Adding, Moving, and Removing Disk Drives

In this lab you will add a new NFS mount point to the primary storage collection. After adding it to the CloudStack configuration you will migrate the disk from a VM to the newly added storage drive. You will then vacate the new drive and delete the drive from CloudStack.

Before you enter each of the sections below, make sure you look at the deliverables to determine what screenshots/highlighting/comments you should be capturing.

Basic Outline of Tasks:

1. Have at least two VMs on Cloudstack before you continue
2. Create a New System to use as added Disk Space
3. On your CloudStack management server
4. Migrate the storage from /export/primary to /export/primary2

Tasks in Detail:

**1. Have at least two VMs on Cloudstack before you continue**

Use the Cloudstack dashboard to ensure you have at least 2 VMs defined.

These two+ VMs should be running.

Because they were created with we ONLY had the NFS volume “primary1” defined for disk space, you will find that they ALL have their disk drives situated on that volume.

Compute > Click on VM name > Find the Volumes tab > Click on the Volume name > Find "Storage pool" to identify the NFS volume

and, come at it from the Primary Storage report

Infrastructure > Primary storage > primary1 > View Volumes

Now we are going to add a second volume and move some disks (and VMs) around.

## 2. Create a New System to use as added Disk Space

Create a new VM to run on outernetwork1.

cd /var/lib/libvirt/images  
qemu-img create -f qcow2 -F qcow2 -b /var/lib/libvirt/boot/20centos7.qcow2 primary2.qcow2

cd to root user's home directory and copy either the mkcloudstackmgr1 script or mkkvmhost1 script you used to create these systems and call the copy mkprimary1.

Change the --name value to primary2  
Change --ram value to 1024  
Change --vcpus value to 1  
Change --disk value to the primary2.qcow2 disk

Run your mkprimary1 script.

Use virsh console to connect to your new vm.

Copy your 1net script to your new vm and then run it (change your the IP address you will be applying; change the hostname to primary2).

Verify **1net** worked by doing ping www.google.com. This should work if 1net worked.

Copy your **2bridge** script to your new vm and then run it (change your the IP address you will be applying; change the hostname to primary2).

Use ip a to show that cloudbr0 is set up with your IP address and that eth0 has cloudbr0 as its "master".

Copy **3common** to your new vm and run it.

Copy **4mgt** to you new vm. Delete everything unrelated to NFS install. Check the CloudStack quick install instructions if you have questions. Change the word primary to primary2 and the world secondary to secondary2 everywhere you see it. This is just changing the NFS shareable directories to have unique names. Now run your script.

Before configuring in the Web UI (step 3 below), make sure everything is set up correctly. Use mount.nfs to mount your new /export/primary2 on the Management Server at /media. For example:

mount.nfs 172.16.10.4:/export/primary2 /media

If mount.nfs doesn’t work, then Cloudstack will also not be able to use it.  
On cloudstackmgr1 umount /media

## 3. On your CloudStack management server

* make note of the size of your primary storage pool (**Deliverable)**
* in the left NAV select Infrastructure > Primary storage
  + Click "Add primary storage +"
  + Name: primary2
  + Server: <the IP address you set for your system above>
  + Path: /export/primary2
* wait for the addition of primary2 to complete (it should happen very fast -- if there is a problem, it is probably in your NFS configuration)
* see how the addition of /export/primary2 affects the size of the pool (**Delivarable)**

## 4. Migrate storage from /export/primary1 to /export/primary2:

* put ”primary1” storage in maintenance mode (the state of primary1 will change to “Maintenance” -- it will take several minutes).
  + primary1 > details will change state from “PrepareforMaintenance” to “Maintenance” when complete (this takes some time)

[HINT: the System VMs and Virtual Routers also use Primary Storage for their disks and must be moved BEFORE user VM instances. This is part of what takes time.]

* + VMs with storage on this primary storage will be stopped.
* select an existing VM which will have its primary storage on /export/primary (primary1), and choose the “Migrate instance to another primary storage” (it is one of the round icons to the upper right side of the web page) -- point it at primary2  
  + when complete, the VM changes from the state “Migrating” to “Stopped”
  + select the instance by name, then select Volumes, select the Volume name (something like ROOT-13 [thin]), and find the value at Storage pool, this shows the NFS volume name (**Deliverable)**
  + verify that the VM starts (**Deliverable)**
* make sure your kvmhost1 system (2nd hosting system) is up/enabled on the Hosts web page
  + attempt to migrate the **running** VM to a different hosting server
    - Compute > Select system by name > Select the icon "Migrate instance to another host (yes, it is the same icon image you pressed before)
    - If kvmhost1 is shown but has an X in suitability, it means that kvmhost1 is still a member of a Dedicated pool. You can select kvmhost1 from the Hosts list and find the red button "Release dedicated host".
  + select "Migrate instance to another host" again, this time it should show a green check for suitability. Select the select button on kvmhost1.
  + note that "Storage migration required" is NOT selected.
  + Capture the Host value (showing kmvhost1 for your selected VM) from the VM Instances table (**Deliverable)**
* take primary1 out of maintenance mode (Cancel Maintenance Mode)
  + still while viewing the details about primary1 do….
  + find "View Volumes" and press it -- Capture the volumes still on primary1 (**Deliverable)**
    - these are disks you didn't move

**Deliverables**

**Before adding primary2 --**

**Screen capture of the Dashboard / Primary Storage value**

**After adding primary 2 --**

**Screen capture of the Dashboard / Primary Storage value**

**Screen capture of the Metrics table for all Primary storage volumes after adding primary2**

**During VM migration --**

**Screen capture of Instances table**

**After VM migration --**

**Screen capture of the Storage / Metrics table -- make an indication of where you see primary2**

**Screen capture showing VM state is “Running” and also the “Host” it is now running on**

**Capture the volumes still no primary1 (if you migrated all the VM volumes and have none remaining on primary1, comment on this)**

**Can a VM’s storage be migrated when the VM is running?**

**Screen capture of an attempt to migrate a VM’s storage while its state=running   
  
(select your running VM name, then “Details”, then “View Volumes”, select the volume name, choose the “Migrate Volume” symbol (it will say “Migrate Volume” in a mouse over)**