Home lab -RKE K8s setup

Sunday, September 17, 2023

9:35 PM

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| **step1** Make sure your server is up and running . VM- ware ESXI is used here , there is also Proxmox and other hypervisors that can be installed.  Also make sure your server is configured to use **Static IP addressing** | A screenshot of a login screen  Description automatically generated |
| **step2**   vm image used for this configuration is ubuntu **20.04 desktop** version.  Download links have been provided | |  |  | | --- | --- | | non-official site | <https://www.linuxvmimages.com/images/ubuntu-2004/#ubuntu-20042> | | official site | <https://releases.ubuntu.com/20.04/> | | emage repository | <https://drive.google.com/drive/folders/1HBV7Gg8Ar9LKIylxn2_i7qk97_oBI2uh?usp=sharing> | |
| **step 3** Typical **configuration** should be below , but you can modify accordingly based on your preference or server resources. | type  O *astore  G'_est OS na-ne  Compatbiltty  CPUs  Memo"  Network adapters  Networ* adapter I  Network adapter t type  contro•er I  SATA controller  Capac ity  Llbuntu Linux (64-bit)  ESXi 6 O  W Network  LSI Logic Parallel  New SATA |
| **Step 4** Proceed to make 5  **virtual machines** or suitable numbers based on hardware resources | A white and blue background  Description automatically generated with medium confidence |
| **step 5a**  Also create a **jumpbox server**. (a new vm) best practice is you don’t touch your k8s cluster , but allow the jumpbox to do the configuration using **ANSIBLE** |  |
| **step 5b  Useful commands to run all new servers** vim git net-tools openssh | |  | | --- | | sudo apt update;  sudo apt upgrade;  # net-tools is for running ifconfig  sudo apt install net-tools;  # openssh-server is for loing into the terminal using MoberXterm or putty  sudo apt install openssh-server;  # install the editor of your choice  sudo apt-get install vim; sudo apt-get install git; | |
| **Step6** on your **Jumpboxserver  run ssh-keygen**  Generate your public key on the **Jumpboxserver** and copy to the nodes   <https://www.digitalocean.com/community/tutorials/how-to-set-up-ssh-keys-on-ubuntu-20-04>  key can be found here id\_rsa.pub  cd /home/ubuntu/.ssh | |  |  | | --- | --- | | $ ssh-keygen | A screenshot of a computer  Description automatically generated | | cd to the folder directory | A screenshot of a computer  Description automatically generated | |  |  | |
| **step 7** use a for loop bash script and make changes to the **last octet** of your server ip addresses  Copy all public key   you should still be in below directory of your keys  cd /home/ubuntu/.ssh | for i in "226" "227" "228" "229" "230"  do    ssh-copy-id -i ~/.ssh/id\_rsa.pub ubuntu@192.168.1.$i  done      A computer screen with white and purple text  Description automatically generated |
| **step 8   ssh** from your **jumpbox server** and modify the **hostname** for each server ,  **and follow these commands pasted here** | |  |  | | --- | --- | | * 1. ssh into server to be configured | ssh ubuntu@192.168.1.228 | | * 1. use root access | sudo -I | | * 1. set hostname for each server (Master and worker) | hostnamectl set-hostname <worker1> | | * 1. edit the directory in **/etc/netplan folder** | vim /etc/netplan/01-network-manager-all.yaml | |  | use **ifconfig** to get your ip address  **ip a** to get your ip address , NIC number (ens33 in our case)  **route -n** to get your gateway   |  |  | | --- | --- | | ifconfig |  | | route -n | A screenshot of a computer  Description automatically generated | | | * 1. paste config into the file  /etc/netplan/01-network-manager-all.yaml | |  | | --- | | network:    version: 2    renderer: NetworkManager    ethernets:      ens33:        dhcp4: no        #change the IP addresses        addresses: [192.168.1.227/24]        gateway4: 192.168.1.254        nameservers:          addresses: [192.168.1.254, 8.8.8.8] | | | * 1. run | netplan apply | | 7.Test to confirm connectivity | ping google.com | | * 1. Reboot | reboot | |
| **step 9**  Install Ansible with these commands into your jumpbox  <https://docs.ansible.com/ansible/latest/installation_guide/installation_distros.html#installing-ansible-on-ubuntu> | A screenshot of a computer  Description automatically generated       |  |  | | --- | --- | | Run these commands | sudo apt update  sudo apt install software-properties-common  sudo add-apt-repository --yes --update ppa:ansible/ansible  sudo apt install ansible | | Test to confirm ansible is up and running | ansible --version  A screen shot of a computer  Description automatically generated | |
| **step 10**   Clone this directory into your jumpbox server | <https://github.com/rancherfederal/rke2-ansible>   |  | | --- | | git clone <https://github.com/rancherfederal/rke2-ansible.git> | | you should have this direcory /home/ubuntu/rke2-ansible/ | |
| **step 12**    cd into below directory  /home/ubuntu/rke2-ansible/inventory/sample  Create a new host.ini  duplicate and rename it  as **host2.ini**  Make changes to the **host2.ini** file with these configuration | cd /home/ubuntu/rke2-ansible/inventory/sample/     |  |  | | --- | --- | | A screenshot of a computer  Description automatically generated | [rke2\_servers] 192.168.1.36  [rke2\_agents] 192.168.1.51 192.168.1.45 192.168.1.50  [rke2\_cluster:children] rke2\_servers rke2\_agents  [all:vars] ansible\_user=ubuntu | |
| **step 13**  ssh into each server and modify the directory for each server /etc/sudoers file and add this line below | vim /etc/sudoers   |  | | --- | | ubuntu ALL=(ALL:ALL) NOPASSWD: ALL | |
| **step 14** | run below   |  | | --- | | ansible-playbook site.yml -i "/home/ubuntu/rke2-ansible/inventory/sample/hosts2.ini" | |
| if the above command runs successfully , below output will be seen |  |
| **step 15** **SSH** or log into the **MASTER1** (Control Plane) folder and copy this file (**kubeconfig**) into a new editor and change the  server address from localhost (127.0.0.1:6443)  into the ip address and port of your control plane(MASTER1) | /etc/rancher/rke2/rke2.yaml   |  |  | | --- | --- | | old | New | | A computer screen with white letters and numbers  Description automatically generated | A computer code with numbers and letters  Description automatically generated | |
| **step 16**  Download and power up lens | A screen shot of a video  Description automatically generated |
| Scroll to the bottom of the screen to Add our new kubeconfig file and paste the modified kubeconfig file into the box. | A screenshot of a computer  Description automatically generated |
| Go to the default Cluster and click the 3 vertical dots | A screenshot of a computer  Description automatically generated |
| Go to Settings and toggle Builtin Metrics providers on as shown | A screenshot of a computer  Description automatically generated |
| If you scroll to the bottom of the Lens application , you will see a Terminal tab , and can issue  **kubectl get nodes** and see all the nodes configured | A computer screen shot of a black screen  Description automatically generated |
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