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Submitted by falko on Mon, 2006-03-27 12:19. ::

7 Start The Load Balancer And Do Some Testing

Now we can start our two load balancers for the first time:

[loadb1.example.com / loadb2.example.com:](#)

```
/etc/init.d/lirectord stop  
/etc/init.d/heartbeat start
```

If you don't see errors, you should now reboot both load balancers:

[loadb1.example.com / loadb2.example.com:](#)

```
shutdown -r now
```

After the reboot we can check if both load balancers work as expected :

[loadb1.example.com / loadb2.example.com:](#)

```
ip addr sh eth0
```

The active load balancer should list the virtual IP address (*192.168.0.105*):

```
2: eth0: <BROADCAST,MULTICAST,UP> mtu 1500 qdisc pfifo_fast
    link/ether 00:16:3e:45:fc:f8 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.103/24 brd 192.168.0.255 scope global eth0
    inet 192.168.0.105/24 brd 192.168.0.255 scope global eth0
```

The hot-standby should show this:

```
2: eth0: <BROADCAST,MULTICAST,UP> mtu 1500 qdisc pfifo_fast
    link/ether 00:16:3e:16:c1:4e brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.104/24 brd 192.168.0.255 scope global eth0
```

[loadb1.example.com / loadb2.example.com](http://loadb1.example.com/loadb2.example.com):

```
ldirectord ldirectord.cf status
```

Output on the active load balancer:

```
ldirectord for /etc/ha.d/ldirectord.cf is running wit
```

Output on the hot-standby:

```
ldirectord is stopped for /etc/ha.d/ldirectord.cf
```

[loadb1.example.com / loadb2.example.com:](#)

```
ipvsadm -L -n
```

Output on the active load balancer:

```
IP Virtual Server version 1.2.1 (size=4096)
Prot LocalAddress:Port Scheduler Flags
  -> RemoteAddress:Port          Forward Weight Acti
TCP  192.168.0.105:3306 wrr
  -> 192.168.0.101:3306          Route    1      0
  -> 192.168.0.102:3306          Route    1      0
```

Output on the hot-standby:

```
IP Virtual Server version 1.2.1 (size=4096)
Prot LocalAddress:Port Scheduler Flags
  -> RemoteAddress:Port           Forward Weight Acti
```

loadb1.example.com / loadb2.example.com:

```
/etc/ha.d/resource.d/LVSSyncDaemonSwap master status
```

Output on the active load balancer:

```
master running
(ipvs_syncmaster pid: 1766)
```

Output on the hot-standby:

```
master stopped
(ipvs_syncbackup pid: 1440)
```

If your tests went fine, you can now try to access the MySQL database from a totally different server in the

same network (*192.168.0.x*) using the virtual IP address *192.168.0.105*:

```
mysql -h 192.168.0.105 -u ldirector -p
```

(Please note: your MySQL client must at least be of version 4.1; older versions do not work with MySQL 5.)

You can now switch off one of the MySQL cluster nodes for test purposes; you should then still be able to connect to the MySQL database.

8 Annotations

There are some important things to keep in mind when running a MySQL cluster:

- **All data is stored in RAM!** Therefore you need lots of RAM on your cluster nodes. The formula how much RAM you need on each node goes like this:

$$(SizeofDatabase \tilde{-} NumberOfReplicas \tilde{-} 1.1) / NumberOfDataNodes$$

So if you have a database that is 1 GB of size, you would need 1.1 GB RAM **on each node!**

- The cluster management node listens on port 1186, and anyone can connect. So that's definitely not secure, and therefore you should run your cluster in an isolated private network!

It's a good idea to have a look at the MySQL Cluster FAQ:

<http://dev.mysql.com/doc/refman/5.0/en/mysql-cluster-faq.html> and also at the MySQL Cluster documentation: <http://dev.mysql.com/doc/refman/5.0/en/ndbcluster.html>

Links

MySQL: <http://www.mysql.com/>

MySQL Cluster documentation: <http://dev.mysql.com/doc/refman/5.0/en/ndbcluster.html>

MySQL Cluster FAQ: <http://dev.mysql.com/doc/refman/5.0/en/mysql-cluster-faq.html>

Ultra Monkey: <http://www.ultramonkey.org/>

The High-Availability Linux Project: <http://www.linux-ha.org/>

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