Network Administration/System Administration Homework #7

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System Administration 2 - VM Installation and Management

1.

      I use the following script to install a VM with ubuntu distribution:

```install.sh
#!/bin/bash

getIP () {
        grep $(virsh dumpxml ubuntu | grep 'mac address' |
                grep -o '..:..:..:..:..:..') <(arp -a) | grep -o '(.*)'  | sed -e 's/(//' -e 's/)//'
}

sudo virt-install \
--connect=qemu:///system \
--name ubuntu \
--vcpus=2 \
--ram=2048 \
--memballoon virtio \
--os-type=linux \
--network bridge=virbr0 \
--nographics \
--accelerate \
--noautoconsole --wait=-1 \
--location http://archive.ubuntu.com/ubuntu/dists/trusty-updates/main/installer-amd64/ \
--disk path=/var/lib/libvirt/images/ubuntu.img,size=5 \
--initrd-inject=/tmp/ks.cfg \
--extra-args="ks=file:/ks.cfg console=tty1 console=ttyS0,115200n8 serial"

echo "~~~Installed~~~"
```

```
# Waiting the VM to be started automatically
sleep 30s

# Set ssh to the VM without password
ssh-keygen -t rsa -f ~/.ssh/id_rsa -q -P ""
ssh-copy-id ubuntu@$(getIP) && ssh-add
```

and this is the ks.cfg , which can make the installation done automatically:

```ks.cfg
lang en_US
keyboard us
timezone --utc Asia/Taipei

rootpw --disabled
user ubuntu --fullname "ubuntu" --password ubuntu2016

reboot
text
install

bootloader --location=mbr
zerombr yes
clearpart --all --initlabel
autopart

preseed partman-partitioning/confirm_write_new_label boolean true
preseed partman/choose_partition select finish
preseed partman/confirm boolean true
preseed partman/confirm_nooverwrite boolean true
preseed base-installer/install-recommends boolean false

network --bootproto=dhcp
firewall --disabled --ssh

preseed pkgsel/update-policy select unattended-upgrades

skipx

%packages
openssh-server
vim
htop
```

```
apache2
%post
# grub menu
sed -i '/GRUB_HIDDEN_TIMEOUT=0/ s/^/#/' /etc/default/grub
update-grub

# edit /etc/profile
echo "export TERM='xterm-256color" >> /etc/profile
echo "stty rows 40 cols 100" >> /etc/profile
source /etc/profile
```

a)

Type `sed -i '/GRUB_HIDDEN_TIMEOUT=0/ s/^/#/' /etc/default/grub` in guest VM to modify the configure of grub

b)

After modifying the configure of grub in **(a)**, you will see the grub menu when starting the guest VM. Choosing the option you want then press **E**, then find the line contains `ro quiet splash $vt_handoff`. Replacing it with `ro console=ttyS0 serial single` and `control+x` to exit. After that, the VM can boot in single user mode.

c)

Add `--extra-args="console=tty1 console=ttyS0,115200n8 serial"` in the installation command to enable the text console

d)

Append `TERM='xterm-256color"` to /etc/profile in the guest VM

e)

Append `stty rows 40 cols 100` to /etc/profile in the guest VM

2.

add `--network bridge=virbr0` in the installation command when installing

3.

add `--memballoon virtio` in the installation command when installing

4.

Because we use bridged network to set all the VMs. We use host machine to ssh to the VMs. In the installation script, the following part can obtain the VM's ip.

　　`grep $(virsh dumpxml ubuntu | grep 'mac address' | grep -o '..:..:..:..:..:..') <(arp -a) | grep -o '(.*)'  | sed -e 's/(//' -e 's/)//'`

　　Then it would set ssh automatically by this:
```
ssh-keygen -t rsa -f ~/.ssh/id_rsa -q -P ""
ssh-copy-id ubuntu@$(getIP) && ssh-add
```

We add `ssh-add` because sometimes it will not work for an ssh-agent is running already but it can not find any keys attached. By adding this, it will add private key identities to the authentication agent and solve this problem.

5.

In the ks.cfg file, we installed apache2, then we can have the apache server running on the VM. By the ip of VM we gained from 4. , we can use it to access from any host and guests.

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