What is Ansible

- Ansible is IT configuration management tool.
- Ansible is work on push based configuration management tool.
- Ansible is an open-source IT configuration management tool, deployment and orchestration tools.
- It aims to provide large productivity gains to a wide variety of automation challenges.

Ansible History:-

- Michel dehaan developed ansible and the ansible project began in february 2012.
- Redhat accquired the ansibe tool in 2015.
- Ansible is available for RHEL, Debain, centos, oracle, Linux.
- Can use this tool whether your servers are in on-premises or in the cloud.
- It tuns your code into infrastructure that is your computing environment has some of the same attributes as your application.

Advantage or disadvantage of asnsible server:-

Advantage :-

- Ansible is free to use by everyone.
- Ansible is very consistent and light weight and no constraints regarding the os or underlaying hardware are present.
- It is very secure due to its agentless capabilites and open ssh security features.
- Ansible does not need any special system administrator skills to install and use it.
- Work on push machanism

disadvantage:-

- Insufficent user interface through ansible tower is GUI but it still in deployment stages.
- Can not acheive full automation by ansible.
- New to the market, there fore limited support and document is available.

Terms use in Ansible:-

Ansible server:- The machine where ansible is installed and from which all tasks and playbooks will be run.

Modules:- Basically, a module is a commands or set of similar commands ment to be executed an the client side.

Tasks:- A task is a section the consists of a single procedure to be completed.

Role:- A way of organising tasks and related files to be later called in a playbook.

Fact:- Information fetched from the client system from the global variables with the gather-facts operation.

Inventory:- File containing data about the ansible client servers.

play:- execution of a playbooks

Handler:- Task which is called only if a notifiers present

Notifier:- Section attributed to a task which calls a handler if the output is changed.
Playbooks:- It consist code in YMAL format which describes tasks to be executed.
Host:- Nodes, which are automated by ansible.
Ansible Demo:- Ansible inventry, HOST pattern
 Go to aws account create 3 ec2 instance in same az take a access of all machine via putty or mobaxtrem.
sudo su
yum update -y
To install ansible server:-
wget https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
To check :-
Is
o/p:-epel-release-latest-7.noarch.rpm
Install epel repository:-
yum install epel-release-latest-7.noarch.rpm
Update epel repository:-
yum update -y

Install all individual packages inside the repository:yum install git python python-devel python-pip openssl ansible -y After that we need to go to hosts file inside ansible server and paste "private ip" of each nodes like node 1, node2. vi /etc/ansible/hosts Now this hosts file is only working after updating ansible.cfg file. vi /etc/ansible/ansible.cfg Uncomment both line # inventry=/etc/ansible/hosts # sudo-user=root eg:inventry=/etc/ansible/hosts sudo-user=root After create one user in all the three instances. adduser ansible passwd ansible ansible (******) Now the user root to ansible user su - ansible

this ansible user don't have sudo privileged right now if you want to give sudo priviledge to ansible user.

Exit from the ansible user

sudo su

visudo

Now go inside the file.

root ALL=(ALL) ALL

ansible ALL=(ALL) NOPASSWD:ALL

Now do this thing in other nodes also now go to ansible server and try to install httpd package as a ansible user.

[ansible ip] sudo yum install httpd -y

Now establish connection between server and node go to ansible server.

service sshd restart

[ansible ip] ssh (node privateip)

[ansible ip] ssh 172.31.42.34

o/p:- permission denied

Now we have to do some changes in ssh-config file go to ansible server.

vi /etc/ssh/sshd-config

do some changes & and saved the file.

do this work in node1 or node2 also.

su - ansible

[ansible ip] ssh 172.123.67.89

Now it ask for password enter the password after that you will be inside node1.

