KVM Hypervisor – Setup and Configuration

Installation of KVM

Verify if CPU supports Hardware Virtualization (required to install KVM) using the below command:

```
# egrep -c '(svm|vmx)' /proc/cpuinfo
```

An output of "0" indicates that CPU doesn't support hardware virtualization

Verify if Hardware Virtualization is enabled

```
# sudo kvm-ok
```

Output:

```
INFO: /dev/kvm exists
KVM acceleration can be used
```

Install KVM package with dependencies:

```
# sudo apt-get install qemu-kvm libvirt-bin bridge-utils virt-manager
```

Verify Installation:

```
# virsh -c qemu:///system list
```

Creating a bridge for DHCP addressing to VM's created through KVM

By default, dhcpd based network bridge is configured by libvirtd. You can verify that with the following commands:

```
# brctl show
```

```
# virsh net-list
```

All VMs only have network reachability to other VMs on the same server. A private network 192.168.122.0/24 created for you. Verify it using the below command:

```
# virsh net-dumpxml default
```

VM reachability – Inter Network

If you want your VMs available to other servers on your LAN, setup a network bridge on the server that is connected to your LAN.

1. Update your nic config file such as ifcfg-enp3s0 or em1:

   ```
   # vi /etc/sysconfig/network-scripts/enp3s0
   ```

2. Add the below line and save the file

   ```
   BRIDGE = br0
   ```

3. Edit /etc/sysconfig/network-scripts/ifcfg-br0 and add:

   # vi /etc/sysconfig/network-scripts/ifcfg-br0

4. Append the following:

   DEVICE="br0"

   # DHCP Addressing #

   BOOTPROTO="dhcp"

   IPV6INIT="yes"

   IPV6_AUTOCONF="yes"

   ONBOOT="yes"

   TYPE="Bridge"

   DELAY="0"

5. Restart the networking service (warning ssh command will disconnect, it is better to reboot the box):

   # systemctl restart NetworkManager

6. Verify

   # brctl show

Creating a Virtual Machine in KVM

Type "***virt manager***"

On the pop up console, follow the below steps to create a VM

1. Select the VM from the images path. (I have already moved the centos minimal version to the path. It would be visible once you navigate)
2. Assign the necessary RAM(2048), Storage(2 GB) and CPU cores(2 is enough).
3. Under advanced setting, it would initially reflect as NAT. Change that to the bridge created with the steps mentioned above.
4. Assign the root password and create a new user (same as the one we configured in linux)
5. Once completed, use ***"virsh list all"*** to check the VM's created from terminal of OS

VM is now created.

To log into a particular VM, use the command – ***virsh console "VM name"***

To view the qcow2 images created for every VM created under KVM, look into the var/lib/virtd/images folder. The extension would be ***"VM_NAME.qcow"***