Lab 5: VFILER DR
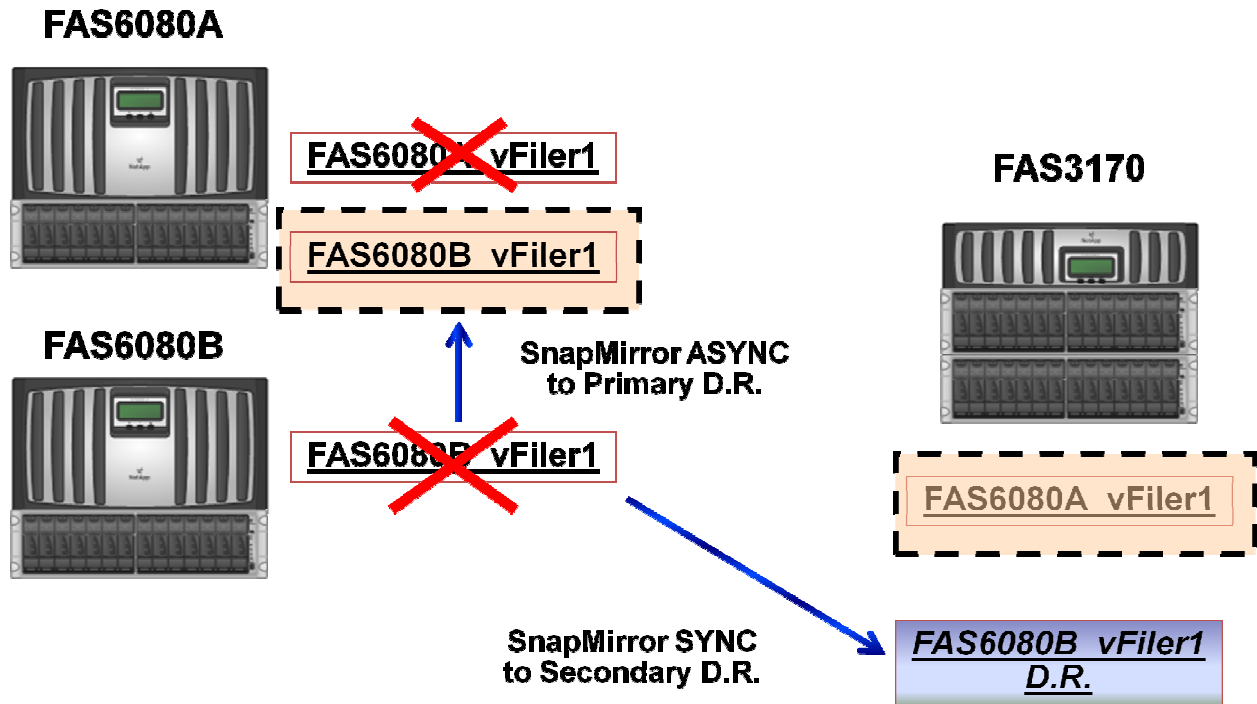
This lab will cover the **vfiler dr** function between the 3 simulators using fas6080b_vfiler1 on FAS6080B. We will create two DR vfilers, one on the local FAS6080A partner (snapmirror async) and one on the remote FAS3170 (snapmirror sync).

1. **Vfiler DR fas6080b_vfiler1 from simulator node fas6080b to both fas6080a and fas3170**

FAS6080B to FAS6080A DR Vfiler
- `fas6080a>` **vfiler status -a**
- `fas6080a>` **vfiler dr configure -c secure -l root:netapp fas6080b_vfiler1@192.168.150.101**
    - o **keep the same IP address and subnet (you can change for DR)**
    - o **keep the same DNS (you can change for DR)**
    - o **use "ns1" interface on the dr vfiler**
- `fas6080a>` **vfiler dr status fas6080b_vfiler1@192.168.150.101**
- `fas6080a>` **snapmirror status**
- `fas6080a>` **vfiler status -a**

