

## Test nova compute Rack 1 KVM 4 (without RHT patch) with VMEM cinder driver (RC5)

- Build 5 concurrent cinder volumes from glance image
- Build 5 concurrent VM using bootable cinder volumes

Add "rescan" to the nova.virt.libvirt.volume.py

```
911 def connect_volume(self, connection_info, disk_info):
912     """Attach the volume to instance_name."""
913     fc_properties = connection_info['data']
914     mount_device = disk_info["dev"]
915
916     # The /dev/disk/by-path/... node is not always present immediately
917     # We only need to find the first device. Once we see the first device
918     # multipath will have any others.
919     def _wait_for_device_discovery(host_devices, mount_device):
920         linuxscsi.rescan_hosts(hbas)
921         tries = self.tries
922         for device in host_devices:
923             LOG.debug_("Looking for Fibre Channel dev %(device)s",
924                       {'device': device})
925             if os.path.exists(device):
926                 self.host_device = device
927                 # get the /dev/sdX device. This is used
928                 # to find the multipath device.
929                 self.device_name = os.path.realpath(device)
930                 raise loopingcall.LoopingCallDone()
```

```
[root@lsdna004xgkvm00 nova]# rpm -qa | grep nova
python-novaclient-2.15.0-3.el6ost.noarch
openstack-nova-common-2013.2.2-2.el6ost.noarch
openstack-nova-compute-2013.2.2-2.el6ost.noarch
python-nova-2013.2.2-2.el6ost.noarch
[root@lsdna004xgkvm00 nova]#
```

```
[root@lsdna002xgosc1 CINDER_TEST]#
+ cinder create --image-id 88bf5791-6a0f-46f2-ad51-b01aeb215930 --display-name Beemer1 61
+-----+-----+
| Property | Value |
+-----+-----+
| attachments | [] |
| availability_zone | nova |
| bootable | false |
| created_at | 2014-05-13T22:41:02.262704 |
| display_description | None |
```

display_name	Beemer1
id	aaea1930-44b6-4870-aef8-d9c6a9f9821c
image_id	88bf5791-6a0f-46f2-ad51-b01aeb215930
metadata	{}
size	61
snapshot_id	None
source_volid	None
status	creating
volume_type	None

```
+ cinder create --image-id 88bf5791-6a0f-46f2-ad51-b01aeb215930 --display-name Beemer2 61
```

Property	Value
attachments	[]
availability_zone	nova
bootable	false
created_at	2014-05-13T22:41:02.903938
display_description	None
display_name	Beemer2
id	62e33583-15a4-4652-b1e7-45fc7a42db55
image_id	88bf5791-6a0f-46f2-ad51-b01aeb215930
metadata	{}
size	61
snapshot_id	None
source_volid	None
status	creating
volume_type	None

```
+ cinder create --image-id 88bf5791-6a0f-46f2-ad51-b01aeb215930 --display-name Beemer3 61
```

Property	Value
attachments	[]
availability_zone	nova
bootable	false
created_at	2014-05-13T22:41:03.569306
display_description	None
display_name	Beemer3
id	849937c6-34ee-46ef-8d06-b26f30a0c4e4
image_id	88bf5791-6a0f-46f2-ad51-b01aeb215930
metadata	{}
size	61
snapshot_id	None
source_volid	None
status	creating
volume_type	None

```
+ cinder create --image-id 88bf5791-6a0f-46f2-ad51-b01aeb215930 --display-name Beemer4 61
```

Property	Value
----------	-------

attachments	[]
availability_zone	nova
bootable	false
created_at	2014-05-13T22:41:04.139441
display_description	None
display_name	Beemer4
id	849b523e-22eb-412e-92e8-6b10b0f4542f
image_id	88bf5791-6a0f-46f2-ad51-b01aeb215930
metadata	{}
size	61
snapshot_id	None
source_volid	None
status	creating
volume_type	None

```
+ cinder create --image-id 88bf5791-6a0f-46f2-ad51-b01aeb215930 --display-name Beemer5 61
```

Property	Value
attachments	[]
availability_zone	nova
bootable	false
created_at	2014-05-13T22:41:05.003812
display_description	None
display_name	Beemer5
id	3894a445-a2fb-44b9-8de3-a1e9eab6e9bc
image_id	88bf5791-6a0f-46f2-ad51-b01aeb215930
metadata	{}
size	61
snapshot_id	None
source_volid	None
status	creating
volume_type	None

```
[root@lstdna002xgosc1 CINDER_TEST]#
```

```
[root@lstdna002xgosc1 CINDER_TEST]# cinder list | grep Beemer
```

