

## 13\_project202 升级网站运行平台+部署缓存服务+数据迁移+部署集群

### 一 升级网站运行平台-清除当前配置

#### 1.1 停止服务

```
[root@web33 ~]# systemctl stop httpd
```

```
[root@web33 ~]# systemctl disable httpd
```

#### 1.2 卸载共享存储

```
[root@web33 ~]# umount /var/www/html/
```

```
[root@web33 ~]# df -h
```

```
[root@web33 ~]# vim /etc/fstab      #注释掉 nfs 挂载的语句
```

### 二 升级网站运行平台-部署 LNMP

#### 2.1 安装软件

```
web33 ~]# cd lnmp_soft/
```

```
web33 lnmp_soft]# tar -xf nginx-1.12.2.tar.gz
```

```
web33 lnmp_soft]# cd nginx-1.12.2/
```

```
web33 nginx-1.12.2]# yum -y install gcc pcre-devel zlib-devel
```

```
eb33 nginx-1.12.2]# ./configure
```

```
web33 nginx-1.12.2]# make
```

```
web33 nginx-1.12.2]# make install
```

```
web33 ~]# yum -y install php php-fpm php-mysql
```

```
web33 ~]# yum -y install mariadb mariadb-server mariadb-devel
```

## 2.2 修改 nginx 配置文件,使 nginx 支持 PHP

```
web33 ~]# vim /usr/local/nginx/conf/nginx.conf
```

```
65  location ~ \.php$ {  
66      root          html;  
67      fastcgi_pass   127.0.0.1:9000;  
68      fastcgi_index  index.php;  
69      # fastc...._name;  
70      include        fastcgi.conf;  
71  }
```

## 2.3 挂载共享存储

```
web33 ~]# vim /etc/fstab #修改 nfs 挂载点为/usr/local/nginx/html
```

```
192.168.4.30:/sitedir /usr/local/nginx/html nfs defaults 0 0
```

```
web33 ~]# mount -a
```

```
web33 ~]# df -h
```

```
web33 ~]# systemctl enable remote-fs.target
```

#设置远程挂载服务开机运行

## 2.4 启动服务

```
web33 ~]# /usr/local/nginx/sbin/nginx
```

```
web33 ~]# systemctl start php-fpm
```

```
web33 ~]# systemctl start mysqld
```

```
web33 ~]# ss -antulp | grep :80
```

```
web33 ~]# ss -antulp | grep :9000
```

```
web33 ~]# ss -antulp | grep :3306
```

## 2.5 测试 nginx 服务配置

```
nfs30 ~]# vim /sitedir/test2.php
```

```
<?php
```

```
$school= "tarena";
```

```
echo $school;
```

```
?>
```

```
nfs30 ~]# curl http://192.168.4.33/test2.php
```

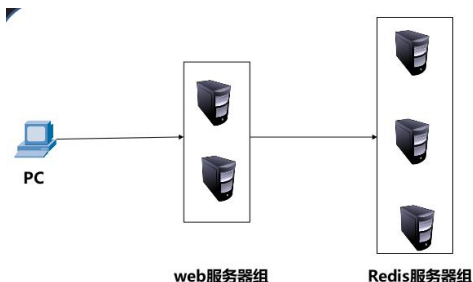
```
tarena
```

```
nfs30 ~]# curl http://192.168.4.44/test2.php
```

```
tarena
```

### 三 部署缓存服务-环境准备

#### 3.1 拓扑结构



#### 3.2 IP 规划

主机名	IP地址：端口	角色
redisA	192.168.4.51:6379	redis服务器
redisB	192.168.4.52:6379	redis服务器
redisC	192.168.4.53:6379	redis服务器
redisD	192.168.4.54:6379	redis服务器
redisE	192.168.4.56:6379	redis服务器
redisF	192.168.4.57:6379	redis服务器
mgm	192.168.4.58	管理主机

#### 3.3 部署 redis 服务器(51 52 53 54 56 57 操作一致)

### 3.3.1 真机传输软件

```
room9pc01 ~]$ scp /linux-soft/03/redis/redis-4.0.8.tar.gz root@192.168.4.51:/root
```

### 3.3.2 安装依赖包及 redis, 检查 redis 端口

```
redisa51 ~]$ yum -y install gcc pcre-devel
redisa51 ~]$ tar -xf redis-4.0.8.tar.gz
redisa51 ~]$ cd redis-4.0.8
redisa51 redis-4.0.8]$ make && make install
redisa51 redis-4.0.8]$ cd utils/
redisa51 utils]$ ./install_server.sh    #一路回车
redisa51 ~]$ ss -antulp | grep :6379    #只有 6379 端口
```

