**Nginx + Keepalived—高可用**

**1、环境简介：**

VS1：CentOS 6.8 + Keepalived v1.2.13 + nginx/1.10.2 + eth0:192.168.88.11

VS2：CentOS 6.8 + Keepalived v1.2.13 + nginx/1.10.2 + eth0:192.168.88.22

RS1：CentOS 6.8 + Apache/2.2.15 + eth0:192.168.88.66

RS2：CentOS 6.8 + Apache/2.2.15 + eth0:192.168.88.77

**2、网络拓扑：**



**3、实验前准备：**

注：需配置好本地yum源，以下操作需在各主机上进行

**(1)修改各主机的/etc/hosts文件，实现主机名解析：**

**[root@vs1 ~]#cat /etc/hosts**

**192.168.88.11 vs1.maochen.com vs1**

**192.168.88.22 vs2.maochen.com vs2**

**192.168.88.66 rs1.maochen.com rs1**

**192.168.88.77 rs2.maochen.com rs2**

**(2)添加主机秘钥，实现各主机无秘钥登录：**

**[root@vs1 ~]#cat key.sh**

**#/bin/bash**

**HOST=(‘vs1’ ‘vs2’ ‘rs1’ ‘rs2’)**

**for i in {0..3}**

**do**

**NAME=${HOST[$i]}**

**[ -e /root/.ssh/id\_rsa.pub ] || ssh-keygen -f /root/.ssh/id\_rsa -P “”**

**ssh-copy-id -i /root/.ssh/id\_rsa.pub root@${NAME}**

**scp /etc/hosts ${NAME}:/etc/**

**done**

**[root@vs1 ~]#sh key.sh**

**(3)确保各个主机的时间同步(不一定准时，但必须相同)：**

**[root@vs1 ~]#service ntpd start**

**[root@vs2 ~]#ntpdate vs2**

**[root@vs1 ~]#date;ssh vs2 “date” #检测时间是否同步**

**(4)确保iptables和selinux关闭：**

**[root@vs1 ~]#service iptables start**

**[root@vs1 ~]#sed -i ‘s/SELINUX=.\*/SELINUX=disabled/g’ /etc/sysconfig/selinux**

**[root@vs1 ~]#setenforce 0 ##临时关闭selinux，上一条为永久关闭**

**(5)安装keepalived软件(本实验选择yum安装)**

**[root@vs1 ~]#yum install keepalived nginx -y**

**[root@rs1 ~]#yum install httpd -y**

**4、修改配置文件：**

(1)修改/etc/keepalived/keepalived.conf配置文件，在master上的设置如下，在slave上的设置仅修改红线部分的

**! Configuration File for keepalived**

**global\_defs {**

**notification\_email {**

**root@localhost ###定义节点状态发生变化时发送通知的目标邮箱地址**

**}**

**notification\_email\_from keepalived\_test@nwc.com ###定义发件人的信息**

**smtp\_server 127.0.0.1 ###定义邮箱服务器地址**

**smtp\_connect\_timeout 30 ###定义邮箱服务器的链接超时时间**

**router\_id node72 ###定义本机的路由器ID,自定义即可**

**vrrp\_mcast\_group4 224.0.32.18 ###定义心跳信息通告的组播地址，同一个集群的组播地址一样**

**}**

**vrrp\_script check {**

**script "killall -0 nginx" ###定义判断nginx服务是否正常的脚本，script后可加脚本路径**

**interval 1 ###检测时间间隔**

**weight -10 ###脚本执行失败则节点优先级减10**

**fail 2 ###检测两次才算失败**

**rise 1 ###检测一次成功就算成功**

**}**

**vrrp\_instance VI\_1 { ###定义一个虚拟路由器的实例，实例名称为VI\_1**

**state MASTER ###定义本节点在该虚拟路由器实例中的初始角色，MASTER还是BACKUP**

**interface eth0 ###虚拟路由器的工作的接口**

**virtual\_router\_id 32 ###虚拟路由器ID(也就是VRID)，用以区别不同的虚拟路由器实例**

**priority 100 ###定义当前节点在该虚拟路由器实例中优先级,MASTER要比BACKUP节点的优先级高**

**advert\_int 1 ###定义通告信息发送的时间间隔**

**authentication { ###定义认证机制和认证的秘钥**