3894a445-a2fb-44b9-8de3-a1e9eab6e9bc	downloading	Beemer5	61	None	false
62e33583-15a4-4652-b1e7-45fc7a42db55	downloading	Beemer2	61	None	false
849937c6-34ee-46ef-8d06-b26f30a0c4e4	downloading	Beemer3	61	None	false
849b523e-22eb-412e-92e8-6b10b0f4542f	downloading	Beemer4	61	None	false
aaea1930-44b6-4870-aef8-d9c6a9f9821c	downloading	Beemer1	61	None	false

```
[root@lstdna002xgosc1 CINDER_TEST]# cinder list | grep Beemer
```

3894a445-a2fb-44b9-8de3-a1e9eab6e9bc	downloading	Beemer5	61	None	false
--------------------------------------	-------------	---------	----	------	-------

62e33583-15a4-4652-b1e7-45fc7a42db55	available	Beemer2	61	None	true
849937c6-34ee-46ef-8d06-b26f30a0c4e4	downloading	Beemer3	61	None	false
849b523e-22eb-412e-92e8-6b10b0f4542f	available	Beemer4	61	None	true
aaea1930-44b6-4870-aef8-d9c6a9f9821c	downloading	Beemer1	61	None	false

[root@lsdna002xgosc1 CINDER\_TEST]#

[root@lsdna002xgosc1 CINDER\_TEST]# cinder list | grep Beemer

3894a445-a2fb-44b9-8de3-a1e9eab6e9bc	available	Beemer5	61	None	true
62e33583-15a4-4652-b1e7-45fc7a42db55	available	Beemer2	61	None	true
849937c6-34ee-46ef-8d06-b26f30a0c4e4	available	Beemer3	61	None	true
849b523e-22eb-412e-92e8-6b10b0f4542f	available	Beemer4	61	None	true
aaea1930-44b6-4870-aef8-d9c6a9f9821c	available	Beemer1	61	None	true

[root@lsdna002xgosc1 CINDER\_TEST]#

[root@lsdna004xgkvm00 ~]# multipath -ll

mpatho (SVIOLIN\_SAN\_ARRAY\_DE88A3358A4E9765) dm-6 VIOLIN,SAN ARRAY  
size=42G features='0' hwhandler='0' wp=rw  
`-+- policy='round-robin 0' prio=1 status=active  
  |- 7:0:0:3 sdg 8:96 active ready running  
  |- 7:0:1:3 sdi 8:128 active ready running  
  |- 8:0:1:3 sdk 8:160 active ready running  
  `- 8:0:0:3 sdj 8:144 active ready running

mpathn (SVIOLIN\_SAN\_ARRAY\_DE88A335DC600DE7) dm-5 VIOLIN,SAN ARRAY  
size=45G features='0' hwhandler='0' wp=rw  
`-+- policy='round-robin 0' prio=1 status=active  
  |- 7:0:1:2 sdd 8:48 active ready running  
  |- 7:0:0:2 sdc 8:32 active ready running  
  |- 8:0:1:2 sdf 8:80 active ready running  
  `- 8:0:0:2 sde 8:64 active ready running

mpathh (SVIOLIN\_SAN\_ARRAY\_DE88A3356ED1B5DE) dm-16 VIOLIN,SAN ARRAY  
size=1.0T features='0' hwhandler='0' wp=rw  
`-+- policy='round-robin 0' prio=1 status=active  
  |- 7:0:0:1 sdb 8:16 active ready running  
  |- 7:0:1:1 sdh 8:112 active ready running  
  |- 8:0:0:1 sdn 8:208 active ready running  
  `- 8:0:1:1 sdt 65:48 active ready running

[root@lsdna004xgkvm00 ~]#

```
[root@lsdna002xgosc1 CINDER_TEST]#
```

```
+ nova boot --flavor m1.small --availability-zone sub-zone --boot-volume aaea1930-44b6-4870-aef8-d9c6a9f9821c --nic net-id=690990d7-20a5-4689-8a13-7aaf84bbc2e6 Audi1
```

Property	Value
OS-EXT-STS:task_state	scheduling
image	Attempt to boot from volume - no image supplied
OS-EXT-STS:vm_state	building
OS-EXT-SRV-ATTR:instance_name	instance-0000097e
OS-SRV-USG:launched_at	None
flavor	m1.small
id	f7449833-4e71-4f8b-8ae9-5993a938a056
security_groups	[[{'name': u'default'}]]
user_id	88c8ec5a4fb34de1bc5fac8aa42befa7
OS-DCF:diskConfig	MANUAL
accessIPv4	
accessIPv6	
progress	0
OS-EXT-STS:power_state	0
OS-EXT-AZ:availability_zone	nova
config_drive	
status	BUILD
updated	2014-05-13T22:59:10Z
hostId	
OS-EXT-SRV-ATTR:host	None
OS-SRV-USG:terminated_at	None
key_name	None
OS-EXT-SRV-ATTR:hypervisor_hostname	None
name	Audi1
adminPass	9Z22TNJm3uog
tenant_id	525c7ad0b5184ce4b64dc8e02e9c74d0
created	2014-05-13T22:59:10Z
os-extended-volumes:volumes_attached	[[{'id': u'aaea1930-44b6-4870-aef8-d9c6a9f9821c'}]]
metadata	{}

```
+ nova boot --flavor m1.small --availability-zone sub-zone --boot-volume 62e33583-15a4-4652-b1e7-45fc7a42db55 --nic net-id=690990d7-20a5-4689-8a13-7aaf84bbc2e6 Audi2
```

