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# 1，实验环境

DR 1 INFO

Hostname: vos1.alv.pub

Eth0-RIP:192.168.105.201 Netmask 255.255.255.0

Eth0:1-VIP:192.168.105.211 Netmask 255.255.255.255

Gateway: 192.168.105.1

Service: Keepalived, ipvsadm

DR 2 INFO

Hostname: vos2.alv.pub

Eth0-RIP: eth0:192.168.105.202 Netmask 255.255.255.0

Eth0:1-VIP: eth0:1 :192.168.105.211 Netmask 255.255.255.255

Gateway: 192.168.105.1

Service: keepalived, ipvsadm

Real Server 1 INFO

Hostname: vos3.alv.pub

Eth0-RIP: 192.168.105.203 Netmask 255.255.255.0

lo:0-VIP: 192.168.105.211 Netmask 255.255.255.255

Gateway: 192.168.105.1

Service: apache

Real Server2 INFO

Hostname: vos4.alv.pub

Eth0-RIP: 192.168.105.204 Netmask 255.255.255.0

lo:0-VIP: 192.168.105.211 Netmask 255.255.255.255

Gateway: 192.168.105.1

Service: apache

# 2,实验步骤

## 2.1, Vos1.alv.pub configuration

yum install keepalived ipvsadm kernel-devel gcc openssl-devel popt-devel make -y

echo 1 > /proc/sys/net/ipv4/ip\_forward

# vim /etc/keepalived/keepalived.conf

[root@vos1 ~]# grep -v ^# /etc/keepalived/keepalived.conf

! Configuration File for keepalived

global\_defs {

notification\_email {

root@localhost

}

notification\_email\_from Alvin.Wan.CN@hotmail.com

smtp\_server 127.0.0.1

smtp\_connect\_timeout 300

router\_id director

}

vrrp\_instance VI\_1 {

state MASTER

interface eth0

virtual\_router\_id 51

priority 100

advert\_int 1

authentication {

auth\_type PASS

auth\_pass 1111

}

virtual\_ipaddress {

192.168.105.211

}

}

virtual\_server 192.168.105.211 80 {

delay\_loop 6

lb\_algo rr

lb\_kind DR

protocol TCP

real\_server 192.168.105.203 80 {

weight 1

TCP\_CHECK {

connect\_timeout 3

}

}

real\_server 192.168.105.204 80 {

weight 1

TCP\_CHECK {

connect\_timeout 3

}

}

}

然后启动keepalived服务

# /etc/init.d/keepalived start

## 2.2, vos2.alv.pub configuration

yum install keepalived ipvsadm kernel-devel gcc openssl-devel popt-devel make -y

echo 1 > /proc/sys/net/ipv4/ip\_forward

vim /etc/keepalived/keepalived.conf

[root@vos2 ~]# grep -v ^# /etc/keepalived/keepalived.conf

! Configuration File for keepalived

global\_defs {

notification\_email {

root@localhost

}

notification\_email\_from Alvin.Wan.CN@hotmail.com

smtp\_server 127.0.0.1

smtp\_connect\_timeout 300

router\_id director

}

vrrp\_instance VI\_1 {

state MASTER

interface eth0

virtual\_router\_id 51

priority 100

advert\_int 1

authentication {

auth\_type PASS

auth\_pass 1111

}

virtual\_ipaddress {

192.168.105.211

}

}

virtual\_server 192.168.105.211 80 {

delay\_loop 6

lb\_algo rr

lb\_kind DR

protocol TCP

real\_server 192.168.105.203 80 {

weight 1

TCP\_CHECK {

connect\_timeout 3

}

}

real\_server 192.168.105.204 80 {

weight 1

TCP\_CHECK {

connect\_timeout 3

}

}

}

然后启动keepalived服务

# /etc/init.d/keepalived start

## 2.3, vos3alv.pub configuration

# yum install httpd -y

# echo web1 > /var/www/html/index.html

# /etc/init.d/httpd start

ifconfig lo:0 192.168.105.211 broadcast 192.168.105.211 netmask 255.255.255.255 up

route add -host 192.168.105.211 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

## 2.4,vos4.alv.pub configuration

# yum install httpd -y

# echo web2 > /var/www/html/index.html

# /etc/init.d/httpd start

ifconfig lo:0 192.168.105.211 broadcast 192.168.105.211 netmask 255.255.255.255 up

route add -host 192.168.105.211 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

# 3,客户端测试

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

可见，成功实现负载均衡

那么下面我们进行高可用的测试，这里我们将vos1先停掉，看还能不能访问

[root@kvm ~]# virsh shutdown vos1.alv.pub

Domain vos1.alv.pub is being shutdown

[root@kvm ~]# ping vos1

PING vos1.alv.pub (192.168.105.201) 56(84) bytes of data.

^C

--- vos1.alv.pub ping statistics ---

5 packets transmitted, 0 received, 100% packet loss, time 4001ms

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]#

[root@kvm ~]#

[root@kvm ~]# curl 192.168.105.211

web1

那么现在我们把vos2也停掉，这下应该是肯定访问不了了的。

[root@kvm ~]# virsh shutdown vos2.alv.pub

Domain vos2.alv.pub is being shutdown

[root@kvm ~]# ping -c 2 vos2

PING vos2.alv.pub (192.168.105.202) 56(84) bytes of data.

^CFrom 192.168.105.30 icmp\_seq=1 Destination Host Unreachable

From 192.168.105.30 icmp\_seq=2 Destination Host Unreachable

--- vos2.alv.pub ping statistics ---

2 packet [root@kvm ~]# curl 192.168.105.211

^C

[root@kvm ~]# curl 192.168.105.211

^C

现在访问不了了，那么我们开启vos1，

+[root@kvm ~]# virsh start vos1.alv.pub

Domain vos1.alv.pub started

[root@kvm ~]# ping -c 1 vos1

PING vos1.alv.pub (192.168.105.201) 56(84) bytes of data.

64 bytes from 192.168.105.201: icmp\_seq=1 ttl=64 time=2.46 ms

--- vos1.alv.pub ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms

rtt min/avg/max/mdev = 2.460/2.460/2.460/0.000 ms

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

然后就又可以访问了。现在我们再关掉vos1开启vos2，然后发现，也是可以访问的，

[root@kvm ~]# virsh shutdown vos1.alv.pub && virsh start vos2.alv.pub

Domain vos1.alv.pub is being shutdown

Domain vos2.alv.pub started

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web1

然后我们尝试把vos3也关掉，于是我们可以看到，再次访问时，就只能看到web2了，vos3和vos4是轮询负载均衡，vos1和vos2是高可用。

[root@kvm ~]# virsh shutdown vos3.alv.pub

Domain vos3.alv.pub is being shutdown

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web2

[root@kvm ~]# curl 192.168.105.211

web2

