**Redis + Keepalived—高可用**

**1、环境简介：**

VS1：CentOS 6.8+Keepalived v1.2.13(**Master**) + Redis server v=3.0.6 + eth0:192.168.88.11

VS2：CentOS 6.8+Keepalived v1.2.13(**Slave**) + Redis server v=3.0.6 + eth0:192.168.88.22

**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**

**(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’)**

**for i in {0..1}**

**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 ~]#ntpdate time.nist.gov**

**[root@vs2 ~]#ntpdate time.nist.gov**

**[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redis、keepalived软件(一下步骤需在两个节点上安装)**

**[root@vs1 ~]#yum install vim gcc telnet wget lrzsz openssl openssl-devel openssl-clients ntpdate -y**

**#------------------------------源码编译安装keepalived----------------------------#**

**[root@vs1 ~]# wget http://www.keepalived.org/software/keepalived-1.2.20.tar.gz**

**[root@vs1 ~]# tar -xf keepalived-1.2.20.tar.gz**

**[root@vs1 ~]# cd keepalived-1.2.20**

**[root@vs1 keepalived-1.2.20]# ./configure --prefix=/usr/local/keepalived**

**[root@vs1 keepalived-1.2.20]# make && make install**

**[root@vs1 ~]# cp /usr/local/keepalived/sbin/keepalived /usr/sbin/**

**[root@vs1 ~]# cp /usr/local/keepalived/etc/sysconfig/keepalived /etc/sysconfig/**

**[root@vs1 ~]# cp /usr/local/keepalived/etc/rc.d/init.d/keepalived /etc/init.d/**

**[root@vs1 ~]# cp /usr/local/keepalived/etc/keepalived/keepalived.conf /etc/keepalived/**

**[root@vs1 ~]# mkdir -p /etc/keepalived/log/**

**[root@vs1 ~]# mkdir -p /etc/keepalived/scripts/**

**添加日志**

**[root@vs1 ~]# vim /etc/sysconfig/keepalived**

**KEEPALIVED\_OPTIONS="-D"**

**修改为**

**KEEPALIVED\_OPTIONS="-D -d -S 0"**

**[root@vs1 ~]# vi /etc/rsyslog.conf #加入如下配置**

**#keepalived -S 0**

**local0.\* /var/log/keepalived.log**

**[root@vs1 ~]# /etc/init.d/rsyslog restart #重启日志服务**

**[root@vs1 ~]# ll /var/log/keepalived.log**

**-rw-------. 1 root root 0 Jun 21 19:46 /var/log/keepalived.log**

**#-------------------------------源码编译安装redis----------------------------------#**

**[root@vs1 ~]# wget http://download.redis.io/releases/redis-3.2.0.tar.gz**

**[root@vs1 ~]# tar xf redis-3.2.0.tar.gz**

**[root@vs1 ~]# mkdir -p /usr/local/redis**

**[root@vs1 ~]# mv redis-3.2.0/\* /usr/local/redis**

**[root@vs1 redis]# cd /usr/local/redis**

**[root@vs1 redis]# make**

**[root@vs1 src]# cd src && make install**

**[root@vs1 src]# cd /usr/local/redis**

**[root@vs1 redis]# cp redis.conf /etc/**

**[root@vs1 redis]# mkdir -p /redis/log #日志目录**

**[root@vs1 redis]# mkdir -p /redis/run #pid文件目录**

**[root@vs1 redis]# mkdir -p /redis/data #本地快照数据库存放目录**

**[root@vs1 redis]# vi /etc/redis.conf #编辑**

**daemonize yes #设置后台启动redis**

**[root@vs1 redis]# sysctl vm.overcommit\_memory=1**

**[root@vs1 redis]# echo never > /sys/kernel/mm/transparent\_hugepage/enabled**

**[root@vs1 redis]# vi /etc/sysctl.conf #编辑，在最后一行添加下面代码**

**vm.overcommit\_memory = 1**

**[root@vs1 redis]# sysctl -p #使设置立即生效**

**#----------------------------设置开机自启动redis----------------------------------#**

**[root@vs1 redis]# vim /etc/init.d/redis #编辑，添加以下代码**

**#!/bin/sh**

**# chkconfig: 2345 90 10**

**# description: Redis is a persistent key-value database**

**# redis Startup script for redis processe**

**# processname: redis**

**redis\_path="/usr/local/bin/redis-server"**

**redis\_conf="/etc/redis.conf"**

**redis\_pid="/redis/run/redis.pid"**

**# Source function library.**

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