**auth\_type PASS ###PASS为简单字符认证，建议使用PASS即可**

**auth\_pass 12345678 ###认证的秘钥，最大有效值为8位长度**

**}**

**track\_script {**

**check ###在vrrp实例内部调用track\_script追踪脚本的执行**

**}**

**virtual\_ipaddress { ###定义该虚拟路由器的VIP**

**192.168.88.111/24 dev eth0 label eth0:0**

**### VIP为192.168.88.111，定义在eth0接口的 eth0:0别名上**

**}**

**}**

**track\_interface {**

**###定义要监控的接口，接口出现故障，则节点会转为FAULT状态，触发重新选举，实现资源转移**

**eth0**

**}**

**notify\_master "/etc/keepalived/script/notify.sh master" #状态转化为master触发脚本**

**notify\_backup "/etc/keepalived/script/notify.sh backup" #状态转化为slave触发脚本**

**notify\_fault "/etc/keepalived/script/notify.sh fault" #状态转化fault触发脚本**

**}**

(2)修改/etc/nginx/conf.d/default.conf配置文件，在master和slave上的修改相同。主要是利用nginx的代理功能(upstream模块)

**upstream web {**

**server 192.168.88.66;**

**server 192.168.88.77;**

**}**

**server {**

**listen 80 default\_server;**

**listen [::]:80 default\_server;**

**location / {**

**proxy\_pass http://web;**

**root /usr/share/nginx/html;**

**index index.html;**

**}**

**}**

**5、在keepalived中调用自定义的脚本实现节点状态转移时的通知机制**

**[root@vs1 ~]mkdir /etc/keepalived/script**

**[root@vs1 ~]vim /etc/keepalived/script/notify.sh**

**#!/bin/bash**

**#**

**receiver='root@localhost'**

**notify() {**

**mailsubject="$(hostname) to $1,vip floating."**

**content="$(date + '%F %T') vrrp state transion, $(hostname) changed to be $1"**

**echo "$content" | mail -s "$mailsubject" $receiver**

**}**

**case $1 in**

**master)**

**notify master;;**

**backup)**

**notify backup;;**

**fault)**

**notify fault;;**

**\*)**

**echo "Usage $(basename $0) {master|backup|fault}"**

**exit 1;;**

**esac**

**[root@vs1 ~]chmod +x /etc/keepalived/script/notify.sh**

**7、在Real Server上的配置：**

**[root@rs1 ~]#echo “<h1>RS1</h1>” > /var/www/html/index.html**

**[root@rs1 ~]#service httpd restart**

**[root@rs2 ~]#echo “<h1>RS2</h1>” > /var/www/html/index.html**

**[root@rs2 ~]#service httpd restart**

**8、启动服务，模拟故障，检测IP可用**

**##开启keepalived服务：**

**[root@vs1 ~]#service keepalived start**

**[root@vs1 ~]#ifconfig**

**[root@vs2 ~]#service keepalived start**

**[root@test ~]#curl http://192.168.88.111**

**[root@test ~]#curl http://192.168.88.111**

**##模拟故障，关闭vs1的keepalived：**

**[root@vs1 ~]#service keepalived stop（或者service nginx stop）**

**[root@vs1 ~]#ip a**

**##检测web服务是否可用**

**[root@test ~]# curl http://192.168.88.111**

**参考链接：http://www.178linux.com/56546**

**Nginx功能进阶参考链接：http://www.178linux.com/64855（ssl结合配置https网站、fpm、rewrite、cache配置等）**