一、部署分布式缓存服务

1.1、部署Redis集群

1.2、配置PHP支持Redis集群

]# yum –y install php php-devel gcc

]# tar -zxvf redis-cluster-4.3.0.tgz

]# cd redis-4.3.0/

[root@web33 redis-4.3.0]# phpize

Configuring for:

PHP Api Version: 20100412

Zend Module Api No: 20100525

Zend Extension Api No: 220100525

[root@web33 redis-4.3.0]#

[root@web33 redis-4.3.0]#

[root@web33 redis-4.3.0]# ./configure --with-php-config=/usr/bin/php-config

[root@web33 redis-4.3.0]# make && make install

Installing shared extensions: /usr/lib64/php/modules/

[root@web33 redis-4.3.0]# ls /usr/lib64/php/modules/

curl.so fileinfo.so json.so phar.so redis.so zip.so

[root@web33 redis-4.3.0]#

[root@web33 redis-4.3.0]# sed -n '728p;730p' /etc/php.ini

extension\_dir = "/usr/lib64/php/modules/"

extension = "redis.so"

[root@web33 redis-4.3.0]#

[root@web33 ~]# systemctl restart php-fpm

1.3、测试配置

[root@web33 html]# cat rediscluster.php

<?php

$redis\_list = ['192.168.4.51:6351','192.168.4.52:6352','192.168.4.53:6353','192.168.4.54:6354','192.168.4.55:6355','192.168.4.56:6356'];

$client = new RedisCluster(NUll,$redis\_list);

$client->set("ia","tarenaA");

$client->set("ja","tarenaB");

$client->set("ka","tarenaC");

echo $client->get("ia");

echo $client->get("ja");

echo $client->get("ka");

?>

[root@web33 html]#

**二、数据迁移**

2.1、需求：把存储在MySQL主从同步结构的数据迁移到PXC集群，解决服务的单点故障，及服务的自动备份。

2.2、环境准备：克隆3台新的虚拟机，规划如下

Host66 192.168.4.66

Host77 192.168.4.77

Host88 192.168.4.88

2.3 把主机192.168.4.66配置为192.168.4.11 主机的从服务器

装包、修改配置文件、启动服务、管理员登录

[root@host66 ~]# tar -xvf mysql-5.7.17.tar

[root@host66 ~]# yum -y install mysql-community-\*.rpm

[root@host66 ~]# vim /etc/my.cnf

server\_id=66

:wq

[root@host66 ~]# systemctl start mysqld

[root@host66 ~]# grep password /var/log/mysqld.log

2019-09-04T09:25:19.991420Z 1 [Note] A temporary password is generated for root@localhost: LFeoKyAhi2=q

[root@host66 ~]#

[root@host66 ~]# mysql -uroot -p'LFeoKyAhi2=q'

mysql> alter user root@"localhost" identified by "123qqq...A";

Query OK, 0 rows affected (0.00 sec)

mysql> exit

Bye

[root@host66 ~]#

确保数据一致

[root@mysql11 ~]# rpm -ivh libev-4.15-1.el6.rf.x86\_64.rpm

[root@mysql11 ~]# yum -y install percona-xtrabackup-24-2.4.7-1.el7.x86\_64.rpm

[root@mysql11 ~]# innobackupex --user root --password 123qqq...A --slave-info /allbak --no-timestamp

[root@mysql11 ~]# scp -r /allbak root@192.168.4.66:/root/

[root@host66 ~]# cd PXC

[root@host66 ~]# rpm -ivh libev-4.15-1.el6.rf.x86\_64.rpm

[root@host66 ~]# yum -y install percona-xtrabackup-24-2.4.13-1.el7.x86\_64.rpm

[root@host66 ~]# innobackupex --apply-log /root/allbak/

[root@host66 ~]# innobackupex --copy-back /root/allbak/

[root@host66 ~]# chown -R mysql:mysql /var/lib/mysql

[root@host66 ~]# systemctl start mysqld

[root@host66 ~]# cat /root/allbak/xtrabackup\_info | grep master11

binlog\_pos = filename 'master11.000001', position '7700'

[root@host66 ~]#

[root@host66 ~]# mysql -uroot -p123qqq...A

mysql> change master to master\_host="192.168.4.11" , master\_user="repluser" , master\_password="123qqq...A" , master\_log\_file="master11.000001" , master\_log\_pos=7700;

Query OK, 0 rows affected, 2 warnings (0.31 sec)

mysql> start slave ;

Query OK, 0 rows affected (0.09 sec)

mysql> exit

Bye

[root@host66 ~]#

[root@host66 ~]# mysql -uroot -p123qqq...A -e "show slave status\G" | grep -i 192.168.4.11

mysql: [Warning] Using a password on the command line interface can be insecure.