**[ -x $redis\_path ] || exit 0**

**RETVAL=0**

**prog="redis"**

**# Start daemons.**

**start() {**

**if [ -e $redis\_pid -a ! -z $redis\_pid ];then**

**echo $prog" already running...."**

**exit 1**

**fi**

**echo -n $"Starting $prog "**

**# Single instance for all caches**

**$redis\_path $redis\_conf**

**RETVAL=$?**

**[ $RETVAL -eq 0 ] && {**

**touch /var/lock/subsys/$prog**

**success $"$prog"**

**}**

**echo**

**return $RETVAL**

**}**

**# Stop daemons.**

**stop() {**

**echo -n $"Stopping $prog "**

**killproc -d 10 $redis\_path**

**echo**

**[ $RETVAL = 0 ] && rm -f $redis\_pid /var/lock/subsys/$prog**

**RETVAL=$?**

**return $RETVAL**

**}**

**# See how we were called.**

**case "$1" in**

**start)**

**start;;**

**stop)**

**stop;;**

**status)**

**status $prog**

**RETVAL=$?;;**

**restart)**

**stop**

**start;;**

**condrestart)**

**if test "x`pidof redis`" != x; then**

**stop**

**start**

**fi;;**

**\*)**

**echo $"Usage: $0 {start|stop|status|restart|condrestart}"**

**exit 1**

**esac**

**exit $RETVAL**

**[root@vs1 redis]# chmod 755 /etc/init.d/redis #添加脚本执行权限**

**[root@vs1 redis]# chkconfig --add redis #添加开启启动**

**[root@vs1 redis]# chkconfig --level 2345 redis on #设置启动级别**

**[root@vs1 redis]# chkconfig --list redis #查看启动级别**

**[root@vs1 redis]# service redis restart #重新启动redis**

然后重启redis，现在redis都配置了双主，但是他们现在都不可以写入，必须要配置keepalived，有redis主，才可以写入。

**4、修改配置文件：**

(1)Redis—Master上的配置文件，红线地方必须在Redis—Slave做相应的修改：

**#---------------------------------修改/etc/redis.conf文件---------------------------#**

**protected-mode no #必须要加的参数，在3.2版本**

**daemonize yes**

**pidfile /redis/run/redis.pid**

**port 6379**

**tcp-backlog 511**

**timeout 1800**

**tcp-keepalive 0**

**loglevel verbose**

**logfile "/redis/log/redis.log"**

**databases 16**

**save 900 1**

**save 300 10**

**save 60 10000**

**stop-writes-on-bgsave-error yes**

**rdbcompression yes**

**rdbchecksum yes**

**dbfilename dump.rdb**

**dir ./**

**slaveof 192.168.88.55 6379 #在slave上应修改为master的IP即为：192.168.88.11 6379**

**slave-read-only yes**

**slave-serve-stale-data yes**

**slave-read-only yes**

**repl-diskless-sync no**

**repl-diskless-sync-delay 5**

**repl-disable-tcp-nodelay no**

**slave-priority 100**

**appendonly yes**

**appendfilename "appendonly.aof"**

**appendfsync everysec**

**no-appendfsync-on-rewrite no**

**auto-aof-rewrite-percentage 100**

**auto-aof-rewrite-min-size 64mb**

**aof-load-truncated yes**

**lua-time-limit 5000**

**slowlog-log-slower-than 10000**

**slowlog-max-len 128**

**latency-monitor-threshold 0**

**notify-keyspace-events ""**

**hash-max-ziplist-entries 512**

**hash-max-ziplist-value 64**

**list-max-ziplist-entries 512**

**list-max-ziplist-value 64**

**set-max-intset-entries 512**

**zset-max-ziplist-entries 128**

**zset-max-ziplist-value 64**

**hll-sparse-max-bytes 3000**

**activerehashing yes**

**client-output-buffer-limit normal 0 0 0**

**client-output-buffer-limit slave 256mb 64mb 60**

**client-output-buffer-limit pubsub 32mb 8mb 60**

**hz 10**

**aof-rewrite-incremental-fsync yes**

**#--------------修改Master /etc/keepalived/keepalived.conf文件---------------#**

**global\_defs {**

**lvs\_id LVS\_redis 80**

**smtp\_connect\_timeout 30**

**}**

**vrrp\_script chk\_redis {**

**script "sh /etc/keepalived/scripts/redis\_check.sh"**

**interval 1**

**weight 2**

**}**

**vrrp\_instance VI\_1 {**

**state MASTER**

**interface eth1**

**virtual\_router\_id 60**

**unicast\_src\_ip 192.168.88.11 #在slave上应修改为slave的IP即为：192.168.88.55**

**unicast\_peer {**

**192.168.88.55 #在slave上应修改为slave的IP即为：192.168.88.11**

**}**

**priority 200**

**advert\_int 1**

**track\_script {**

**chk\_redis**

**}**

**virtual\_ipaddress {**

**192.168.88.111**

**}**

**notify\_master /etc/keepalived/scripts/redis\_master.sh**

**notify\_backup /etc/keepalived/scripts/redis\_backup.sh**

**notify\_fault /etc/keepalived/scripts/redis\_fault.sh**

**notify\_stop /etc/keepalived/scripts/redis\_stop.sh**

**}**

**##注：一下的检测脚本的IP都应该修改为对应主机的IP地址，即在从上则为192.168.88.11。**

**#----------------------------添加redis\_check.sh脚本------------------------------#**

**#!