Property	Value
OS-EXT-STS:task_state	scheduling
image	Attempt to boot from volume - no image supplied
OS-EXT-STS:vm_state	building
OS-EXT-SRV-ATTR:instance_name	instance-0000097f
OS-SRV-USG:launched_at	None
flavor	m1.small
id	4fa828ff-292c-41cd-8af3-9b9ef81f5076
security_groups	[[{'name': u'default'}]]
user_id	88c8ec5a4fb34de1bc5fac8aa42befa7
OS-DCF:diskConfig	MANUAL
accessIPv4	

accessIPv6		
progress	0	
OS-EXT-STS:power_state	0	
OS-EXT-AZ:availability_zone	nova	
config_drive		
status	BUILD	
updated	2014-05-13T22:59:11Z	
hostId		
OS-EXT-SRV-ATTR:host	None	
OS-SRV-USG:terminated_at	None	
key_name	None	
OS-EXT-SRV-ATTR:hypervisor_hostname	None	
name	Audi2	
adminPass	b23Y3frho3Gq	
tenant_id	525c7ad0b5184ce4b64dc8e02e9c74d0	
created	2014-05-13T22:59:11Z	
os-extended-volumes:volumes_attached	[{u'id': u'62e33583-15a4-4652-b1e7-45fc7a42db55'}]	
metadata	{}	

+-----+  
+ nova boot --flavor m1.small --availability-zone sub-zone --boot-volume 849937c6-34ee-46ef-8d06-b26f30a0c4e4 --nic net-id=690990d7-20a5-4689-8a13-7aaf84bbc2e6 Audi3

Property	Value	
OS-EXT-STS:task_state	scheduling	
image	Attempt to boot from volume - no image supplied	
OS-EXT-STS:vm_state	building	
OS-EXT-SRV-ATTR:instance_name	instance-00000980	
OS-SRV-USG:launched_at	None	
flavor	m1.small	
id	91569ccf-9771-4835-a786-4309c53ca8b6	
security_groups	[{u'name': u'default'}]	
user_id	88c8ec5a4fb34de1bc5fac8aa42befa7	
OS-DCF:diskConfig	MANUAL	
accessIPv4		
accessIPv6		
progress	0	
OS-EXT-STS:power_state	0	
OS-EXT-AZ:availability_zone	nova	
config_drive		
status	BUILD	
updated	2014-05-13T22:59:13Z	
hostId		
OS-EXT-SRV-ATTR:host	None	
OS-SRV-USG:terminated_at	None	
key_name	None	
OS-EXT-SRV-ATTR:hypervisor_hostname	None	
name	Audi3	
adminPass	48yTkuxBRKYB	
tenant_id	525c7ad0b5184ce4b64dc8e02e9c74d0	
created	2014-05-13T22:59:12Z	
os-extended-volumes:volumes_attached	[{u'id': u'849937c6-34ee-46ef-8d06-b26f30a0c4e4'}]	

```

| metadata | {} |
+-----+
+ nova boot --flavor m1.small --availability-zone sub-zone --boot-volume 849b523e-22eb-412e-92e8-6b10b0f4542f --nic net-id=690990d7-20a5-4689-8a13-7aaf84bbc2e6 Audi4
+-----+
| Property | Value |
+-----+
| OS-EXT-STS:task_state | scheduling |
| image | Attempt to boot from volume - no image supplied |
| OS-EXT-STS:vm_state | building |
| OS-EXT-SRV-ATTR:instance_name | instance-00000981 |
| OS-SRV-USG:launched_at | None |
| flavor | m1.small |
| id | 7b3f370f-7921-4a54-8c5d-4ec37afb8a6b |
| security_groups | [{u'name': u'default'}] |
| user_id | 88c8ec5a4fb34de1bc5fac8aa42befa7 |
| OS-DCF:diskConfig | MANUAL |
| accessIPv4 | |
| accessIPv6 | |
| progress | 0 |
| OS-EXT-STS:power_state | 0 |
| OS-EXT-AZ:availability_zone | nova |
| config_drive | |
| status | BUILD |
| updated | 2014-05-13T22:59:14Z |
| hostId | |
| OS-EXT-SRV-ATTR:host | None |
| OS-SRV-USG:terminated_at | None |
| key_name | None |
| OS-EXT-SRV-ATTR:hypervisor_hostname | None |
| name | Audi4 |
| adminPass | 2hX2nUKSWXzL |
| tenant_id | 525c7ad0b5184ce4b64dc8e02e9c74d0 |
| created | 2014-05-13T22:59:14Z |
| os-extended-volumes:volumes_attached | [{u'id': u'849b523e-22eb-412e-92e8-6b10b0f4542f'}] |
| metadata | {} |
+-----+
+ nova boot --flavor m1.small --availability-zone sub-zone --boot-volume 3894a445-a2fb-44b9-8de3-a1e9eab6e9bc --nic net-id=690990d7-20a5-4689-8a13-7aaf84bbc2e6 Audi5
+-----+
| Property | Value |
+-----+
| OS-EXT-STS:task_state | scheduling |
| image | Attempt to boot from volume - no image supplied |
| OS-EXT-STS:vm_state | building |
| OS-EXT-SRV-ATTR:instance_name | instance-00000982 |
| OS-SRV-USG:launched_at | None |
| flavor | m1.small |
| id | 9e61f2d6-a41a-43bd-8e3f-6462c51cd032 |
| security_groups | [{u'name': u'default'}] |
| user_id | 88c8ec5a4fb34de1bc5fac8aa42befa7 |
| OS-DCF:diskConfig | MANUAL |