Master\_Host: 192.168.4.11

[root@host66 ~]#

[root@host66 ~]# mysql -uroot -p123qqq...A -e "show slave status\G" | grep -i "yes"

mysql: [Warning] Using a password on the command line interface can be insecure.

Slave\_IO\_Running: Yes

Slave\_SQL\_Running: Yes

[root@host66 ~]#

2.4 部署PXC集群

+++++++++++++++++++配置第1台 PXC 集群服务器192.168.4.66

[root@host66 ~]# systemctl stop mysqld

[root@host66 ~]#

[root@host66 ~]# rpm -qa | grep -i mysql

mysql-community-server-5.7.17-1.el7.x86\_64

mysql-community-embedded-compat-5.7.17-1.el7.x86\_64

mysql-community-common-5.7.17-1.el7.x86\_64

mysql-community-client-5.7.17-1.el7.x86\_64

mysql-community-devel-5.7.17-1.el7.x86\_64

mysql-community-test-5.7.17-1.el7.x86\_64

mysql-community-libs-compat-5.7.17-1.el7.x86\_64

mysql-community-minimal-debuginfo-5.7.17-1.el7.x86\_64

perl-DBD-MySQL-4.023-6.el7.x86\_64

mysql-community-libs-5.7.17-1.el7.x86\_64

mysql-community-embedded-5.7.17-1.el7.x86\_64

mysql-community-embedded-devel-5.7.17-1.el7.x86\_64

[root@host66 ~]#

[root@host66 ~]# rpm -e --nodeps mysql-community-server mysql-community-embedded-compat mysql-community-common mysql-community-client mysql-community-devel \

> mysql-community-test mysql-community-libs-compat mysql-community-minimal-debuginfo mysql-community-libs mysql-community-embedded mysql-community-embedded-devel

警告：/etc/my.cnf 已另存为 /etc/my.cnf.rpmsave

[root@host66 ~]#

[root@host66 ~]# cd PXC

[root@host66 PXC]# rpm -ivh qpress-1.1-14.11.x86\_64.rpm

警告：qpress-1.1-14.11.x86\_64.rpm: 头V3 DSA/SHA1 Signature, 密钥 ID 6cb7b81f: NOKEY

准备中... ################################# [100%]

正在升级/安装...

1:qpress-1.1-14.11 ################################# [100%]

[root@host66 PXC]#

[root@host66 PXC]# tar -xvf Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86\_64-bundle.tar

Percona-XtraDB-Cluster-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-57-debuginfo-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-client-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-devel-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-full-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-garbd-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-server-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-shared-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-shared-compat-57-5.7.25-31.35.1.el7.x86\_64.rpm

Percona-XtraDB-Cluster-test-57-5.7.25-31.35.1.el7.x86\_64.rpm

[root@host66 PXC]#

[root@host66 PXC]# yum -y install Percona-XtraDB-Cluster-\*.rpm

已安装:

Percona-XtraDB-Cluster-57.x86\_64 0:5.7.25-31.35.1.el7 Percona-XtraDB-Cluster-57-debuginfo.x86\_64 0:5.7.25-31.35.1.el7

Percona-XtraDB-Cluster-client-57.x86\_64 0:5.7.25-31.35.1.el7 Percona-XtraDB-Cluster-devel-57.x86\_64 0:5.7.25-31.35.1.el7

Percona-XtraDB-Cluster-full-57.x86\_64 0:5.7.25-31.35.1.el7 Percona-XtraDB-Cluster-garbd-57.x86\_64 0:5.7.25-31.35.1.el7