### 3.3.3 修改配置文件, 启用集群配置

```
redisa51 ~]$ /etc/init.d/redis_6379 stop
redisa51 ~]$ vim /etc/redis/6379.conf

70 bind 192.168.4.51 #修改 ip

93 port 6351          #修改端口 (可选配置)

815 cluster-enabled yes    #解除注释, 启用集群功能

823 cluster-config-file nodes-6379.conf    #存储集群信息的配置文件

829 cluster-node-timeout 5000    #集群节点通信超时时间
```

### 3.3.4 启动 redis 服务, 检查端口

```
redisa51 ~]# /etc/init.d/redis_6379 start
```

```
redisa51 ~]# ss -antulp | grep redis-server #多个1万多的端口
```

## 四 部署缓存服务-创建 redis 集群

### 4.1 配置管理主机

```
room9pc01 ~]$ scp /linux-soft/03/redis/redis-3.2.1.gem root@192.168.4.58:/root
```

```
mgm58 ~]# yum -y install ruby rubygems
```

```
mgm58 ~]# gem install redis-3.2.1.gem
```

### 4.2 创建集群管理脚本

```
mgm58 ~]# mkdir /root/bin
```

```
mgm58 ~]# cp redis-4.0.8/src/redis-trib.rb /root/bin/
```

```
mgm58 ~]# chmod +x /root/bin/redis-trib.rb
```

### 4.3 创建集群

```
mgm58 ~]# redis-trib.rb create --replicas 1 \
```

```
> 192.168.4.51:6379 192.168.4.52:6379 \
```

```
> 192.168.4.53:6379 192.168.4.54:6379 \
```

```
> 192.168.4.56:6379 192.168.4.57:6379
```

弹出信息输入 yes

## 4.4 查看集群信息

```
mgm58 ~]# redis-trib.rb info 192.168.4.57:6379
```

```
mgm58 ~]# redis-trib.rb check 192.168.4.57:6379
```

## 4.5 测试配置

命令格式: `redis-cli -c -h IP 地址 -p 端口`

```
mgm58 ~]# redis-cli -c -h 192.168.4.57 -p 6379
```

```
192.168.4.57:6379> keys *
```

(empty list or set)

# 五 部署缓存服务-配置网站服务器

## 5.1 在 33 44 配置 php 支持 redis 集群(此步骤 33 和 44 操作一致)

```
web33 ~]# php -m | grep redis      #查看 php 支持的模块,无 redis 模块
```

```
room9pc01 13Project2]$ scp redis-cluster-4.3.0.tgz root@192.168.4.33:/root
```

### 5.1.1 在 33 44 安装软件

```
web33 ~]# yum -y install gcc php-devel
```

```
web33 ~]# tar -xf redis-cluster-4.3.0.tgz
```

```
web33 ~]# cd redis-4.3.0/
```

```
web33 redis-4.3.0]# phpize
```

```
web33 redis-4.3.0]# ./configure
```

```
--with-php-config=/usr/bin/php-config
```

```
web33 redis-4.3.0]# make && make install
```

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

### 5.1.2 修改配置文件/etc/php.ini,并重启 php-fpm 服务

```
web33 ~]# vim /etc/php.ini
```

```
728 extension_dir = "/usr/lib64/php/modules/"
```

```
730 extension = "redis.so"
```

```
web33 ~]# systemctl restart php-fpm
```

## 5.2 测试配置

### 5.2.1 在存储服务器 30 共享目录/sitedir 下,创建连接集群 PHP 脚本

```
room9pc01 13Project2]$ scp phplinkrediscluster.php root@192.168.4.30:/root
```

phplinkrediscluster.php 为 rediscluster.php 的说明

```
nfs30 ~]# cd /sitedir/
```

```
nfs30 sitedir]# vim rediscluster.php
```

```
<?php
```

```
$redis_list =
```

```
['192.168.4.51:6379', '192.168.4.52:6379', '192.168.4.53:6379', '
```



```
192.168.4.54:6379', '192.168.4.56:6379', '192.168.4.57:6379'];  
  
$client = new RedisCluster(NULL,$redis_list);  
  
$client->set("i","tarenaA ");  
  
$client->set("j","tarenaB ");  
  
$client->set("k","tarenaC ");  
  
echo $client->get("i");  
  
echo $client->get("j");  
  
echo $client->get("k");  
  
?>
```