```

accessIPv4	
accessIPv6	
progress	0
OS-EXT-STS:power_state	0
OS-EXT-AZ:availability_zone	nova
config_drive	
status	BUILD
updated	2014-05-13T22:59:15Z
hostId	
OS-EXT-SRV-ATTR:host	None
OS-SRV-USG:terminated_at	None
key_name	None
OS-EXT-SRV-ATTR:hypervisor_hostname	None
name	Audi5
adminPass	7EGpv8ZiCmCR
tenant_id	525c7ad0b5184ce4b64dc8e02e9c74d0
created	2014-05-13T22:59:15Z
os-extended-volumes:volumes_attached	[[{'u'id': 'u'3894a445-a2fb-44b9-8de3-a1e9eab6e9bc'}]]
metadata	{}

```
[root@lsdna002xgosc1 CINDER TEST]#
```

```
[root@lsdna002xgosc1 CINDER TEST]# nova list | grep Audi
```

f7449833-4e71-4f8b-8ae9-5993a938a056	Audi1	BUILD	block_device_mapping	NOSTATE	testproject-net=192.168.10.8
4fa828ff-292c-41cd-8af3-9b9ef81f5076	Audi2	BUILD	block_device_mapping	NOSTATE	testproject-net=192.168.10.9
91569ccf-9771-4835-a786-4309c53ca8b6	Audi3	ACTIVE	None	Running	testproject-net=192.168.10.10
7b3f370f-7921-4a54-8c5d-4ec37afb8a6b	Audi4	ACTIVE	None	Running	testproject-net=192.168.10.11
9e61f2d6-a41a-43bd-8e3f-6462c51cd032	Audi5	ACTIVE	None	Running	testproject-net=192.168.10.12

```
[root@lsdna002xgosc1 CINDER_TEST]#
```

```
[root@lsdna002xgosc1 CINDER_TEST]# nova list | grep Audi
```

f7449833-4e71-4f8b-8ae9-5993a938a056	Audi1	BUILD	spawning	NOSTATE	testproject-net=192.168.10.8
4fa828ff-292c-41cd-8af3-9b9ef81f5076	Audi2	BUILD	spawning	NOSTATE	testproject-net=192.168.10.9
91569ccf-9771-4835-a786-4309c53ca8b6	Audi3	ACTIVE	None	Running	testproject-net=192.168.10.10
7b3f370f-7921-4a54-8c5d-4ec37afb8a6b	Audi4	ACTIVE	None	Running	testproject-net=192.168.10.11
9e61f2d6-a41a-43bd-8e3f-6462c51cd032	Audi5	ACTIVE	None	Running	testproject-net=192.168.10.12

```
[root@lsdna002xgosc1 CINDER TEST]# nova list | grep Audi
```

