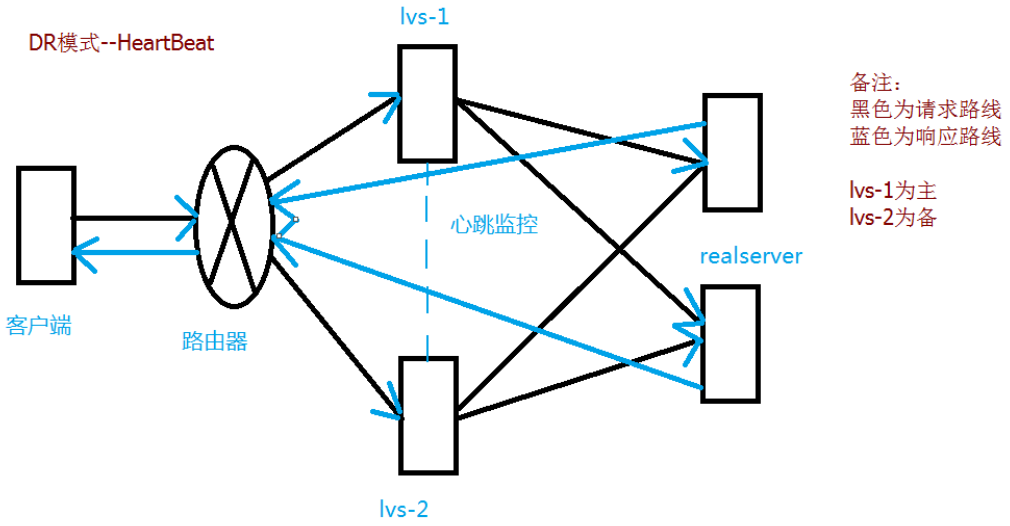
Heartbeat+LVS搭建



LVS服务器的环境：

桌面环境：xwindows system、GNOME desktop environment

开发工具：development tools、x software development、gnome software、development、kde software development

Centos6.6			
HeartBeat3.0			
节点	IP地址	主机名	备注
主LVS（DR）	eth0 : 192.168.0.100	lvs1.example.com	eth1为心跳地址
	eth0:0 : 192.168.0.150	无	
	eth1 : 192.168.1.100	private1	
备LVS（DR）	eth0 : 192.168.0.110	lvs2.example.com	eth1为心跳地址,当主lvs运行
	eth0:0 : 192.168.0.150	无	时，此VIP不存在
	eth1 : 192.168.1.110	private1	
RealServer1	eth0 : 192.168.0.10	web1.example.com	
	lo:0 : 192.168.0.150	无	
RealServer2	eth0 : 192.168.0.20	web2.example.com	
	lo:0 : 192.168.0.150	无	
路由	eth0 : 192.168.0.254	luyou.example.com	防火墙设置
	eth1 : 10.0.0.20	无	

LVS的配置（两台服务器）

注：其他相关配置查看LVS-DR

一、IPVS的安装及IP的设置

（1）IP的设置

```
[root@lvs ~]# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0C:29:70:45:33
          inet addr:192.168.0.100  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe70:4533/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:511 errors:0 dropped:0 overruns:0 frame:0
          TX packets:419 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:48277 (47.1 KiB)  TX bytes:55883 (54.5 KiB)

eth1      Link encap:Ethernet  HWaddr 00:0C:29:70:45:3D
          inet addr:192.168.1.100  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe70:453d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:10 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 b)  TX bytes:636 (636.0 b)
```

心跳地址

（2）检查kernel是否支持IPVS模块，并安装IPvs管理软件

[root@lvs1 ~]# yum -y install ipvsadm

```
[root@lvs1 ~]# modprobe -l | grep ipvs
kernel/net/netfilter/ipvs/ip_vs.ko
kernel/net/netfilter/ipvs/ip_vs_rr.ko
kernel/net/netfilter/ipvs/ip_vs_wrr.ko
kernel/net/netfilter/ipvs/ip_vs_lc.ko
kernel/net/netfilter/ipvs/ip_vs_wlc.ko
kernel/net/netfilter/ipvs/ip_vs_lblc.ko
kernel/net/netfilter/ipvs/ip_vs_lblcr.ko
kernel/net/netfilter/ipvs/ip_vs_dh.ko
kernel/net/netfilter/ipvs/ip_vs_sh.ko
kernel/net/netfilter/ipvs/ip_vs_sed.ko
kernel/net/netfilter/ipvs/ip_vs_nq.ko
kernel/net/netfilter/ipvs/ip_vs_ftp.ko
kernel/net/netfilter/ipvs/ip_vs_pe_sip.ko
[root@lvs1 ~]#
```

