use, from administering users on a specific type of database to managing VLAN interfaces on a specific type of network device.

Modules	Module Categories						
System	User	Group	Iptables	Mount	Ping	Systemd	Service
Commands	Command	Expect	Raw	Script	Shell		
Files	Acl	Archive	Find	Copy	Replace	Stat	File
Database	MySQL	MongoDB	MSSQL	PostgreSQL	ProxySQL	Vertica	
Cloud	Amazon	Azure	Google	Linode	Openstack	VMware	Docker
Windows	Win_copy	Win_command	Win_msi	Win_ping	Win_msq	Win_shell	Win_path

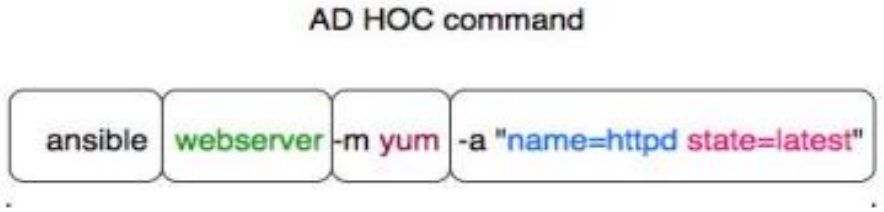
ad-hoc Commands

- An Ansible ad-hoc command uses the /usr/bin/ansible command-line tool to automate a single task on one or more managed nodes.
- Ad-hoc commands are quick and easy, but they are not reusable.
- Ad-hoc commands demonstrate the simplicity and power of Ansible.
- Ad-hoc commands are great for tasks you repeat rarely.



ad-hoc commands

- **ansible** <inventory> -m



Runs a command or **calls a module** directly from the **command line**, no Playbook required

```
ansible <inventory> <options>
ansible web -a /bin/date
ansible web -m ping
ansible web -m yum -a “name=openssl state=latest”
```

Ansible

- Simple YAML
- agentless

ANSIBLE

Puppet and Chef

- Ruby
- More difficult to learn
- Installation needed
- So need for managing updates on target servers

ANSIBLE VE TERRAFORM

- **FARKLAR**

Terraform

- - Genellikle Infrastructure provisioning tool(Altyapı sağlama aracı) olarak kullanılır.
- - Görece daha yenidir. (2014)
- - Orchestration yeteneği daha gelişmiştir.
- Orchestration, bilgisayar sistemlerinin, uygulamaların ve hizmetlerin otomatik yapılandırması, yönetimi ve koordinasyonudur. IT departmanının karmaşık görevleri ve iş akışlarını daha kolay yönetmesine yardımcı olur.
-

Ansible

- - Genellikle configuration tool olarak kullanılır. Yani önce infrastructure oluşturursun. Sonra onu configure etmek için Ansible kullanırsın.
- - Terraforma göre daha eskidir. (2012)

ANSIBLE VE TERRAFORM

BENZERLİKLER

- İkisi de IAC tool'u olarak kullanılır. Yani ikisiyle de altyapıyı sağlarız, yapılandırır ve yönetiriz.