FAS6080B to FAS3170 DR Vfiler   (to have more than 1 DR target) – use "-s" option for snapmirror sync (ignore "too many active transfers at once errors" from the simulator)
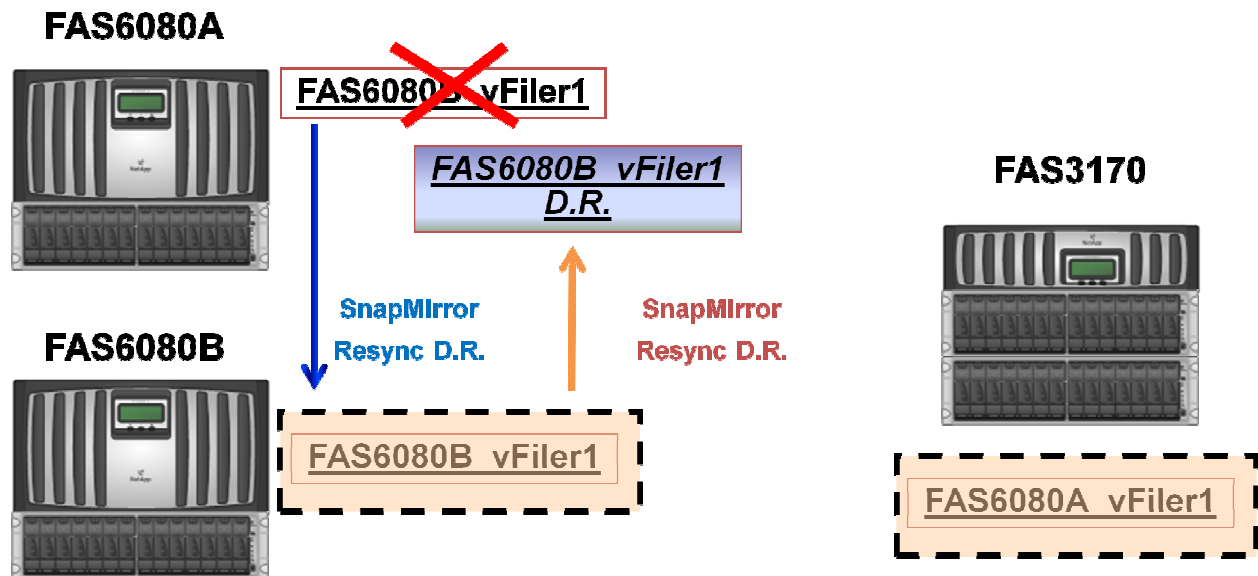- `fas3170>` **vfiler status -a**

- `fas3170>` **vfiler dr configure -s -c secure -l root:netapp fas6080b_vfiler1@192.168.150.101**
    - **enter nothing for "alternate**
    - **keep the same IP address and subnet (you can change for DR)**
    - **keep the same DNS (you can change for DR)**
    - **use "ns1" interface on the dr vfiler**
- `fas3170>` **vfiler dr status fas6080b_vfiler1@192.168.150.101**
- `fas3170>` **snapmirror status**
- `fas3170>` **vfiler status -a**
- **Delete the DR vfiler (this was an example to create two, but for the lab we will failover locally to the FAS6080A node.)… the volumes will still be available to vfiler0.**
    - `fas3170>` **vfiler dr delete fas6080b_vfiler1@192.168.150.101**
    - `fas3170>` **vfiler status -a**

FAS6080B_vfiler1 will be shut down to simulate a disaster and FAS6080A_vfiler1 DR will be brought online (STOP on node B and dr on node A) <mark>* NOTE THE FILER NAMES TO ISSUE COMMANDS ***</mark>**

- `fas6080b>` **vfiler stop fas6080b_vfiler1**
- `fas6080a>` **vfiler dr activate fas6080b_vfiler1@192.168.150.101**
- `fas6080b>` **vfiler status -a**   # confirm fas6080b_vfiler1 is stopped
- `fas6080a>` **vfiler status -a**   # confirm fas6080b_vfiler1 is running

- **Confirm CIFS, NFS and iSCSI access is uninterrupted for fas6080b_vfiler1** (note: the point of this lab is not to show no interruption since it is a DR event which will often be a different physical location with different IPs, etc.).
    - **NFS**
        - **ls /lab2/fas6080b_vfiler1**
    - **CIFS**
        - **[\\192.168.150.104\vfiler1_nas](\\192.168.150.104\vfiler1_nas)**
    - **iSCSI**
        - **O:**

FAS6080A

FAS6080B_vFiler1

FAS6080B_vFiler1 D.R.

