Chef- is a configuration management tool .

Configuration management tool - it is a method through which we automate admin tasks and turns code into infrastructure.
Configuration management tool turns your code into infrastructure.
So your code will be repeatable,testable , versionable.

Chef is a pull **based** tool.
Pull based- Nodes check with the server Perodically and fetches the configuration from it .
Chef is written in **Ruby** language.

Advantage of Chef:-
Complete automation
Improve performance
reduce cost

Components of Chef (chef architecture)

Workstation - Workstations are personal computers or virtual servers where all configuration code is created ,tested or changed. Workstation communicates with the chef server using a knife.

Knife is a command line tool that uploads the cookbook to the server. Tool to establish communication among workstation, server and node knife is a CLI tool that runs on workstation.

Chef-server oR Server- The chef-server is a middle-man between workstation and the nodes.
It stores cookbooks, roles, environments and other resources.

Node- apply the code. Nodes are the systems that require the configuration.
Node communicate with the chef-server using the chef-client.

Each node can have a different configuration required.Chef-client is installed on every node.

Chef-client- to update the machine and take the code from server and transfer with node.

Cookbook is like a code of recipe .A cookbook is a collection of resources (recipes).

Recipe is a file that contains a set of instructions (resources) to be executed.

Configuration part:

Installation Command of chef

wget https://packages.chef.io/files/stable/chef-workstation/21.10.640/el/8/chef-workstation-21.10.640-1.el8.x86_64.rpm

yum localinstall chef-workstation-21.10.640-1.el8.x86_64.rpm

chef -v

.yum install tree -y (install tree)

amazon-linux-extras install java-openjdk11 (install java) on node and workstation

cd cookbooks/

chef generate cookbook test-cookbook (create the cookbook)
cd test-cookbook/
chef generate recipe test-recipe (create recipe)
vi test-cookbook/recipes/test-recipe.rb (write the cookbook and recipe)
chef exec ruby -c test-cookbook/recipes/test-recipe.rb (check the code and syntax)
chef-client -zr "recipe[test-cookbook::test-recipe]" (run the cookbook and recipe)
knife ssl check (check connection btw workstation and chef-server)
knife upload cookbook priya_cookbook(upload cookbook)
knife cookbook list (see the list of uploaded cookbook)
knife node show nod1(see the node details)
knife bootstrap 3.140.240.119 --ssh-user ec2-user --sudo -i ohiokey1.pem -N node1(connect to node)
knife node run_list set node1 "recipe[priya-cookbook::test-recipe](attach the recipe to node)
chef-client

Jenkins installation for amazon linux

yum update -y
sudo wget -O /etc/yum.repos.d/jenkins.repo
https://pkg.jenkins.io/redhat-stable/jenkins.repo

sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

sudo amazon-linux-extras install java-openjdk11
java --version

yum install jenkins
jenkins --version
systemctl enable jenkins

systemctl start jenkins

systemctl status jenkins

shell script- A shell script is a text file that contains a sequence of commands for a UNIX-based operating system. Shell Scripts are written using text editors
Shell scripting is an important part of process automation in Linux

why we used shell?

Shell helps in doing work which is repetitive in nature. When executing a bunch of commands, often, shells can take all these commands directly from a stored file and execute it.instead of writing them again every time.