### 5.2.2 php 网页测试

```
nfs30 ~]# curl http://192.168.4.33/rediscluster.php  
  
tarenaA tarenaB tarenaC  
  
nfs30 ~]# curl http://192.168.4.44/rediscluster.php  
  
tarenaA tarenaB tarenaC
```

### 5.2.3 缓存服务验证

```
redisa51 ~]# redis-cli -c -h 192.168.4.51 -p 6379  
  
192.168.4.51:6379> keys *  
  
1) "age"  
  
2) "j"
```

```
edisa51 ~]# redis-cli -c -h 192.168.4.52 -p 6379
```

```
192.168.4.52:6379> keys *
```

```
1) "k"
```

```
redisa51 ~]# redis-cli -c -h 192.168.4.53 -p 6379
```

```
192.168.4.53:6379> keys *
```

```
1) "i"
```

## 5.2.4 测试缓存服务高可用(把 51 52redis 服务停止)

### 5.2.4.1 复制 30 上/sitedir/rediscluster.php为/etc/test4.php,修改内部参数值

```
nfs30 ~]# cd /sitedir/
```

```
nfs30 sitedir]# cp rediscluster.php test4.php
```

```
nfs30 sitedir]# vim test4.php
```

```
<?php
```

```
$redis_list =
```

```
['192.168.4.51:6379','192.168.4.52:6379','192.168.4.53:6379','  
192.168.4.54:6379','192.168.4.56:6379','192.168.4.57:6379'];
```

```
$client = new RedisCluster(NULL,$redis_list);
```

```
$client->set("a","tarenaAa ");
```

```
$client->set("b","tarenaBb ");
```

```
$client->set("c","tarenaCc ");  
  
echo $client->get("a");  
  
echo $client->get("b");  
  
echo $client->get("c");  
  
?>
```

#### 5.2.4.2 停止 51 52 上的 redis 服务

```
redisa51/52 ~]# /etc/init.d/redis_6379 stop  
  
redisa51 ~]# killall -9 redis-server #上一步停不了就用这步
```

#### 5.2.4.3 在两个主服务器 51 52down 后,在 30 上能正常访问 33 44 网页

```
nfs30 ~]# curl http://192.168.4.33/test4.php  
  
tarenaAa tarenaBb tarenaCc #33 网页正常  
  
nfs30 ~]# curl http://192.168.4.44/test4.php  
  
tarenaAa tarenaBb tarenaCc #33 网页正常
```

#### 5.2.4.4 查看集群信息:此时 51 52 消失,56 67 变成了主服务器

```
mgm58 ~]# redis-trib.rb info 192.168.4.57:6379  
  
192.168.4.57:6379 (5e5e2c09...) -> 4 keys | 5462 slots | 0 slaves.  
192.168.4.56:6379 (62b16da7...) -> 3 keys | 5461 slots | 0 slaves.  
192.168.4.53:6379 (7d205be1...) -> 2 keys | 5461 slots | 1 slaves.
```

#### 5.2.4.5 查看缓存数据库中 a b c 变量的写入,在两个主服务器 down 的情况下,数据写入正常

```
gm58 ~]# redis-cli -h 192.168.4.53 -p 6379
```

```
192.168.4.53:6379> keys *
```

2) "a"

```
192.168.4.53:6379> get a
```

```
"tarenaAa "
```

```
mgm58 ~]# redis-cli -h 192.168.4.56 -p 6379
```

```
192.168.4.56:6379> keys *
```

3) "b"

```
192.168.4.56:6379> get b
```

```
"tarenaBb "
```

```
mgm58 ~]# redis-cli -h 192.168.4.57 -p 6379
```

```
192.168.4.57:6379> keys *
```