f7449833-4e71-4f8b-8ae9-5993a938a056	Audi1	ACTIVE	None	Running	testproject-net=192.168.10.8
4fa828ff-292c-41cd-8af3-9b9ef81f5076	Audi2	ACTIVE	None	Running	testproject-net=192.168.10.9
91569ccf-9771-4835-a786-4309c53ca8b6	Audi3	ACTIVE	None	Running	testproject-net=192.168.10.10
7b3f370f-7921-4a54-8c5d-4ec37afb8a6b	Audi4	ACTIVE	None	Running	testproject-net=192.168.10.11
9e61f2d6-a41a-43bd-8e3f-6462c51cd032	Audi5	ACTIVE	None	Running	testproject-net=192.168.10.12

```
[root@lsdna002xgosc1 CINDER_TEST]#
```



```

[root@lsdna004xgkvm00 ~]# multipath -ll
mpathr (SVIOLIN_SAN_ARRAY_DE88A335797CD20B) dm-22 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:7 sdaa 65:160 active ready running
   |- 7:0:0:7 sdz 65:144 active ready running
   |- 8:0:1:7 sdac 65:192 active ready running
   `-- 8:0:0:7 sdab 65:176 active ready running
mpathq (SVIOLIN_SAN_ARRAY_DE88A33564C24125) dm-7 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:4 sdl 8:176 active ready running
   |- 8:0:1:4 sdm 8:192 active ready running
   |- 7:0:0:4 sdo 8:224 active ready running
   `-- 8:0:0:4 sdq 65:0 active ready running
mpatho (SVIOLIN_SAN_ARRAY_DE88A3358A4E9765) dm-6 VIOLIN,SAN ARRAY
size=42G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:0:3 sdg 8:96 active ready running
   |- 7:0:1:3 sdi 8:128 active ready running
   |- 8:0:1:3 sdk 8:160 active ready running
   `-- 8:0:0:3 sdj 8:144 active ready running
mpathn (SVIOLIN_SAN_ARRAY_DE88A335DC600DE7) dm-5 VIOLIN,SAN ARRAY
size=45G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:2 sdd 8:48 active ready running
   |- 7:0:0:2 sdc 8:32 active ready running
   |- 8:0:1:2 sdf 8:80 active ready running
   `-- 8:0:0:2 sde 8:64 active ready running
mpathu (SVIOLIN_SAN_ARRAY_DE88A3351B88B167) dm-25 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:8 sdad 65:208 active ready running
   |- 8:0:1:8 sdae 65:224 active ready running
   |- 7:0:0:8 sdaf 65:240 active ready running
   `-- 8:0:0:8 sdag 66:0 active ready running
mpathh (SVIOLIN_SAN_ARRAY_DE88A3356ED1B5DE) dm-16 VIOLIN,SAN ARRAY
size=1.0T features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:0:1 sdb 8:16 active ready running
   |- 7:0:1:1 sdh 8:112 active ready running
   |- 8:0:0:1 sdn 8:208 active ready running
   `-- 8:0:1:1 sdt 65:48 active ready running
mpatht (SVIOLIN_SAN_ARRAY_DE88A335497063E6) dm-19 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:6 sdu 65:64 active ready running
   |- 8:0:1:6 sdw 65:96 active ready running
   |- 7:0:0:6 sdx 65:112 active ready running
   `-- 8:0:0:6 sdy 65:128 active ready running
mpaths (SVIOLIN_SAN_ARRAY_DE88A3359E89B60D) dm-10 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw

```

```

`--+ policy='round-robin 0' prio=1 status=active
  |- 7:0:0:5 sdp 8:240 active ready running
  |- 8:0:0:5 sdr 65:16 active ready running
  |- 7:0:1:5 sds 65:32 active ready running
  `-- 8:0:1:5 sdv 65:80 active ready running

```

```
[root@lsdna004xgkvm00 ~]#
```

```

[root@lsdna002xgosc1 CINDER_TEST]# nova delete Audi3
[root@lsdna002xgosc1 CINDER_TEST]# nova delete Audi4
[root@lsdna002xgosc1 CINDER_TEST]# nova delete Audi5
[root@lsdna002xgosc1 CINDER_TEST]# nova list | grep Audi
| f7449833-4e71-4f8b-8ae9-5993a938a056 | Audi1 | ACTIVE | None | Running | testproject-net=192.168.10.8 |
| 4fa828ff-292c-41cd-8af3-9b9ef81f5076 | Audi2 | ACTIVE | None | Running | testproject-net=192.168.10.9 |
[root@lsdna002xgosc1 CINDER_TEST]#

```

```

[root@lsdna002xgosc1 CINDER_TEST]# cinder list | grep Beemer
| 3894a445-a2fb-44b9-8de3-a1e9eab6e9bc | available | Beemer5 | 61 | None | true |
|
| 62e33583-15a4-4652-b1e7-45fc7a42db55 | in-use | Beemer2 | 61 | None | true | 4fa828ff-292c-
41cd-8af3-9b9ef81f5076 |
| 849937c6-34ee-46ef-8d06-b26f30a0c4e4 | available | Beemer3 | 61 | None | true |
|
| 849b523e-22eb-412e-92e8-6b10b0f4542f | available | Beemer4 | 61 | None | true |
|
| aaea1930-44b6-4870-aef8-d9c6a9f9821c | in-use | Beemer1 | 61 | None | true | f7449833-4e71-
4f8b-8ae9-5993a938a056 |
[root@lsdna002xgosc1 CINDER_TEST]#