Percona-XtraDB-Cluster-server-57.x86\_64 0:5.7.25-31.35.1.el7 Percona-XtraDB-Cluster-shared-57.x86\_64 0:5.7.25-31.35.1.el7

Percona-XtraDB-Cluster-shared-compat-57.x86\_64 0:5.7.25-31.35.1.el7 Percona-XtraDB-Cluster-test-57.x86\_64 0:5.7.25-31.35.1.el7

作为依赖被安装:

keyutils-libs-devel.x86\_64 0:1.5.8-3.el7 krb5-devel.x86\_64 0:1.15.1-18.el7 libcom\_err-devel.x86\_64 0:1.42.9-11.el7 libkadm5.x86\_64 0:1.15.1-18.el7

libselinux-devel.x86\_64 0:2.5-12.el7 libsepol-devel.x86\_64 0:2.5-8.1.el7 libverto-devel.x86\_64 0:0.2.5-4.el7 openssl-devel.x86\_64 1:1.0.2k-12.el7

pcre-devel.x86\_64 0:8.32-17.el7 perl-Env.noarch 0:1.04-2.el7 perl-Test-Harness.noarch 0:3.28-3.el7 perl-Test-Simple.noarch 0:0.98-243.el7

zlib-devel.x86\_64 0:1.2.7-17.el7

完毕！

[root@host66 PXC]#

[root@host66 PXC]# vim /etc/percona-xtradb-cluster.conf.d/mysqld.cnf

[mysqld]

server-id=66

:wq

[root@host66 PXC]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm:// 不需要写ip地址

wsrep\_node\_address=192.168.4.66

wsrep\_cluster\_name=pxc-cluster

wsrep\_node\_name=pxc-cluster-node-66

wsrep\_sst\_auth="sstuser:123qqq...A"

:wq

[root@host66 PXC]# systemctl start mysql

[root@host66 PXC]#

[root@host66 PXC]# netstat -utnlp | grep :3306

tcp6 0 0 :::3306 :::\* LISTEN 24482/mysqld

[root@host66 PXC]#

[root@host66 PXC]# netstat -utnlp | grep :4567

tcp 0 0 0.0.0.0:4567 0.0.0.0:\* LISTEN 24482/mysqld

[root@host66 PXC]#

[root@host66 PXC]#

[root@host66 PXC]# systemctl enable mysql

[root@host66 PXC]#

[root@host66 PXC]# mysql -uroot -p123qqq...A

mysql> grant all on \*.\* to sstuser@"localhost" identified by "123qqq...A";

Query OK, 0 rows affected, 1 warning (0.10 sec)

mysql> show slave status\G; 依然是192.168.4.11的从服务器

mysql> show status like "%wsrep%";

| wsrep\_incoming\_addresses | 192.168.4.66:3306 |

| wsrep\_cluster\_weight | 1 |

| wsrep\_desync\_count | 0 |

| wsrep\_evs\_delayed | |

| wsrep\_evs\_evict\_list | |

| wsrep\_evs\_repl\_latency | 0/0/0/0/0 |

| wsrep\_evs\_state | OPERATIONAL |

| wsrep\_gcomm\_uuid | 73809cc5-cf00-11e9-aac3-b223959fecdf |

| wsrep\_cluster\_conf\_id | 1 |

| wsrep\_cluster\_size | 1 |

| wsrep\_cluster\_state\_uuid | 73848b1a-cf00-11e9-9058-36c1ac1e1359 |

| wsrep\_cluster\_status | Primary |

| wsrep\_connected | ON |

| wsrep\_local\_bf\_aborts | 0 |

| wsrep\_local\_index | 0 |

| wsrep\_provider\_name | Galera |

| wsrep\_provider\_vendor | Codership Oy <info@codership.com> |

| wsrep\_provider\_version | 3.35(rddf9876) |

| wsrep\_ready | ON |

+----------------------------------+--------------------------------------+

71 rows in set (0.00 sec)

客户端测试

[root@mysql11 ~]# mysql -uroot -p123qqq...A -e 'insert into gamedb.c(name) values("bob")'

mysql: [Warning] Using a password on the command line interface can be insecure.

