Ansible-Day-1

11 December 2023 17:06

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► Introduction

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- Before we discuss about Ansible first will discuss about configuration management tool.

- **What is configuration Management?**
  - Normally how we will install some software in any machine,
    1) We just login to server manually
    2) Install the required software (tomcat)
    3) Do the changes in configuration of software files to make our application run smoothly.

  - Now assume when you have situations to install same software on large number of servers,
    - Consume lot of time to perform installation/configuration
    - Chances for human errors
    - Lot of human efforts required

  - To overcome this issues configuration management tool came into picture.
    CM tool taken responsibility for making the target systems & software's in desired and consistent state.

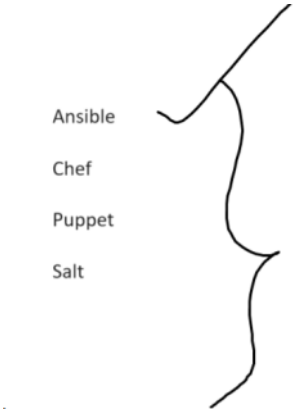
- In market we have different types of CM tool's
  - Ansible
  - Chef
  - Puppet
  - Salt

- **Ansible** not only acts as **configuration management tool** but it also support **orchestration tool.**

  - **Orchestration tool nothing provisioning/creating resources like ec2 on public clouds like ec2,alb..etc. similar to terraform.**

  - But best for choosing Ansible for CM & terraform as orchestration tool since some of advanced feature in terraform.

- Out of these CM tools Ansible is the widely used CM tool.



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► Ansible architecture

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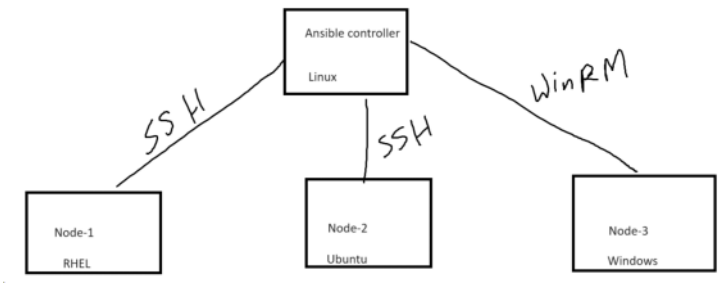
- Create & Explain diagram ansible_day_1.png



- **Ansible-controller:**
  - It's a server where Ansible is installed .

  - From this server we can control the install/update/delete configurations for the software on particular machines.

- Mostly the controller servers is on RHEL OS.

- **Node:**
  - It's a server **where we have to install/Update/Configure software** through the Ansible controller.
  - Node machine can run on any OS Linux/Ubuntu/Windows
- The connectivity established from Ansible controller to target machines using SSH key based authentication.
- On target servers we don't required to install any agent software to establish connectivity to controller.
- **hosts**
  - Contains the list of target machines IP/hostnames.
- **Playbook**
  - The script files that we have written to automate the tasks.
  - **What is task?**
    Downloading file from internet/Unzipping the file ….etc are consider as tasks.
  - The playbooks will be written in yml format.
  - YAML nothing but Yain't mark-up language.
  - It's a declarative language. Easy to understandable & writable.

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► **Why Ansible is popular than chef?**

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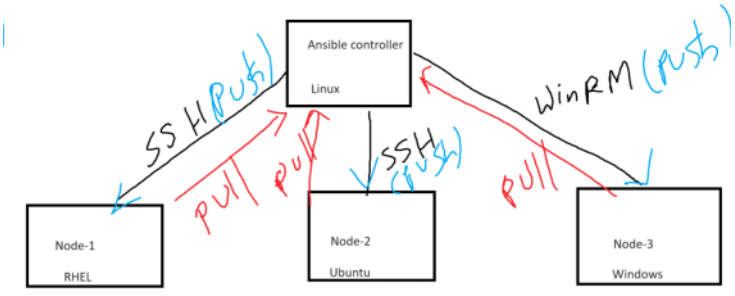
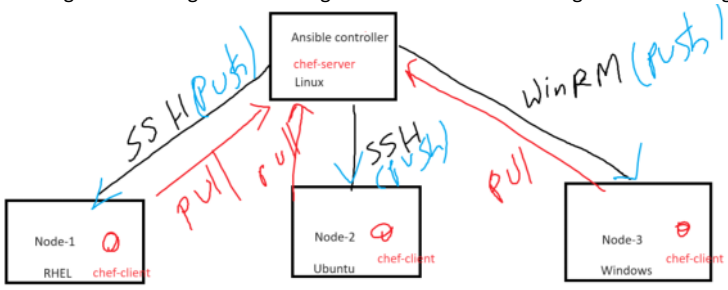
- Ansible works on push based mechanism but chef works on pull based mechanism.



  - Suppose you want to install tomcat software on node machines, the controller machine pushes the commands/configurations that needs to be executed node machines.
  - Chef client on node machines pulls the configuration/commands that needs to be executed from chef server. So Chef is working on pull based mechanism.
- Ansible is a agentless configuration management tool but chef is an agent based configuration management tool.



  - On Node machines chef-client software need to be installed & this client will connect to the chef-server and pulls the configurations on regular intervals.
  - For Ansible we don't need to install any software on machines.
- Ansible is supported by Red-hat systems, so this is add-on all Unix flavours.

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► **Ansible setup**

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► Create one Ansible controller & 3 target machines (RHEL, Amazon Linux, Ubuntu)

- Prepare Ansible controller server/EC2
  a. Create EC2 instance

b. Create ansible user
c. Add ansible user to sudoers file
d. Generate SSH keys for ansible user
e. Enable password based authentication
f. Check python presence
g. Install ansible

- Prepare target node
  a. Create EC2 instance
  b. Create ansible user
  c. Add ansible user to sudoers file
  d. Enable password based authentication
  e. Check python presence

- Copy the key of ansible user from controller to target machine ansible user
  ssh-copy-id ansible@<target-ec2-ip>

- Adding target machine details into inventory file

- Test the connectivity from controller to target machines
  ansible -m ping all

- Provide some wrong IP address & check connectivity