```

## Problem: stale devices left behind !!

```

[root@lsdna004xgkvm00 ~]# multipath -ll
mpathr (SVIOLIN_SAN_ARRAY_DE88A335797CD20B) dm-22 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`--+ policy='round-robin 0' prio=1 status=active
  |- 7:0:1:7 sdaa 65:160 active ready running
  |- 7:0:0:7 sdz 65:144 active ready running
  |- 8:0:1:7 sdac 65:192 active ready running
  `-- 8:0:0:7 sdab 65:176 active ready running
mpathq (SVIOLIN_SAN_ARRAY_DE88A33564C24125) dm-7 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`--+ policy='round-robin 0' prio=0 status=active
  |- 7:0:1:4 sdl 8:176 active faulty running
  |- 8:0:1:4 sdm 8:192 active faulty running
  |- 7:0:0:4 sdo 8:224 active faulty running
  `-- 8:0:0:4 sdq 65:0 active faulty running
mpatho (SVIOLIN_SAN_ARRAY_DE88A3358A4E9765) dm-6 VIOLIN,SAN ARRAY
size=42G features='0' hwhandler='0' wp=rw
`--+ policy='round-robin 0' prio=1 status=active
  |- 7:0:0:3 sdg 8:96 active ready running
  |- 7:0:1:3 sdi 8:128 active ready running
  |- 8:0:1:3 sdk 8:160 active ready running

```

```

`- 8:0:0:3 sdj 8:144 active ready running
mpathn (SVIOLIN_SAN_ARRAY_DE88A335DC600DE7) dm-5 VIOLIN,SAN ARRAY
size=45G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
|- 7:0:1:2 sdd 8:48 active ready running
|- 7:0:0:2 sdc 8:32 active ready running
|- 8:0:1:2 sdf 8:80 active ready running
`- 8:0:0:2 sde 8:64 active ready running
mpathu (SVIOLIN_SAN_ARRAY_DE88A3351B88B167) dm-25 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
|- 7:0:1:8 sdad 65:208 active ready running
|- 8:0:1:8 sdae 65:224 active ready running
|- 7:0:0:8 sdaf 65:240 active ready running
`- 8:0:0:8 sdag 66:0 active ready running
mpathh (SVIOLIN_SAN_ARRAY_DE88A3356ED1B5DE) dm-16 VIOLIN,SAN ARRAY
size=1.0T features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
|- 7:0:0:1 sdb 8:16 active ready running
|- 7:0:1:1 sdh 8:112 active ready running
|- 8:0:0:1 sdn 8:208 active ready running
`- 8:0:1:1 sdt 65:48 active ready running
mpatht (SVIOLIN_SAN_ARRAY_DE88A335497063E6) dm-19 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=0 status=active
|- 7:0:1:6 sdu 65:64 active faulty running
|- 8:0:1:6 sdw 65:96 active faulty running
|- 7:0:0:6 sdx 65:112 failed faulty running
`- 8:0:0:6 sdy 65:128 failed faulty running
mpaths (SVIOLIN_SAN_ARRAY_DE88A3359E89B60D) dm-10 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=0 status=active
|- 7:0:0:5 sdp 8:240 active faulty running
|- 8:0:0:5 sdr 65:16 active faulty running
|- 7:0:1:5 sds 65:32 failed faulty running
`- 8:0:1:5 sdv 65:80 failed faulty running
[root@lsdna004xgkvm00 ~]#

```

## Repeat the deletion of remaining 2 x VM instances & capture /var/log/nova/compute.log

```

[root@lsdna002xgosc1 CINDER_TEST]# nova list | grep Audi
| f7449833-4e71-4f8b-8ae9-5993a938a056 | Audi1 | ACTIVE | None | Running | testproject-net=192.168.10.8 |
| 4fa828ff-292c-41cd-8af3-9b9ef81f5076 | Audi2 | ACTIVE | None | Running | testproject-net=192.168.10.9 |
[root@lsdna002xgosc1 CINDER_TEST]# cinder list | grep Beemer
| 3894a445-a2fb-44b9-8de3-a1e9eab6e9bc | available | Beemer5 | 61 | None | true |
|
| 62e33583-15a4-4652-b1e7-45fc7a42db55 | in-use | Beemer2 | 61 | None | true | 4fa828ff-292c-
41cd-8af3-9b9ef81f5076 |
| 849937c6-34ee-46ef-8d06-b26f30a0c4e4 | available | Beemer3 | 61 | None | true |
|