FAS3170

FAS6080B

SnapMirror
Resync D.R.

SnapMirror
Resync D.R.

FAS6080B_vFiler1

FAS6080A_vFiler1

- **Resync the DR site from the 6080A dr node to the 6080B prod node.**
  - o `fas6080b>` **vfiler dr resync -c secure -l root:netapp fas6080b_vfiler1@192.168.150.100**
  - o `fas6080b>` **vfiler dr status fas6080b_vfiler1@192.168.150.100**

- **Stop the DR vfiler on FAS6080A and activate the PROD vfiler on FAS6080B** <mark>*** NOTE THE FILER NAMES TO ISSUE COMMANDS ***</mark>
  - o `fas6080a>` **vfiler stop fas6080b_vfiler1**
  - o `fas6080b>` **vfiler dr activate fas6080b_vfiler1@192.168.150.100**
  - o `fas6080b>` **vfiler status -a**   # confirm fas6080b_vfiler1 is running
  - o `fas6080a>` **vfiler status -a**   # confirm fas6080b_vfiler1 is stopped

- **Resync the PROD vfiler on FAS6080B to the DR vfiler on FAS6080A**
  - o `fas6080a>` **vfiler dr resync -c secure -l root:netapp fas6080b_vfiler1@192.168.150.101**

- **Confirm CIFS, NFS and iSCSI access is uninterrupted for fas6080b_vfiler1**
  - o **NFS**
    - ▪ **ls /lab2/fas6080b_vfiler1**
  - o **CIFS**
    - ▪ **\\192.168.150.104\vfiler1_nas**
  - o **iSCSI**
    - ▪ **O:**

3. **This step will show how to create a DR vfiler if mirrors already exist before vfiler DR. vfiler dr configure initializes mirrors from scratch which may not be desired if mirrors already exist for volumes. This procedure will create the dr vfiler by manually creating it on the target (all mirrors done manually) then doing a dr resync instead of a dr configure.**

- **Note that the "CONFIGURE" step does a level 0 mirror initialization… but what if there are already mirrors running…it is not feasible to baseline when already initialized. Simply mirror all remaining volumes in the source vFiler to the DR site, then create the vFiler manually on the destination…then do a DR resync instead of using dr configure.**
- **Procedure**
  - Using the fas6080b_vfiler1 source vfiler to the FAS3170 already has mirrors running. At a customer this might be a 10TB usable volume and you would not want to re-init with the "vfiler dr configure" method. So, mirror remaining volumes manually and manually create the dr vfiler, then run "vfiler dr resync" to create the destination DR vfiler.
  - Mirror any remaining volumes NOT mirrored that are in the source vfiler (make sure to use the same volumes names on source and dest) – REPEAT for ALL volumes NOT mirrored yet
    - fas3170> **vol restrict fas6080b_vfiler1_root**
    - fas3170> **vol restrict fas6080b_vfiler1_nas**
    - fas3170> **vol restrict fas6080b_vfiler1_san**
    - fas3170> **snapmirror initialize -S fas6080b:fas6080b_vfiler1_root fas6080b_vfiler1_root**
    - fas3170> **snapmirror initialize -S fas6080b:fas6080b_vfiler1_nas fas6080b_vfiler1_nas**
    - fas3170> **snapmirror initialize -S fas6080b:fas6080b_vfiler1_san fas6080b_vfiler1_san**
  - Quiese and Break all mirrors on target – REPEAT for ALL volumes
    - fas3170> **snapmirror status**   # wait until mirrors are initialized
    - fas3170> **snapmirror quiesce fas6080b_vfiler1_root**
    - fas3170> **snapmirror break fas6080b_vfiler1_root**
    - fas3170> **snapmirror quiesce fas6080b_vfiler1_nas**
    - fas3170> **snapmirror break fas6080b_vfiler1_nas**
    - fas3170> **snapmirror quiesce fas6080b_vfiler1_san**
    - fas3170> **snapmirror break fas6080b_vfiler1_san**
  - Manually create the vfiler on the destination on the broken mirrors (you only need the root volume of the vfiler from the source since it will pick up member volumes automatically from the root configuration – the network will be unconfigured)
    - fas3170> **vfiler create fas6080b_vfiler1 -r /vol/fas6080b_vfiler1_root**
  - Check the Status and Stop the vfiler
    - fas3170> **vfiler status -a**