检查kernel是否支持IPVS模块

二、Heartbeat的安装

（1）安装heartbeat所需依赖包：

[root@lvs1 ~]#yum -y install libxslt-devel flex python net-snmp OpenIPMI autoconf automake libtool libtool-ltdl-devel glib2-devel libxml2 libxml2-devel bzip2 bzip2-devel uuidd e2fsprogs-devel e2fsprogs-libs

[root@lvs ~]# yum -y install docbook-style-xsl

[root@lvs ~]# rpm -ivh asciidoc-8.4.5-4.1.el6.noarch.rpm

（2）安装libnet-1.2-rc3.tar.gz

[root@lvs1 ~]# tar -zxvf libnet-1.2-rc3.tar.gz

[root@lvs1 ~]# cd libnet-1.2-rc3

[root@lvs1 libnet-1.2-rc3]# ./configure && make && make install

（3）安装 Cluster-Glue1.0.12.tar.bz2

[root@lvs1 ~]#groupadd haclient

[root@lvs1 ~]#useradd -g haclient hacluster

[root@lvs1 ~]# tar -jxvf Cluster-Glue1.0.12.tar.bz2

[root@lvs1 ~]#cd Reusable-Cluster-Components-glue1.0.12

[root@lvs1 Reusable-Cluster-Components-glue1.0.12]#./autogen.sh

[root@lvs1 Reusable-Cluster-Components-glue1.0.12]#./configure \

> --prefix=/usr/local/heartbeat/ CFLAGS=-I/usr/local/heartbeat/include \

> LDFLAGS=-L/usr/local/heartbeat/libLIBS="/lib64/libuuid.so.1"

[root@lvs1 Reusable-Cluster-Components-glue1.0.12]# make && make install

----------glue--make错误start----------

1、错误

错误：configure: error: BZ2 Development headers not found

解决：yum -y install bzip2-devel

2、错误

Making all in libltdl

gmake[1]: Entering directory `/root/Reusable-Cluster-Components-glue1.0.12/libltdl'

gmake[1]: *** 没有规则可以创建目标“all”。 停止。

gmake[1]: Leaving directory `/root/Reusable-Cluster-Components-glue1.0.12/libltdl'

make: *** [all-recursive] 错误 1

解决办法：yum -y install libxslt-devel #并重新编译

3、错误

a2x -f manpage hb_report.8.txt

gmake[2]: a2x：命令未找到

gmake[2]: *** [hb_report.8] 错误 127

gmake[2]: Leaving directory `/root/Reusable-Cluster-Components-glue--0a7add1d9996/doc'

gmake[1]: *** [all-recursive] 错误 1

gmake[1]: Leaving directory `/root/Reusable-Cluster-Components-glue--0a7add1d9996/doc'

make: *** [all-recursive] 错误 1

解决办法：安装 asciidoc-8.4.5-4.1.el6.noarch.rpm

4、错误

gmake[2]: *** [ipctest] 错误 1

解决：# ./configure --prefix=$PREFIX --with-daemon-user=hacluster --with-daemon-group=haclient --enable-fatal-warnings=no LIBS='/lib64/libuuid.so.1' #加参数LIBS，其他包也加此参数

---------make错误end----------

（4）安装resource-agents-3.9.6.tar.gz

[root@lvs1 ~]#tar -zxvf resource-agents-3.9.6.tar.gz

[root@lvs1 ~]#cd resource-agents-3.9.6

[root@lvs1 resource-agents-3.9.6]#./autogen.sh

[root@lvs1 resource-agents-3.9.6]#./configure \

>--prefix=/usr/local/heartbeat/ CFLAGS=-I/usr/local/heartbeat/include \

>LDFLAGS=-L/usr/local/heartbeat/lib LIBS="/lib64/libuuid.so.1"

[root@lvs1 resource-agents-3.9.6]#make && make install

------------resource-agents--make错误-start---------

../../heartbeat/IPv6addr: error while loading shared libraries: libnet.so.9: cannot open shared object file: No such file or directory

gmake[3]: *** [metadata-IPv6addr.xml] 错误 127

解决办法：#echo "/usr/local/heartbeat/lib" > /etc/ld.so.conf.d/heartbeat.conf

#ldconfig

#make clean ##清除

#make ##重新make

如果还报错：#ln -s /usr/local/lib/libnet.so.9 /lib/libnet.so.9 ##做个软连接，

#ldconfig && make clean

#make

注意：什么文件找不到，做什么文件的软链接

------------resource-agents--make错误-end---------

（5）安装HeartBeat(先装Cluster-Glue1.0.12.tar.bz2，否则报错,报错如下：图一)