```

849b523e-22eb-412e-92e8-6b10b0f4542f	available		Beemer4		61		None		true	
aaea1930-44b6-4870-aef8-d9c6a9f9821c	in-use		Beemer1		61		None		true	f7449833-4e71-

```

4f8b-8ae9-5993a938a056 |
[root@lsdna002xgosc1 CINDER_TEST]# nova delete Audi2
[root@lsdna002xgosc1 CINDER_TEST]# nova delete Audi1
[root@lsdna002xgosc1 CINDER_TEST]# nova list | grep Audi
| f7449833-4e71-4f8b-8ae9-5993a938a056 | Audi1 | ACTIVE | deleting | Running | testproject-net=192.168.10.8 |
[root@lsdna002xgosc1 CINDER_TEST]# nova list | grep Audi
[root@lsdna002xgosc1 CINDER_TEST]# cinder list | grep Beemer
| 3894a445-a2fb-44b9-8de3-a1e9eab6e9bc | available | Beemer5 | 61 | None | true |
|
| 62e33583-15a4-4652-b1e7-45fc7a42db55 | available | Beemer2 | 61 | None | true |
|
| 849937c6-34ee-46ef-8d06-b26f30a0c4e4 | available | Beemer3 | 61 | None | true |
|
| 849b523e-22eb-412e-92e8-6b10b0f4542f | available | Beemer4 | 61 | None | true |
|
| aaea1930-44b6-4870-aef8-d9c6a9f9821c | available | Beemer1 | 61 | None | true |
|
[root@lsdna002xgosc1 CINDER_TEST]#

```

```

[root@lsdna004xgkvm00 nova]# multipath -ll
mpathr (SVIOLIN_SAN_ARRAY_DE88A335797CD20B) dm-22 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=0 status=active
   |- 7:0:1:7 sdaa 65:160 failed faulty running
   |- 7:0:0:7 sdz 65:144 failed faulty running
   |- 8:0:1:7 sdac 65:192 failed faulty running
   `-- 8:0:0:7 sdab 65:176 failed faulty running
mpathq (SVIOLIN_SAN_ARRAY_DE88A33564C24125) dm-7 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=0 status=active
   |- 7:0:1:4 sdl 8:176 failed faulty running
   |- 8:0:1:4 sdm 8:192 failed faulty running
   |- 7:0:0:4 sdo 8:224 failed faulty running
   `-- 8:0:0:4 sdq 65:0 failed faulty running
mpatho (SVIOLIN_SAN_ARRAY_DE88A3358A4E9765) dm-6 VIOLIN,SAN ARRAY
size=42G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:0:3 sdg 8:96 active ready running
   |- 7:0:1:3 sdi 8:128 active ready running
   |- 8:0:1:3 sdk 8:160 active ready running
   `-- 8:0:0:3 sdj 8:144 active ready running
mpathn (SVIOLIN_SAN_ARRAY_DE88A335DC600DE7) dm-5 VIOLIN,SAN ARRAY
size=45G features='0' hwhandler='0' wp=rw
`-+- policy='round-robin 0' prio=1 status=active
   |- 7:0:1:2 sdd 8:48 active ready running
   |- 7:0:0:2 sdc 8:32 active ready running
   |- 8:0:1:2 sdf 8:80 active ready running

```

```

    ^- 8:0:0:2 sde 8:64 active ready running
mpathu (SVIOLIN_SAN_ARRAY_DE88A3351B88B167) dm-25 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
^-+- policy='round-robin 0' prio=0 status=active
|- 7:0:1:8 sdad 65:208 failed faulty running
|- 8:0:1:8 sdae 65:224 failed faulty running
|- 7:0:0:8 sdaf 65:240 failed faulty running
^- 8:0:0:8 sdag 66:0 failed faulty running
mpathh (SVIOLIN_SAN_ARRAY_DE88A3356ED1B5DE) dm-16 VIOLIN,SAN ARRAY
size=1.0T features='0' hwhandler='0' wp=rw
^-+- policy='round-robin 0' prio=1 status=active
|- 7:0:0:1 sdb 8:16 active ready running
|- 7:0:1:1 sdh 8:112 active ready running
|- 8:0:0:1 sdn 8:208 active ready running
^- 8:0:1:1 sdt 65:48 active ready running
mpatht (SVIOLIN_SAN_ARRAY_DE88A335497063E6) dm-19 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
^-+- policy='round-robin 0' prio=0 status=active
|- 7:0:1:6 sdu 65:64 failed faulty running
|- 8:0:1:6 sdw 65:96 failed faulty running
|- 7:0:0:6 sdx 65:112 failed faulty running
^- 8:0:0:6 sdy 65:128 failed faulty running
mpaths (SVIOLIN_SAN_ARRAY_DE88A3359E89B60D) dm-10 VIOLIN,SAN ARRAY
size=61G features='0' hwhandler='0' wp=rw
^-+- policy='round-robin 0' prio=0 status=active
|- 7:0:0:5 sdp 8:240 failed faulty running
|- 8:0:0:5 sdr 65:16 failed faulty running
|- 7:0:1:5 sds 65:32 failed faulty running
^- 8:0:1:5 sdv 65:80 failed faulty running
[root@lsdna004xgkvm00 nova]#