4) "c"

```
192.168.4.57:6379> get c
```

```
"tarenaCc "
```

**5.2.4.6 再次启动 51 52 上的 redis 服务,在 58 上查看集群状态**

```
redisa51\52 ~]# /etc/init.d/redis_6379 start
```

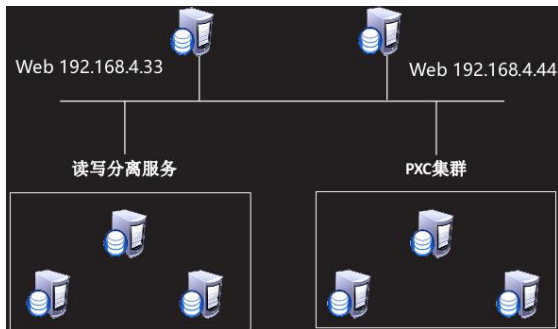
```
mgm58 ~]# redis-trib.rb info 192.168.4.57:6379
```

```
mgm58 ~]# redis-trib.rb check 192.168.4.57:6379
```

此时,51 52 不再是主服务器,而是从服务器了。

## 六 数据迁移-PXC 集群环境准备

### 6.1 拓扑结构



### 6.2 IP 规划

#### • PXC集群主机角色 (3台服务器)

主机名	IP地址	角色
pxcnode66	192.168.4.66	第1台数据库服务器
pxcnode77	192.168.4.77	第2台数据库服务器
pxcnode88	192.168.4.88	第3台数据库服务器

拷贝PXC软件到3台服务器

拷贝mysql-5.7.17.tar 软件到 pxcnode66 主机

将 77 改为 10

### 6.3 配置从服务器:把 pxcnode66 主机配置为 mysql11 的从服务器

```
room9pc01 ~]$ scp /linux-soft/03/mysql/mysql-5.7.17.tar root@192.168.4.66:/root
```

```
room9pc01 ~]$ scp -r /linux-soft/03/PXC/ root@192.168.4.66\88\10:/root/
```

#### 6.3.1 安装软件mysql-5.7.17.tar

```
pxcnode66 ~]# tar -xf mysql-5.7.17.tar
```

```
pxcnode66 ~]# yum -y install mysql-community-*
```

#### 6.3.2 修改配置文件(指定 server\_id)

```
pxcnode66 ~]# vim /etc/my.cnf
```

```
[mysqld]
```

```
server_id=66
```

#### 6.3.3 启动 mysqld 服务

```
pxcnode66 ~]# systemctl restart mysqld
```

```
pxcnode66 ~]# systemctl status mysqld
```

```
pxcnode66 ~]# grep password /var/log/mysqld.log
```

```
pxcnode66 ~]# mysql -uroot -p 初始密码
```

```
66 mysql> alter user user() identified by "123qqq...A";
```

#### 6.3.4 确保数据一致

##### a 配置数据库服务器 mysql11,并备份数据,传给 66

```
room9pc01 ~]$ scp /linux-soft/03/mysql/libev-4.15-1.el6.r
```

```
f.x86_64.rpm root@192.168.4.11:/root
room9pc01 ~]$ scp /linux-soft/03/mysql/percona-xtrabackup-2
4-2.4.7-1.el7.x86_64.rpm root@192.168.4.11:/root
mysql11 ~]# rpm -ivh libev-4.15-1.el6.rf.x86_64.rpm
mysql11 ~]# yum -y localinstall
percona-xtrabackup-24-2.4.7-1.el7.x86_64.rpm
mysql11 ~]# innobackupex --user root --password 123qqq...A
/allbak --no-timestamp #备份数据
mysql11 ~]# scp -r /allbak/ root@192.168.4.66:/root #传给 66
```

## **b 从服务器 66 恢复备份数据**

### **停止数据库服务**

```
pxcnode66 ~]# systemctl stop mysqld
```

### **清空数据库目录**

```
pxcnode66 ~]# rm -rf /var/lib/mysql/*
```

### **安装软件**

```
pxcnode66 ~]# cd PXC/
```

```
pxcnode66 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86_64.rpm
```

```
pxcnode66 PXC]# yum -y localinstall
```

```
percona-xtrabackup-24-2.4.13-1.el7.x86_64.rpm
```

### **准备恢复数据**

```
pxcnode66 ~]# cat /root/allbak/xtrabackup_checkpoints
```

```
backup_type = full-backuped    #未准备恢复时状态
```

```
pxcnode66 ~]# innobackupex --apply-log /root/allbak/  #准备恢复
```

```
pxcnode66 ~]# cat /root/allbak/xtrabackup_checkpoints
```

```
backup_type = full-prepared    #准备恢复完成
```

