**AUTOMATION USING ANSIBLE**

**How to do automation using ansible?**

Ansible is used as an automation engine and can automate cloud provision, application deployment etc.

Ansible is used for multi-tier deployments, also it is easy to deploy as it uses no agents or additional security infrastructure.

Ansible will connect the program nodes and will create small programs called as **ansible modules** to the nodes. These modules are written to be the resource models of the system.

Next: Execution of these modules will be done by ansible (over ssh), and will be removed once finished.

Note: The library of modules can reside on any machine and also no database or server is required, we can work with our terminal program or even a text editor.

**Ansible components:**

The following components make the ansible environment.

1. **Modules**: These are small programs that are created by ansible and map control machine to the nodes/hosts. These modules are executed by playbooks and control services, packages and files. Ansible provides more than 450 modules.
2. **Plugins:** extra bits of code to increase the functionality. Ansible provides no. of plugins and you can also create your own. ex: Action, Cache , call back etc.
3. **Inventories:** All the files used with ansible in the project including the control machine and nodes are listed with their ip addresses, databases and servers in a single file known as inventory.
4. **Playbooks:** Simple files written in YAML describe the task to be done quickly without any syntax, every playbook has multiple plays and the goal is to map hosts to well defined tasks.
5. **API’S:** API’S are available for extending connection to backend.

**Architectural diagram of the tool:**

Public/private cloud

Users

HOST3

HOST2

HOST1

Connection plugins

PLUGINS

Email,loggin etc

CUSTOM MODULES

CORE MODULES

ANSIBLE

Playbooks

Host Inventory

**Flow chart to explain automation using ansible in our project:**

TO BE DEPLOYED ON CLOUD USES HAPROXY SERVER+DOCKERS

WEBSITE

MAPS MODULES (MODULES RUN)

INVENTORY

SETUP OPENSTACK CLOUD+HaPROXY SERVER

RUN

PLAYBOOK

(ANSIBLE SCRIPT)

ANSIBLE MANAGEMENT NODE

SSH

HOST

(INSTALL PRODUTS)

**Explanation:**

Once the website is created main aim is to deploy on cloud openstack and use Dockers that contain web servers, for load balancing HAproxy servers are used. This complete setup is automated through ansible.

1. The website is pushed to ansible management node which is responsible for the execution.
2. Ansible script called the playbook is created along with the inventory that is for mapping of modules to ip addresses, databases etc.
3. Run the playbook.
4. It sets up the entire openstack cloud with the haproxy servers.
5. The ansible management node makes a ssh connection and the entire module is executed on the host machine where the product is installed.