```

--excerpt /var/log/nova/compute.log--

```

2014-05-13 19:11:15.616 48804 DEBUG urllib3.connectionpool [-] "POST /v1/525c7ad0b5184ce4b64dc8e02e9c74d0/volumes/62e33583-15a4-4652-ble7-45fc7a42db55/action HTTP/1.1" 202 0 _make_request /usr/lib/python2.6/site-packages/urllib3/connectionpool.py:295
2014-05-13 19:11:15.617 48804 DEBUG nova.compute.manager [req-88b619f1-c275-4761-9546-28e74912195e 88c8ec5a4fb34delbc5fac8aa42bfa7525c7ad0b5184ce4b64dc8e02e9c74d0] [instance: 4fa828ff-292c-41cd-8af3-9b9ef81f5076] terminating bdm {u'instance_uuid': u'4fa828ff-292c-41cd-8af3-9b9ef81f5076', u'virtual_name': None, u'delete_on_termination': False, u'no_device': None, u'connection_info': u'{"driver_volume_type": "fibre_channel", "serial": "62e33583-15a4-4652-ble7-45fc7a42db55", "data": {"target_lun": 8, "qos_specs": null, "target_wwn": ["21000024ff577c01", "21000024ff577bf1", "21000024ff577c00", "21000024ff577bf0", "21000024ff577be1", "21000024ff577bfc", "21000024ff577bfd", "21000024ff577be0"]}, "target_discovered": true, "access_mode": "rw"}}', u'created_at': u'2014-05-13T22:59:11.000000', u'volume_id': u'62e33583-15a4-4652-ble7-45fc7a42db55', u'updated_at': u'2014-05-13T23:00:17.000000', u'device_name': u'/dev/vda', u'deleted': 0, u'snapshot_id': None, u'id': 2503, u'deleted_at': None, u'volume_size': None}
cleanup_volumes /usr/lib/python2.6/site-packages/nova/compute/manager.py:1706
2014-05-13 19:11:15.462 48804 DEBUG urllib3.connectionpool [-] "POST /v1/525c7ad0b5184ce4b64dc8e02e9c74d0/volumes/62e33583-15a4-4652-ble7-45fc7a42db55/action HTTP/1.1" 202 0 _make_request /usr/lib/python2.6/site-packages/urllib3/connectionpool.py:295
2014-05-13 19:11:15.616 48804 DEBUG urllib3.connectionpool [-] "POST /v1/525c7ad0b5184ce4b64dc8e02e9c74d0/volumes/62e33583-15a4-4652-ble7-45fc7a42db55/action HTTP/1.1" 202 0 _make_request /usr/lib/python2.6/site-packages/urllib3/connectionpool.py:295
2014-05-13 19:11:15.617 48804 DEBUG nova.compute.manager [req-88b619f1-c275-4761-9546-28e74912195e 88c8ec5a4fb34delbc5fac8aa42bfa7525c7ad0b5184ce4b64dc8e02e9c74d0] [instance: 4fa828ff-292c-41cd-8af3-9b9ef81f5076] terminating bdm {u'instance_uuid': u'4fa828ff-

```

```
292c-41cd-8af3-9b9ef81f5076', u'virtual_name': None, u'delete_on_termination': False, u'no_device': None, u'connection_info':
u'{"driver_volume_type": "fibre_channel", "serial": "62e33583-15a4-4652-b1e7-45fc7a42db55", "data": {"target_lun": 8, "qos_specs":
null, "target_wwn": ["21000024ff577c01", "21000024ff577bf1", "21000024ff577c00", "21000024ff577bf0", "21000024ff577be1",
"21000024ff577bfc", "21000024ff577bfd", "21000024ff577be0"], "target_discovered": true, "access_mode": "rw"}}', u'created_at':
u'2014-05-13T22:59:11.000000', u'volume_id': u'62e33583-15a4-4652-b1e7-45fc7a42db55', u'updated_at': u'2014-05-13T23:00:17.000000',
u'device_name': u'/dev/vda', u'deleted': 0, u'snapshot_id': None, u'id': 2503, u'deleted_at': None, u'volume_size': None}
_cleanup_volumes /usr/lib/python2.6/site-packages/nova/compute/manager.py:1706
2014-05-13 19:11:15.773 48804 INFO nova.virt.libvirt.driver [-] [instance: f7449833-4e71-4f8b-8ae9-5993a938a056] Instance destroyed
successfully.
```