## 恢复数据

```
pxcnode66 ~]# innobackupex --copy-back /root/allbak/  #恢复
```

## 修改目录的归属为 mysql

```
xcnode66 ~]# chown -R mysql:mysql /var/lib/mysql
```

## 启动服务

```
pxcnode66 ~]# systemctl restart mysqld
```

```
pxcnode66 ~]# grep master11 /root/allbak/xtrabackup_info
```

```
inlog_pos = filename 'master11.000002', position '154'
```

## 6.3.5 指定主服务器

将 66 配置为 11 的从服务器

```
pxcnode66 ~]# mysql -uroot -p123qqq...A
```

```
66 mysql> change master to
```

```
-> master_host="192.168.4.11",
```

```
-> master_user="repluser",
```

```
-> master_password="123qqq...A",
```



```
-> master_log_file="master11.000002",
```

```
-> master_log_pos=154;
```

### 6.3.6 查看从服务器 66 的状态信息:show slave status\G;

```
66 mysql> start slave;
```

```
66 mysql> show slave status\G;
```

## 七 数据迁移-创建 PXC 集群

```
room9pc01 ~]$ scp -r /linux-soft/03/PXC/ root@192.168.4.66\88\10:/root/
```

### 7.1 配置第 1 台 PXC 服务器(192.168.4.66)

#### 7.1.1 停止 mysqld 服务,卸载 mysqld 服务软件

```
pxcnode66 ~]# ss -antulp | grep 3306
```

```
pxcnode66 ~]# systemctl stop mysqld
```

```
pxcnode66 ~]# rpm -qa | grep -i mysql
```

```
pxcnode66 ~]# rpm -e --nodeps \ #不删除依赖卸载 mysqld
```

```
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

### 7.1.2 安装 PXC 软件,修改配置文件,启动 mysql 服务(不是 mysqld 服务)

```
pxcnode66 ~]# cd PXC/
```

```
pxcnode66 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86_64.rpm
```

```
pxcnode66 PXC]# rpm -ivh qpress-1.1-14.11.x86_64.rpm
```

```
pxcnode66 PXC]# tar -xf
```

```
Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86_64-bundle.tar
```

```
pxcnode66 PXC]# yum -y install Percona-XtraDB-Cluster-*
```

```
pxcnode66 ~]# vim /etc/percona-xtradb-cluster.conf.d/mysqld.cnf
```

```
[mysqld]
```

```
server-id=66
```

```
pxcnode66 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf
```

```
8 wsrep_cluster_address=gcomm://
```

```
25 wsrep_node_address=192.168.4.66
```

```
27 wsrep_cluster_name=pxc-cluster
```

```
30 wsrep_node_name=pxcnode66
```

```
39 wsrep_sst_auth="sstuser:123qqq...A" #定义全量同步用户及密码
```

```
pxcnode66 ~]# systemctl start mysql  
pxcnode66 ~]# ss -antulp | grep :3306  
pxcnode66 ~]# ss -antulp | grep :4567
```

### 7.1.3 数据库管理员登录,查看状态信息,PXC 配置文件内定义的全量同步用户授权

```
pxcnode66 ~]# mysql -uroot -p123qqq...A  
mysql> show status like "%wsrep%";  
mysql> show slave status\G;  
mysql> grant all on *.* to sstuser@"localhost" identified by  
"123qqq...A"
```

## 7.2 配置第 2 台 PXC 服务器(192.168.4.10)

### 7.2.1 安装 PXC 软件

```
pxcnode10 ~]# cd PXC/  
pxcnode10 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86_64.rpm  
pxcnode10 PXC]# rpm -ivh qpress-1.1-14.11.x86_64.rpm  
pxcnode10 PXC]# yum -y install  
percona-xtrabackup-24-2.4.13-1.el7.x86_64.rpm  
pxcnode10 PXC]# tar -xf  
Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86_64-bundle.tar
```

```
pxcnodel0 PXC]# yum -y install Percona-XtraDB-Cluster-*
```

### 7.2.2 修改配置文件