- fas3170> **vfiler stop fas6080b_vfiler1**
- fas3170> **vfiler status -a**

- o If the vFiler IP Address(es) are not correct, perform the next 3 steps to add the correct IP and remove the wrong IP….
  - **Add .105**
    - fas3170> **vfiler add fas6080b_vfiler1 -i 192.168.150.105**
    - fas3170> **vfiler status -a**
  - **Remove .104**
    - fas3170> **vfiler remove fas6080b_vfiler1 -i 192.168.150.104**
    - fas3170> **vfiler status -a**
  - **Bring up the .105 interface so it is configured (using an alias since ns1 is already used for fas6080a_vfiler1 with the .103 IP).. you would also edit /etc/rc.. see below.**
  - fas3170> **ifconfig ns1 alias 192.168.150.105**
  - fas3170> **vfiler status -a**   # note that the interface is now configured
    - **Edit /etc/rc to add the ifconfig for this interface**
    - Optionally – use vfiler setup FAS3170> vfiler run vfilername setup -e ns1:ip:subnet - **** NOTE: You can ifconfig a new interface or ifconfig alias an existing interface from vfiler0, or run "vfiler run vfilername setup -e interface:ip:subnet". Setup will wack several setup files **(hosts, hosts.equiv, resolv.conf, exports, nsswitch.conf)** so be careful to restore from .bak if needed. Setup -e will create an alias if the interface is already in use.
- o Backup /etc/snapmirror.conf first since the file will be modified so that the mirror schedules for the vFiler's volumes are replicated every 3 minutes. Save the file so you can change back to the prior schedule.
  - fas3170> **rdfile /etc/snapmirror.conf**
- o Run a DR resync from source to target
  - fas3170> **vfiler stop fas6080b_vfiler1**
  - fas3170> **vfiler status** # note vfiler is stopped
  - fas3170> **vfiler dr resync -c secure -l root:netapp fas6080b_vfiler1@192.168.150.101**
  - fas3170> **snapmirror status**
  - fas3170> **vfiler status** # note vfiler is now a dr vfiler
- o **Update/Fix /etc/snapmirror.conf for 3 minute interval update that was automatically updated by resync**
- **Stop the DR vfiler on FAS6080B and activate the vfiler on the FAS3170**
  - o fas6080b> **vfiler stop fas6080b_vfiler1**
  - o fas3170> **vfiler dr activate fas6080b_vfiler1@192.168.150.101**
  - o fas6080b> **vfiler status -a**   # confirm fas6080b_vfiler1 is running
  - o fas3170> **vfiler status -a**   # confirm fas6080b_vfiler1 is stopped

- **Halt the cluster simulator nodes since we will do the rest of the labs on the 3170**
  - fas6080a> **halt -f**
  - fas6080b> **halt -f**
- **Add the .104 IP and remove the .105 IP to match the original setup**
  - **Add .104 (it will be unconfigured)**
    - fas3170> **vfiler add fas6080b_vfiler1 -i 192.168.150.104**
    - fas3170> **vfiler status -a**
  - **Remove .105 (remove the alias then the ip from the vfiler)**
    - fas3170> **ifconfig ns1 -alias 192.168.150.105**
    - fas3170> **vfiler remove fas6080b_vfiler1 -i 192.168.150.105**
    - fas3170> **vfiler status -a**
  - **Bring up the .104 interface so it is configured**
    - fas3170> **ifconfig ns1 alias 192.168.150.104**
  - fas3170> **vfiler status -a**   # note that the interface is now configured
    - **Edit /etc/rc**
      - Optionally – use vfiler setup FAS3170> vfiler run vfilername setup -e ns1:ip:subnet - **** NOTE: You can ifconfig a new interface or ifconfig alias an existing interface from vfiler0, or run "vfiler run vfilername setup -e interface:ip:subnet". Setup will wack several setup files **(hosts, hosts.equiv, resolv.conf, exports, nsswitch.conf)** so be careful to restore from .bak if needed. Setup -e will create an alias if the interface is already in use.