

# VMclusters – VMware “virtual” clusters

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## 1 Introduction

I should add something here eventually that describes this at a higher level.

## 2 Notes

The examples used in this section follow this naming scheme.

```
nermal      – desktop (VMware host machine)
nermal-1   – desktop host-only interface (i.e. vmnet1)
nermal-8   – desktop NAT interface (i.e. vmnet8)
rh72vm     – RedHat 7.2 VM (VMware guest machine)
rh71vm     – RedHat 7.1 VM (VMware guest machine)
oscarnode1 – Virtual cluster node (VMware guest machine)
```

These are simply the names I chose to help with clarity. I typically add them to `/etc/hosts` on the desktop & VM's and commit them for future installs. This also helps with the NFS related stuff. I try to make sure the hostname is in the prompt...things can get confusing!

Notes:

[Assuming a working VMware installation, where you can install from CD]

- \* I use the 'Undoable' setting for my Virtual Disk, so that once I have a clean system I can install and then start fresh for the next test.
- \* I use a VM for my entire ‘virtual’ cluster. This includes the headnode so that I never taint my hosting desktop / development machine.
- \* I add entries to my '/etc/hosts' file for the two 'vmnet' interfaces for the host machine. These will differ per VMware install b/c the install chooses a random/un-used subnet.

```
nermal: $ grep nermal /etc/hosts
127.0.0.1      localhost.localdomain  localhost  nermal
192.168.152.1  nermal-1
172.16.233.1  nermal-8
```

\* I typically add a new 'vmusers' group and add all my VMware users to this group. I have also just added 'vmusers' as a new user and put the VM's in '/home/vmware' too. Either way but you need the group.

I then changed the group permissions on the '/dev/vmnet\*' devices to have a group=vmusers. Note, all VM user will be a part of this group.

This was because non-root users couldn't put the VMware NIC into promiscuous mode. This may or may not be an issue now, but it does not hurt.

```
nermal: $ whoami
tjn
nermal: $ groups
tjn cvs
```

```
# Add "vmusers" group to my account (must be done by root)
nermal: $ sudo usermod -G tjn,cvs,vmusers tjn
Password:
```

```
nermal: $ groups
tjn vmusers cvs
```

- \* When doing the OSCAR installs on VMware nodes, the nodes must have UP-kernels installed, this means removing "kernel-smp" from the oscarsamples/\*.rpmlists (\* depends on which distro you're using)
- \* Make sure you kill the DHCPd (vmnet-dhcpd) for the network you're using for your private OSCAR network...otherwise it may respond to the nodes DHCP requests and cause problems.
- \* I usually just mount the '/tftpboot/rpm' from a NFS export off my desktop, so the files don't have to reside in the virtual VMdisk. This requires you to add a line to the '/etc/exports' file on your desktop (e.g. "nermal") and a line to '/etc/fstab' on the VMware headnode (e.g. "rh72vm-head").

```
nermal: $ cat /etc/exports
# My VMware config is:
# vmnet1 -- 192.168.152.x
# vmnet8 -- 172.16.233.x
```

```
/tftpboot/rh7.1_rpm      192.168.152.0/255.255.255.0(rw,no_root_squash)
/tftpboot/rh7.1_rpm      172.16.233.0/255.255.255.0(rw,no_root_squash)
```

```
/tftpboot/rh7.2_rpm 192.168.152.0/255.255.255.0(rw,no_root_squash)
/tftpboot/rh7.2_rpm      172.16.233.0/255.255.255.0(rw,no_root_squash)
```

```
rh72vm: # grep tftpboot /etc/fstab
nernal-vmnet1:/tftpboot/rh7.2_rpm /tftpboot/rpm nfs defaults 0 0
#nernal-vmnet8:/tftpboot/rh7.2_rpm /tftpboot/rpm nfs defaults 0 0
```

Notice that I have to dork w/ the vmnetX based on which interface I've setup for communicating w/ my host (i.e. desktop, "nernal"). This varies between "Host-only" vmnet1, etc. (See vmware doc for details)

\* Make sure that when you do the "Define Client Nodes" that you don't accidentally use the same IP as your host (i.e. desktop, "nernal"). I say this b/c I did! Typically when testing I set the first node I build to the first IP addr, e.g. oscarnd1 == 192.168.x.1 But typically w/ the VMware config...this is my desktop/gateway!!! Therefore "oscarnd1" would have the same IP as "nernal-vmnet1" and this is...err, bad. :(

Bridged networking may help with all this but they're worth mentioning.

### 3 VMcluster Uses

It is used heavily for testing of OSCAR. Add more stuff here later.