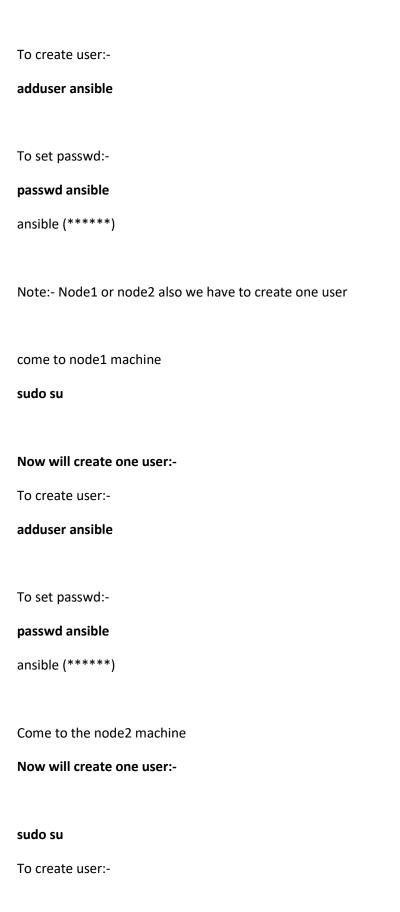
<u>LAB:-</u>

Create a 3 instances & login with putty all of one.
Go inside the ansible server, login node1, node2 also
sudo su
Update Server Packages:-
yum update -y
Install ansible server :-
wget https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
Verify epel repository:-
Is
o/p:- epel-release-latest-7.noarch.rpm
Install epel repository:-
yum install epel-release-latest-7.noarch.rpm
Update epel repository:-
Update epel repository:-
yum update -y
Install all individual packages inside the repository:-

yum install git python python-devel python-pip openssl ansible -y

Verify Version of Ansible
ansibleversion
o/p:- ansible 2.9.27
Go inside the host file path /etc/ansible /hosts
vi /etc/ansible/hosts
Ex 1:- (Here we can create a group) demo
[demo]
172.31.91.115
172.31.86.54
:wq
Note:- Inside the demo group we have to define private ip of node
Here create a another group also as per your requirement.
[developers] (here you can define your developer node details like private ip).
After that we need do some changes inside config file
vi /etc/ansible/ansible.cfg
Here we need to uncomment some line
inventry=/etc/ansible/hosts
sudo_user=root
:wq

Now will create one user:-



adduser ansible To set passwd:passwd ansible ansible (*****) Now come to the ansible server and login with ansible user. sudo su su - ansible Create some file here. touch file file2 ls Now try to install some packages by ansible user. [ansible ip] yum install httpd -y o/p:- you need to be root to perform this cmd. [ansible ip] sudo yum install httpd -y password o/p:- ansible is not in the sudoers file. for that exit from the ansible users via exit cmd. exit We have to assigned sudo permission to ansible users. sudo su visudo

root ALL=(ALL) ALL ansible ALL=(ALL) NOPASSWD:ALL :wq Note:- same thing we need to do in node 1 node2. come to node1 machine We have to assigned sudo permission to ansible users. sudo su visudo ALL=(ALL) root ALL ansible ALL=(ALL) NOPASSWD:ALL :wq come to node2 machine We have to assigned sudo permission to ansible users. sudo su visudo root ALL=(ALL) ALL ansible ALL=(ALL) **NOPASSWD:ALL** :wq

Now come to the ansible server and login with ansbile users

sudo su

To switch user:-
su - ansible
Now try to install some packages by ansible user.
[ansible ip] yum install httpd -y
o/p:- error
[ansible ip] sudo yum install httpd -y
o/p:- successfully installed.
Note:- Try to install on node1 or node2 as well as.
After that verify we are able to connect with node or not for that come to ansible server login with ansible users:-
su - ansible
try to take ssh of nod1 or node2
ssh 172.178.90.9
o/p:- permission denied
exit from the ansible users.
For ssh we need to do some changes via root users:-
sudo su
go inside the /etc/ssh/sshd_config
vi /etc/ssh/sshd_config
here we need to do some changes
#permitRootlogin yes:-uncomment line no 38
#password authentication yes:- uncomment line no 61
passwordAuthentication no:- comment line no 63

