**lvs+keepalived部署**

**背景:**

随着公司的网站业务量的增长你网站的服务器压力越来越大？需要负载均衡方案！商业的硬件如F5又太贵，公司又是创业型互联公司如何有效节约成本，节省不必要的浪费？同时实现商业硬件一样的高性能高可用的功能？有什么好的负载均衡可伸张可扩展的方案吗？答案是肯定的！有！我们利用LVS+Keepalived基于完整开源软件的架构可以提供一个负载均衡及高可用的服务器。

1. **LVS+Keepalived 介绍**
   1. LVS

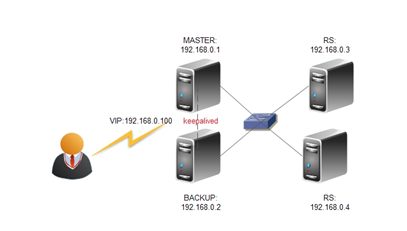
**LVS**是**Linux Virtual Server**的简写，意即**Linux虚拟服务器**，是一个虚拟的服务器集群系统。本项目在1998年5月由章文嵩博士成立，是中国国内最早出现的自由软件项目之一。目前有三种IP负载均衡技术（VS/NAT、VS/TUN和VS/DR）；

八种调度算法（rr,wrr,lc,wlc,lblc,lblcr,dh,sh）。

* 1. Keepalvied

Keepalived在这里主要用作RealServer的健康状态检查以及LoadBalance主机和BackUP主机之间failover的实现

**二. 网站负载均衡拓朴图**



|  |  |
| --- | --- |
| 1 | +-------------VIP(192.168.0.100)------------------+ |
| 2 | |                                   |                           | |

|  |  |
| --- | --- |
| 3 | |                                   |                           | |
| 4 | server(MASTER) <----keepalived----> server(BACKUP) |

|  |  |
| --- | --- |
| 5 | (192.168.0.1)                                      (192.168.0.2) |

IP规划：

Hostname ip

VIP 192.168.1.222

MASTER 192.168.1.202

BACKUP 192.168.1.204

REALSERVER1 192.168.1.203

REALSERVER2 192.168.1.201

**三、部署步骤**

**安装LVS和Keepalvied软件包**     
**1. 下载相关软件包**

#mkdir /usr/local/src/lvs

#cd /usr/local/src/lvs

#wget http://www.linuxvirtualserver.org/software/kernel-2.6/ipvsadm-1.24.tar.gz

#wget <http://www.keepalived.org/software/keepalived-1.1.15.tar.gz>

**2. 安装LVS和Keepalived**

#lsmod |grep ip\_vs

#uname -r

2.6.32-279.el6.x86\_64

#yum install kernel-devel

#yum -y install popt\*

#yum -y install libnl\*

#yum -y install openssl\*

#ln -s /usr/src/kernels/2.6.32-279.9.1.el6.x86\_64/ /usr/src/linux

#tar zxvf ipvsadm-1.24.tar.gz

#cd ipvsadm-1.24

#make && make install

#find / -name ipvsadm # 查看ipvsadm的位置

#tar zxvf keepalived-1.1.15.tar.gz

#cd keepalived-1.1.15

#./configure && make && make install

#find / -name keepalived # 查看keepalived位置

#cp /usr/local/etc/rc.d/init.d/keepalived /etc/rc.d/init.d/

#cp /usr/local/etc/sysconfig/keepalived /etc/sysconfig/

#mkdir /etc/keepalived

#cp /usr/local/etc/keepalived/keepalived.conf /etc/keepalived/

#cp /usr/local/sbin/keepalived /usr/sbin/

#service keepalived start|stop #做成系统启动服务方便管理.

**3.配置LVS-DR脚本.**

#!/bin/bash

# description: start LVS of DirectorServer

#Written by : ce

VIP=172.16.0.250

RIP1=172.16.0.204

RIP2=172.16.0.205

. /etc/rc.d/init.d/functions

logger $0 called with $1

case "$1" in

start)

# set squid vip

/sbin/ifconfig eth0:0 $VIP broadcast $VIP netmask 255.255.255.255 up

/sbin/route add -host $VIP dev eth0:0

;;

stop)

ifconfig eth0:0 down

route del $VIP

echo "lvs\_dr stoped"

;;

\*)

echo "Usage: $0 {start|stop}"

exit 1

esac

**4.配置Realserver脚本.**

#!/bin/bash

#description Config LVS to realserver lo and apply noarp

#Written by ce

VIP=172.16.0.250

. /etc/init.d/functions

case "$1" in

start)

ifconfig lo:0 $VIP netmask 255.255.255.255 broadcast $VIP

/sbin/route add -host $SNS\_VIP dev lo:0

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

sysctl -p >/dev/null 2>&1

echo "RealServer Start OK"

;;

stop)

ifconfig lo:0 down

route del $VIP >/dev/null 2>&1

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 "RealServer Stoped"

;;

\*)

echo "Usage: $0 {start|stop}"

exit 1

esac

exit 0

**5.利用Keepalvied实现负载均衡和和高可用性**  
  1.配置在主负载均衡服务器上配置keepalived.conf

#vi /etc/keepalived/keepalived.conf

! Configuration File for keepalived

global\_defs {

router\_id LVS\_DEVEL

}

# VIP1

vrrp\_instance VI\_1 {

state MASTER #备份服务器上将MASTER改为BACKUP

interface eth0

virtual\_router\_id 51

priority 100 # 备份服务上将100改为99

advert\_int 1

authentication {

auth\_type PASS

auth\_pass 1111

}

virtual\_ipaddress {

192.168.0.100

#(如果有多个VIP，继续换行填写.)

}

}

virtual\_server 192.168.0.100 80 {

delay\_loop 6 #(每隔10秒查询realserver状态)

lb\_algo wrr #(lvs 算法)

lb\_kind DR #(Direct Route)

persistence\_timeout 60 #(同一IP的连接60秒内被分配到同一台realserver)

protocol TCP #(用TCP协议检查realserver状态)

real\_server 192.168.0.3 80 {

weight 3 #(权重)

TCP\_CHECK {

connect\_timeout 10 #(10秒无响应超时)

nb\_get\_retry 3

delay\_before\_retry 3

connect\_port 80

}

}

real\_server 192.168.0.4 80 {

weight 3

TCP\_CHECK {

connect\_timeout 10

nb\_get\_retry 3

delay\_before\_retry 3

connect\_port 80

}

}

}

2. BACKUP服务器同上配置，先安装lvs再按装keepalived,仍后配置/etc/keepalived/keepalived.conf，只需将红色标示的部分改一下即可.

3. 启动keepalived

 #/etc/init.d/keepalived start  启动keepalived 服务，keepalived就能利用keepalived.conf 配置文件，实现负载均衡和高可用.  整个LVS负均衡HA方案，由keepalived.conf一个文件即可搞定！

4. 查看lvs服务是否正常

#watch ipvsadm –ln

IP Virtual Server version 1.2.1 (size=4096)

Prot LocalAddressort Scheduler Flags

-> RemoteAddressort Forward Weight ActiveConn InActConn

TCP 61.164.122.8:80 wrr persistent 60

-> 61.164.122.10:80 Route 3 0 0

-> 61.164.122.9:80 Route 3 0 0

#tail –f /var/log/message 监听日志，查看状态。