Provisioning and Deployment

System Benchmarking and Deployment

2019/2020

The main goal of this guide is to understand how to provision systems and deploy services in an automatic and reproducible fashion.

For the exercises described next, the following tools must be installed,

- VirtualBox - `https://www.virtualbox.org`
- Vagrant - `https://www.vagrantup.com`
- Ansible - `http://ansible.com`

Vagrant and Ansible documentation is available at:

- Vagrant - `https://www.vagrantup.com/docs/`
- Ansible - `http://docs.ansible.com/ansible/`
- Ansible Encrypted Passwords - `http://docs.ansible.com/ansible/latest/faq.html#how-do-i-generate-crypted-passwords-for-the-user-module`

Steps

Provisioning

1. Keep all files regarding Vagrant and Ansible in a Git repository (record and comment each fix)
2. Setup a Vagrant configuration file that will deploy one VM with the following configuration.
   (a) 1 Virtual CPU, 512 MB of RAM and **"ubuntu/xenial64"** image.
3. Create an Ansible Playbook capable of:
   (a) Update and upgrade system packages
   (b) Install vim-nox, openntpd, and sudo
   (c) Create a user called *deployer* with password *123456*

(d) Add *deployer* to *sudo* group

(e) Prepare the user *deployer* for SSH public key authentication

(f) Disable *root* and *password* authentication for OpenSSH

(g) Make sure OpenNTPD and OpenSSH services are enabled and running

(h) Change the system Message Of The Day (motd) at /etc/motd

4. Integrate the described Ansible Playbook with Vagrant Provisioner

Hints

1. Explore the *apt* module for updating and upgrading the system
2. Explore the *apt* module for installing packages
3. Explore the *user* module for user creation
4. Explore the *user, shell or command* for modifying group membership
5. Explore the *authorized_key* module to handle public keys
6. Explore the *lineinfile, copy or template* module for OpenSSH configuration
7. Explore the *service* module for handling service state

Testing

1. Login into the VM and check if all the changes described in **Steps** are satisfied

   (a) *apt upgrade* should not install any packages

   (b) Should be able to *login* and use *sudo* with the user *deployer*
   Should not be able to *login* with *root*

   (c) Should not be able to *login* with *deployer* using a password

   (d) Command *systemctl status ssh* should display active and enabled

   (e) Command *systemctl status openntpd* should display active and enabled

   (f) After logging in the changed MOTD should be displayed

Learning outcomes

Experiment systems provisioning and configuration management workflows with Ansible and Git. Develop playbooks that hold reproducible provisioning recipes. Understand the importance of task automation, self documentation and access to changes overtime.