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Submitted by falko on Mon, 2006-03-27 12:13. ::

6 Configure The Load Balancers

Our MySQL cluster is finished now, and you could start using it now. However, we don't have a single IP address that we can use to access the cluster, which means you must configure your applications in a way that a part of it uses the MySQL cluster node 1 (*sql1.example.com*), and the rest uses the other node (*sql2.example.com*). Of course, all your applications could just use one node, but what's the point then in having a cluster if you do not split up the load between the cluster nodes? Another problem is, what happens if one of the cluster nodes fails? Then the applications that use this cluster node cannot work anymore.

The solution is to have a load balancer in front of the MySQL cluster which (as its name suggests) balances the load between the MySQL cluster nodes. The load balancer configures a virtual IP address that is shared between the cluster nodes, and all your applications use this virtual IP address to access the cluster. If one of the nodes fails, then your applications will still work, because the load balancer redirects the requests to the working node.

Now in this scenario the load balancer becomes the bottleneck. What happens if the load balancer fails? Therefore we will configure two load balancers (*loadb1.example.com* and *loadb2.example.com*) in an active/passive setup, which means we have one active load balancer, and the other one is a *hot-standby* and becomes active if the active one fails. Both load balancers use *heartbeat* to check if the other load

balancer is still alive, and both load balancers also use *ldirectord*, the actual load balancer that splits up the load onto the cluster nodes. *heartbeat* and *ldirectord* are provided by the *Ultra Monkey* package that we will install.

It is important that *loadb1.example.com* and *loadb2.example.com* have support for *IPVS* (IP Virtual Server) in their kernels. *IPVS* implements transport-layer load balancing inside the Linux kernel.

6.1 Install Ultra Monkey

Ok, let's start: first we enable *IPVS* on *loadb1.example.com* and *loadb2.example.com*:

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

```
modprobe ip_vs_dh
modprobe ip_vs_ftp
modprobe ip_vs
modprobe ip_vs_lblc
modprobe ip_vs_lblcr
modprobe ip_vs_lc
modprobe ip_vs_nq
modprobe ip_vs_rr
modprobe ip_vs_sed
modprobe ip_vs_sh
modprobe ip_vs_wlc
modprobe ip_vs_wrr
```

In order to load the *IPVS* kernel modules at boot time, we list the modules in */etc/modules*:

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

```
vi /etc/modules
```

```
ip_vs_dh
ip_vs_ftp
ip_vs
ip_vs_lblc
ip_vs_lblcr
ip_vs_lc
ip_vs_nq
ip_vs_rr
ip_vs_sed
ip_vs_sh
ip_vs_wlc
ip_vs_wrr
```

Now we edit */etc/apt/sources.list* and add the *Ultra Monkey* repositories (don't remove the other repositories), and then we install *Ultra Monkey*:

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

```
vi /etc/apt/sources.list
```

```
deb http://www.ultramoney.org/download/3/ sarge main
deb-src http://www.ultramoney.org/download/3 sarge m
```

```
apt-get update
apt-get install ultramoney libdbi-perl libdbd-mysql-perl libmysqlclient14-dev
```

Now *Ultra Monkey* is being installed. If you see this warning:

```
| libsensors3 not functional
|
| It appears that your kernel is not compiled with
| result, libsensors3 will not be functional on you
|
| If you want to enable it, have a look at "I2C Har
| support" in your kernel configuration.
```

you can ignore it.

Answer the following questions:

```
Do you want to automatically load IPVS rules on boot?
```

```
<-- No
```

```
Select a daemon method.
```

```
<-- none
```

The `libdbd-mysql-perl` package we've just installed does not work with MySQL 5 (we use MySQL 5 on our MySQL cluster...), so we install the newest `DBD::mysql` Perl package:

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

```
cd /tmp
wget http://search.cpan.org/CPAN/authors/id/C/CA/CAPTTOFU/DBD-mysql-3.0002.tar.gz
tar xvfz DBD-mysql-3.0002.tar.gz
cd DBD-mysql-3.0002
perl Makefile.PL
make
make install
```

We must enable packet forwarding:

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

```
vi /etc/sysctl.conf
```

```
# Enables packet forwarding
net.ipv4.ip_forward = 1
```

```
sysctl -p
```

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