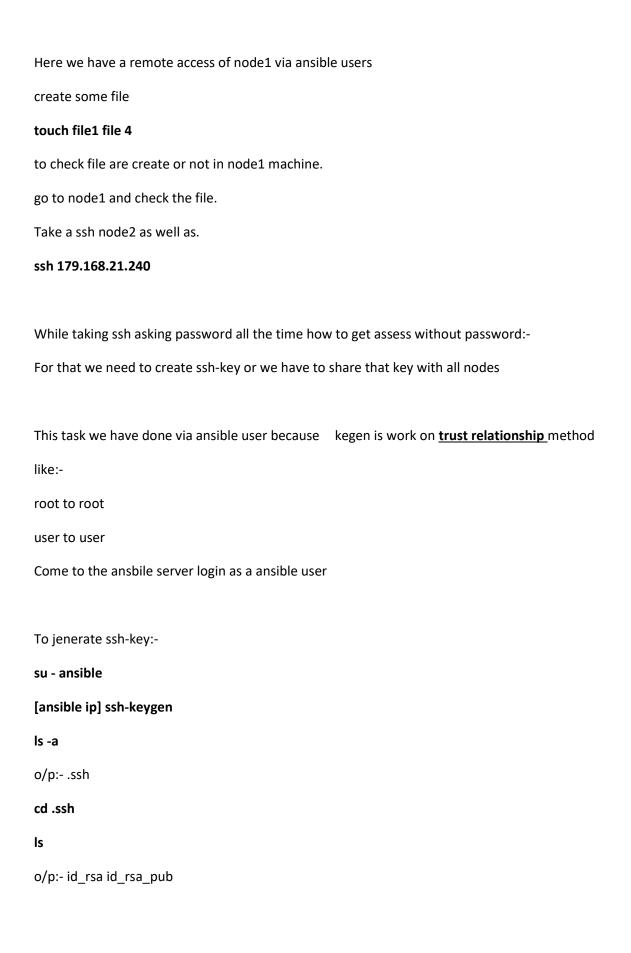
```
eg:-
permitRootlogin yes line no 38
password authentication yes line no 61
#passwordAuthentication no line no 63
:wq
To restart sshd:-
service sshd restart
Samething we need to node1 node2
Come to node1
sudo su
go inside the /etc/ssh/sshd_config
vi /etc/ssh/sshd_config
here we need to do some changes
#permitRootlogin yes:- we have to uncomment
#password authentication yes:- we have to uncomment
passwordAuthentication no:- we have to comment
eg:-
permitRootlogin yes
password authentication yes
#passwordAuthentication no
:wq
To restart sshd:-
```

service sshd restart Come to node2 sudo su go inside the /etc/ssh/sshd_config vi /etc/ssh/sshd_config here we need to do some changes #permitRootlogin yes:- we have to uncomment #password authentication yes:- we have to uncomment passwordAuthentication no:- we have to comment eg:permitRootlogin yes password authentication yes #passwordAuthentication no :wq To restart sshd:service sshd restart Come to the ansible server login with ansible user su - ansible

try to take ssh of node1

ssh 172.168.21.240

password:-



Now i need to copy public key in both the machine node1, node2

[ansible ip]ssh-copy-id username@privateip

[ansible ip]ssh-copy-id ansible@179.168.21.240

Ask one time password:- one time password ansbile

[ansible ip]ssh-copy-id ansible@180.168.21.240

Ask one time password:- one time password ansbile

HOST pattern:-

- "all" pattern refers to all the machine in an inventry
- ansible all --list-hosts
- ansible <groupname> --list-hosts
- ansible <groupname> --list-hosts
- group[0]:- picks first machine of group
- group[1]:- picks second machine of group
- group[-1]:- picks last machine of group
- group[1:4]:- picks 2-5 machine of group
- group[2:5]:- picks 3-6 machine of group

Two group

demo [1:2]: devops [2:10]

• eg:- ansible demo [1:2]: devops [2:10] --list-hosts

To check all hosts:-

ansible all --list-hosts

To check group hosts details:
ansible <groupname> --list-hosts

ansible demo --list-hosts

To check first machine of group:ansible demo[0] --list-hosts

To check last machine of group
ansible demo[-1] --list-hosts

To check second machine of group
ansible demo[1] --list-hosts

To check 2-5 machine of group
ansible demo[1:4] --list-hosts

For more details visit:- https://docs.ansible.com/