[root@mysql11 ~]#

[root@mysql11 ~]# mysql -uroot -p123qqq...A -e 'insert into gamedb.c(name) values("bob")'

mysql: [Warning] Using a password on the command line interface can be insecure.

[root@mysql11 ~]#

[root@mysql11 ~]# mysql -uroot -p123qqq...A -e 'insert into gamedb.c(name) values("bob")'

mysql: [Warning] Using a password on the command line interface can be insecure.

[root@mysql11 ~]#

[root@host66 PXC]# mysql -uroot -p123qqq...A -e 'select \* from gamedb.c where name="bob"'

mysql: [Warning] Using a password on the command line interface can be insecure.

+----+------+------+

| id | name | age |

+----+------+------+

| 1 | bob | NULL |

| 26 | bob | NULL |

| 27 | bob | NULL |

+----+------+------+

[root@host66 PXC]#

++++++++++++++++++++++配置第2台PXC服务器+++++++++++++++++++++++++++++

[root@host77 ~]# cd PXC

[root@host77 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86\_64.rpm

[root@host77 PXC]# yum -y install percona-xtrabackup-24-2.4.13-1.el7.x86\_64.rpm

[root@host77 PXC]# rpm -ivh qpress-1.1-14.11.x86\_64.rpm

[root@host77 PXC]# tar -xvf Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86\_64-bundle.tar

[root@host77 PXC]# vim /etc/percona-xtradb-cluster.conf.d/mysqld.cnf

[mysqld]

server-id=77

:wq

[root@host77 PXC]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm:// 192.168.4.66,192.168.4.77

wsrep\_node\_address=192.168.4.77

wsrep\_cluster\_name=pxc-cluster

wsrep\_node\_name=pxc-cluster-node-77

wsrep\_sst\_auth="sstuser:123qqq...A"

:wq

[root@host77 PXC]# systemctl start mysql

[root@host77 PXC]# systemctl enable mysql

[root@host77 PXC]# netstat -utnlp | grep :3306

tcp6 0 0 :::3306 :::\* LISTEN 23834/mysqld

[root@host77 PXC]#

[root@host77 PXC]# netstat -utnlp | grep :4567

tcp 0 0 0.0.0.0:4567 0.0.0.0:\* LISTEN 23834/mysqld

[root@host77 PXC]#

[root@host77 PXC]# mysql -uroot -p123qqq...A -e ' select \* from gamedb.c where name="bob"'

mysql: [Warning] Using a password on the command line interface can be insecure.

+----+------+------+

| id | name | age |

+----+------+------+

| 1 | bob | NULL |

| 26 | bob | NULL |

| 27 | bob | NULL |

+----+------+------+

[root@host77 PXC]#

[root@host77 PXC]# mysql -uroot -p123qqq...A -e ' show status like "%wsrep%"'

| wsrep\_incoming\_addresses | 192.168.4.77:3306,192.168.4.66:3306 |

| wsrep\_cluster\_weight | 2 |

| wsrep\_desync\_count | 0 |

| wsrep\_evs\_delayed | |

| wsrep\_evs\_evict\_list | |

| wsrep\_evs\_repl\_latency | 0/0/0/0/0 |

| wsrep\_evs\_state | OPERATIONAL |

| wsrep\_gcomm\_uuid | 1a729e3e-cf04-11e9-8fe9-5e351a7f6738 |

| wsrep\_cluster\_conf\_id | 2 |

| wsrep\_cluster\_size | 2 |

| wsrep\_cluster\_state\_uuid | 73848b1a-cf00-11e9-9058-36c1ac1e1359 |

| wsrep\_cluster\_status | Primary |

| wsrep\_connected | ON |

| wsrep\_local\_bf\_aborts | 0 |

| wsrep\_local\_index | 0 |

| wsrep\_provider\_name | Galera |

| wsrep\_provider\_vendor | Codership Oy <info@codership.com> |

| wsrep\_provider\_version | 3.35(rddf9876) |

| wsrep\_ready | ON |

+----------------------------------+--------------------------------------+

[root@host77 PXC]#

+++++++++++++++++++++++++配置第3台PXC服务器 192.168.4.88+++++++++++++++

[root@host88 ~ ]# cd PXC/

[root@host88 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86\_64.rpm

[root@host88 PXC]# yum -y install percona-xtrabackup-24-2.4.13-1.el7.x86\_64.rpm

[root@host88 PXC]# rpm -ivh qpress-1.1-14.11.x86\_64.rpm

[root@host88 PXC]# tar -xvf Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86\_64-bundle.tar

