Red Hat Certified System Administrator

Virtual Machines

Why use Virtual Machines?

The main time this question comes up is with a comparison to containers.

The main difference between the two is that a Virtual Host virtualizes the hardware to run multiple guests, while a container virtualizes the OS to run multiple workloads.

Note about VMs in VMs

Nested Virtualization (running a VM inside a VM) isn't usually recommended. There is a significant performance degradation when doing this because of the different layers things have to go through when it comes to memory and CPU bandwidth.

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Setup

On a normal Red Hat Enterprise Linux 7 server, the following packages need to be installed.

```
qemu-kvm
python-virtinst
libvirt
libvirt-python
virt-manager
libguestfs-tools
virt-install
qemu-img
libvirt-client
```

virt-manager

The GUI tool to use for VM management is `virt-manager`.

virt-install

To install a VM from the command line, you'd use the following command:

```
virt-install \
--name centos7 \
--ram 1024 \
--disk
path=/path/to/disk.qcow2,size=8 \
--vcpus 1 \
--os-type linux \
--network bridge=virbr0 \
--location /path/to/linux.iso \
--extra-args 'console=ttyS0'
```

Managing VMs using the CLI

You can use the `virsh` command to manually edit virtual machines.

```
help
list
dumpxml
start
destroy
reboot
suspend / resume
undefine
autostart
```

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