[root@lvs1 ~]# tar -jxvf heartbeat3.0.6.tar.bz2

[root@lvs1 heartbeat3.0.6]#./bootstrap

[root@lvs1 heartbeat3.0.6]#vim /usr/local/heartbeat/include/heartbeat/glue_config.h

将glue_config.h备份，并将50行和105行删除或注释，此步骤必须做,不做会报错。

[root@lvs1 heartbeat3.0.6]#./configure \

> --prefix=/usr/local/heartbeat/ CFLAGS=-I/usr/local/heartbeat/include \

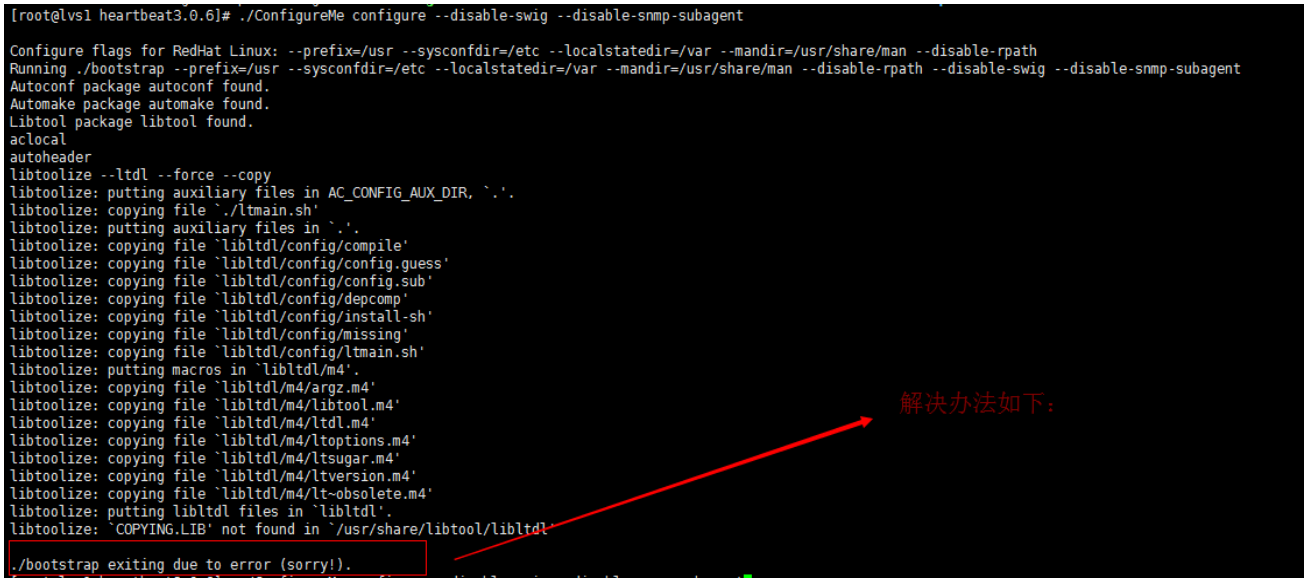
> LDFLAGS=-L/usr/local/heartbeat/lib LIBS="/lib64/libuuid.so.1"

[root@lvs1 heartbeat3.0.6]#make && make install

[root@lvs1 heartbeat3.0.6]# cp doc/{ha.cf,haresources,authkeys} /usr/local/heartbeat/etc/ha.d/

----------错误图一----------

安装错误：./bootstrap exiting due to error (sorry!).



解决办法：安装 Cluster-Glue1.0.12.tar.bz2

----------错误图end----------

（6）安装crmsh-2.1.2.tar.gz

[root@lvs1 ~]#tar -zxvf crmsh-2.1.2.tar.gz

[root@lvs1 ~]#cd crmsh-2.1.2

[root@lvs1 crmsh-2.1.2]#./autogen.sh

[root@lvs1 crmsh-2.1.2]#./configure \

>--prefix=/usr/local/heartbeat/ CFLAGS=-I/usr/local/heartbeat/include \

>LDFLAGS=-L/usr/local/heartbeat/lib LIBS="/lib64/libuuid.so.1"