[root@host88 PXC]# yum -y install Percona-XtraDB-Cluster-\*.rpm

[root@host88 PXC]# vim /etc/percona-xtradb-cluster.conf.d/mysqld.cnf

[mysqld]

server-id=88

:wq

[root@host88 PXC]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm://192.168.4.77

wsrep\_node\_address=192.168.4.88

wsrep\_cluster\_name=pxc-cluster

wsrep\_node\_name=pxc-cluster-node-88

wsrep\_sst\_auth="sstuser:123qqq...A"

:wq

[root@host88 ~]# systemctl start mysql

[root@host88 ~]# netstat -utnlp | grep :3306

tcp6 0 0 :::3306 :::\* LISTEN 24196/mysqld

[root@host88 ~]# netstat -utnlp | grep :4567

tcp 0 0 0.0.0.0:4567 0.0.0.0:\* LISTEN 24196/mysqld

[root@host88 ~]#

[root@host88 ~]# mysql -uroot -p123qqq...A -e 'select \* from gamedb.c'

mysql: [Warning] Using a password on the command line interface can be insecure.

+----+--------+------+

| id | name | age |

+----+--------+------+

| 1 | bob | NULL |

| 2 | tom | NULL |

| 3 | john | NULL |

| 4 | jerry | NULL |

修改3台服务器 PXC成员ip列表。

[root@host88 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm://192.168.4.66,192.168.4.77,192.168.4.88

:wq

[root@host77 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm://192.168.4.66,192.168.4.88,192.168.4.77

:wq

[root@host66 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf

wsrep\_cluster\_address=gcomm://192.168.4.77,192.168.4.88,192.168.4.66

:wq

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

部署LB集群 (haproxy)

]# vim /etc/haproxy/haproxy.cfg

global

log 127.0.0.1 local2

chroot /var/lib/haproxy

pidfile /var/run/haproxy.pid

maxconn 4000

user haproxy

group haproxy

daemon

stats socket /var/lib/haproxy/stats

defaults

mode http

log global

option httplog

option dontlognull

option http-server-close

option forwardfor except 127.0.0.0/8

option redispatch

retries 3

timeout http-request 10s

timeout queue 1m

timeout connect 10s

timeout client 1m

timeout server 1m

timeout http-keep-alive 10s

timeout check 10s

maxconn 3000

listen status

mode http

bind \*:80

stats enable

stats uri /admin

stats auth admin:admin

listen mysql\_3306 \*:3306

mode tcp # mysql 得使用 tcp 协议

option tcpka # 使用长连接

balance roundrobin # 调度算法

server mysql\_01 192.168.4.71:3306 check

server mysql\_02 192.168.4.72:3306 check

server mysql\_03 192.168.4.73:3306 check

[root@haproxy82 haproxy]#

部署HA集群 (keepalived)

[root@haproxy82 ~]# cat /etc/keepalived/keepalived.conf

! Configuration File for keepalived

global\_defs {

notification\_email {

acassen@firewall.loc

failover@firewall.loc

sysadmin@firewall.loc

}

notification\_email\_from Alexandre.Cassen@firewall.loc

smtp\_server 192.168.200.1

smtp\_connect\_timeout 30

router\_id LVS\_DEVEL

vrrp\_skip\_check\_adv\_addr

vrrp\_strict

vrrp\_garp\_interval 0

vrrp\_gna\_interval 0

vrrp\_iptables  **#禁止iptables**

}

vrrp\_instance VI\_1 {

**state BACKUP**

interface eth0

virtual\_router\_id 51

**priority 100**

advert\_int 1

authentication {

auth\_type PASS

auth\_pass 1111

}

virtual\_ipaddress {

192.168.4.250

}

}

[root@haproxy82 ~]#

测试配置