/bin/bash**

**SERV=keepalived**

**CHECK\_TIME=2**

**check() {**

**/usr/local/bin/redis-cli ping > /dev/null 2>&1**

**ret=$?**

**if [ $ret -ne 0 ];then**

**return $ret;**

**fi**

**}**

**while [ $CHECK\_TIME -ne 0 ];do**

**let "CHECK\_TIME -= 1"**

**check**

**REDIS\_OK=$?**

**if [ $REDIS\_OK -eq 0 ];then**

**exit $REDIS\_OK**

**else**

**if [ $CHECK\_TIME -eq 0 ];then**

**/etc/init.d/$SERV stop**

**exit $REDIS\_OK**

**fi**

**fi**

**done**

**#----------------------------添加redis\_stop.sh脚本------------------------------#**

**#!/bin/bash**

**###/etc/keepalived/scripts/redis\_stop.sh**

**REDISCLI="/usr/local/bin/redis-cli "**

**LOGFILE="/etc/keepalived/log/redis-state.log"**

**pid=$$**

**echo "Run redis\_stop.sh" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master]" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master] Being slave state..." >>$LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] Run 'SLAVEOF 192.168.88.55 6379'" >> $LOGFILE**

**$REDISCLI SLAVEOF 192.168.88.55 6379 >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] slave connect to 192.168.88.55 ok..." >> $LOGFILE**

**#----------------------------添加redis\_fault.sh脚本------------------------------#**

**#!/bin/bash**

**###/etc/keepalived/scripts/redis\_fault.sh**

**REDISCLI="/usr/local/bin/redis-cli "**

**LOGFILE="/etc/keepalived/log/redis-state.log"**

**pid=$$**

**echo "Run redis\_fault.sh" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master]" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master] Being slave state..." >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] Run 'SLAVEOF 192.168.88.55 6379'" >> $LOGFILE**

**$REDISCLI SLAVEOF 192.168.88.55 6379 >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] slave connect to 192.168.88.55 ok..." >> $LOGFILE**

**#----------------------------添加redis\_backup.sh脚本----------------------------#**

**#!/bin/bash**

**###/etc/keepalived/scripts/redis\_backup.sh**

**REDISCLI="/usr/local/bin/redis-cli "**

**LOGFILE="/etc/keepalived/log/redis-state.log"**

**pid=$$**

**echo "Run redis\_backup.sh" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master]" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master] Being slave state..." >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] Run 'SLAVEOF 192.168.88.55 6379'" >> $LOGFILE**

**$REDISCLI SLAVEOF 192.168.88.55 6379 >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] slave connect to 192.168.88.55 ok..." >> $LOGFILE**

**#-----------------------------添加redis\_master.sh脚本----------------------------#**

**redis\_master.sh文件如下：**

**#!/bin/bash**

**###/etc/keepalived/scripts/redis\_master.sh**

**REDISCLI="/usr/local/bin/redis-cli "**

**LOGFILE="/etc/keepalived/log/redis-state.log"**

**pid=$$**

**echo "Run redis\_master.sh" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver]" >> $LOGFILE**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[slaver] Run 'SLAVEOF 192.168.88.55 6379'" >> $LOGFILE**

**$REDISCLI SLAVEOF 192.168.88.55 6379 >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master] Run slaveof no one,close master/slave" >> $LOGFILE**

**$REDISCLI SLAVEOF NO ONE >> $LOGFILE 2>&1**

**echo "`date +'%Y-%m-%d:%H:%M:%S'`|$pid|state:[master] wait other slave connect...." >> $LOGFILE**

**7、启动服务，模拟故障，检测IP可用**

**## redis主从都启动keepalived、redis服务：**

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

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

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

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

**##测试主从同步：**

**[root@test ~]#redis-cli -h 192.168.88.11 -p 6379**

**192.168.88.11:6379>set ms “hello world”**

**[root@test ~]#redis-cli -h 192.168.88.22 -p 6379**

**192.168.88.22:6379>get ms**

**##模拟故障，关闭vs1的redis：**

**[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**