[root@lvs1 crmsh-2.1.2]#make && make install

[root@lvs1 ~]#cp /root/resource-agents-3.9.6/ldirectord/ldirectord.cf \

>/usr/local/heartbeat/etc/ha.d/

三、Heartbeat的配置文件设置

（1）配置文件建立软连接

[root@lvs1 ~]# ln -s /usr/local/heartbeat/etc/ha.d /etc/ha.d

[root@lvs1 ~]# ln -s /usr/local/heartbeat/etc/init.d/ldirectord

/etc/init.d/ldirectord
[root@lvs1 ~]#

（2）ha.cf配置文件

[root@lvs ~]# cat /etc/ha.d/ha.cf

```
#log configure
#debugfile /var/log/ha-debug

logfile /var/log/ha-log
logfacility local0

#options configure

keepalive 2
deadtime 30
warntime 10
initdead 120
udpport 694  #端口，不写,VIP可能不显示

ucast eth0 192.168.0.110    # 对方IP
#mcast eth0 225.0.0.7 694 1 0
#node configure

auto_failback on
node    lvs1.example.com
node    lvs2.example.com
#crm on
ping 192.168.0.1    # 网关
respawn hacluster /usr/lib64/heartbeat/ipfail
```

（3）haresources文件配置

[root@lvs ~]# cat /etc/ha.d/haresources

```
  lvs1.example.com IPaddr::192.168.0.150/24/eth0:0  ldirectord
```

（4）authkeys文件配置

[root@lvs ~]# cat /etc/ha.d/authkeys #文件权限为600

```
auth 1
1 crc
```

四、启动Heartbeat

[root@lvs ~]#cat /etc/sysctl.conf   #添加

```
net.ipv4.ip_forward = 1
net.ipv4.conf.all.arp_ignore = 1
net.ipv4.conf.eth0.arp_ignore = 1
net.ipv4.conf.all.arp_announce = 2
net.ipv4.conf.eth0.arp_announce = 2
```

[root@lvs ~]#/etc/init.d/heartbeat start

[root@lvs ~]#ln -svf /usr/local/heartbeat/lib64/heartbeat/plugins/* /usr/local/heartbeat/lib/heartbeat/plugins/

[root@lvs ~]#yum install perl-Socket6 perl-IO-Socket-INET6 perl-Email-Date-Format perl-TimeDate perl-Pod-Escapes perl-Pod-Simple perl-Test-Pod perl-MailTools perl-libwww-per

----------LVS配置完成----------

RealServer的配置：

[root@lvs ~]#cat /etc/init.d/lvsrs #配置个启动虚拟IP的脚本

```
#!/bin/bash

#description: Start Real Server
VIP=192.168.0.150
. /etc/rc.d/init.d/functions   #点后有空格

case "$1" in
   start)
    echo "Start LVS of Real Server"
    /sbin/ifconfig lo:0 $VIP broadcast $VIP netmask 255.255.255.255 up
    echo "1" > /proc/sys/net/ipv4/conf/lo/arp_ignore
    echo "2" > /proc/sys/net/ipv4/conf/lo/arp_announce
     echo "1" > /proc/sys/net/ipv4/conf/all/arp_ignore
     echo "2" > /proc/sys/net/ipv4/conf/all/arp_announce
   ;;

   stop)
   /sbin/ifconfig lo:0 down
    echo "close LVS Director server"
    echo "0" > /proc/sys/net/ipv4/conf/lo/arp_ignore
    echo "0" > /proc/sys/net/ipv4/conf/lo/arp_announce
     echo "0" > /proc/sys/net/ipv4/conf/all/arp_ignore
     echo "0" > /proc/sys/net/ipv4/conf/all/arp_announce
   ;;

   *)
   echo "Usage: $0 {start|stop}"
   exit 1
esac
```

测试结果：

lvs的ldirectord日志

```
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added virtual server: 192.168.0.150:80
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added fallback server: 127.0.0.1:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added real server: 192.168.0.20:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Deleted fallback server: 127.0.0.1:80 (192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Deleted real server: 192.168.0.20:80 (192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added fallback server: 127.0.0.1:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added real server: 192.168.0.10:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Deleted fallback server: 127.0.0.1:80 (192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Deleted real server: 192.168.0.10:80 (192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added fallback server: 127.0.0.1:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Resetting soft failure count: 192.168.0.10:80 (tcp:192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added real server: 192.168.0.10:80 (192.168.0.150:80) (Weight set to 1)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Deleted fallback server: 127.0.0.1:80 (192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Resetting soft failure count: 192.168.0.20:80 (tcp:192.168.0.150:80)
[Thu Jan 21 05:50:46 2016|ldirectord|35246] Added real server: 192.168.0.20:80 (192.168.0.150:80) (Weight set to 1)
```

日志出现正常

IPvsadm -Ln

```
[root@lvs1 ~]# ipvsadm -Ln
IP Virtual Server version 1.2.1 (size=4096)
Prot LocalAddress:Port Scheduler Flags
  -> RemoteAddress:Port           Forward Weight ActiveConn InActConn
TCP  192.168.0.150:80 rr
  -> 192.168.0.10:80              Route   1      0          0
  -> 192.168.0.20:80              Route   1      0          0
[root@lvs1 ~]#
```