```
pxcnodel0 ~]# vim /etc/percona-xtradb-cluster.conf.d/mysqlld.cnf
```

```
[mysqld]
```

```
server-id=10
```

```
pxcnodel0 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf
```

```
8 wsrep_cluster_address=gcomm://192.168.4.66
```

```
25 wsrep_node_address=192.168.4.10
```

```
27 wsrep_cluster_name=pxc-cluster
```

```
30 wsrep_node_name=pxcnodel0
```

```
39 wsrep_sst_auth="sstuser:123qqq...A"
```

### 7.2.3 启动服务

```
pxcnodel0 ~]# systemctl start mysql
```

```
pxcnodel0 ~]# systemctl enable mysql
```

```
pxcnodel0 ~]# ss -antulp | grep :3306
```

```
pxcnodel0 ~]# ss -antulp | grep :4567
```

```
pxcnodel0 ~]# mysql -uroot -p123qqq...A
```

```
mysql> show status like "%wsrep%";
```

## 7.3 配置第 3 台 PXC 服务器(192.168.4.88)

### 7.2.1 安装 PXC 软件

```
pxcnode88 ~]# cd PXC/
```

```
pxcnode88 PXC]# rpm -ivh libev-4.15-1.el6.rf.x86_64.rpm
```

```
pxcnode88 PXC]# rpm -ivh qpress-1.1-14.11.x86_64.rpm
```

```
pxcnode88 PXC]# yum -y install
```

```
percona-xtrabackup-24-2.4.13-1.el7.x86_64.rpm
```

```
pxcnode88 PXC]# tar -xf
```

```
Percona-XtraDB-Cluster-5.7.25-31.35-r463-el7-x86_64-bundle.tar
```

```
pxcnode88 PXC]# yum -y localinstall Percona-XtraDB-Cluster-*
```

### 7.2.2 修改配置文件

```
pxcnode88 PXC]# vim
```

```
/etc/percona-xtradb-cluster.conf.d/mysqld.cnf
```

```
[mysqld]
```

```
server-id=88
```

```
pxcnode88 PXC]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf
```

```
8 wsrep_cluster_address=gcomm://192.168.4.66,192.168.4.10
```

```
25 wsrep_node_address=192.168.4.88
```

```
27 wsrep_cluster_name=pxc-cluster
```

```
30 wsrep_node_name=pxcnode88
```

```
39 wsrep_sst_auth="sstuser:123qqq...A"
```

### 7.2.3 启动服务

```
pxcnode88 PXC]# systemctl start mysql
```

```
pxcnode88 PXC]# systemctl enable mysql
```

```
pxcnode88 PXC]# ss -antulp | grep :3306
```

```
pxcnode88 PXC]# ss -antulp | grep :4567
```

```
pxcnode88 PXC]# mysql -uroot -p123qqq...A
```

```
mysql> show status like "%wsrep%";
```

### 7.4 公共配置(10 66 88 一样操作):修改配置文件

```
pxcnode66 ~]# vim /etc/percona-xtradb-cluster.conf.d/wsrep.cnf
```

```
8 wsrep_cluster_address=gcomm://192.168.4.10,192.168.4.88,192.168.4.66
```

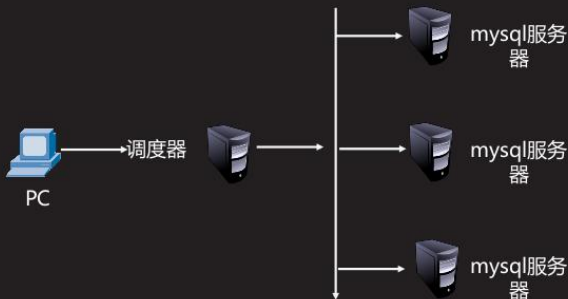
第8行添加3台主机的IP,本机IP写最后

## 八 部署集群-LB 集群

### 8.1 拓扑结构

- 数据库服务负载均衡集群拓扑

- 把访问数据的请求平均的分发给PXC集群的3台服务器



### 8.2 IP 规划(77 改为 10)

主机名	IP地址	角色
client50	192.168.4.50	客户端
haproxy99	192.168.4.99	调度器
pxcnode66	192.168.4.66	数据库服务器
pxcnode77	192.168.4.77	数据库服务器
pxcnode88	192.168.4.88	数据库服务器

### 8.3 安装软件

```
haproxy99 ~]# yum -y install haproxy
```

```
haproxy99 ~]# rpm -qa haproxy
```

### 8.4 修改配置文件

```
haproxy99 ~]# sed -i '/#/d' /etc/haproxy/haproxy.cfg
```

```
haproxy99 ~]# vim /etc/haproxy/haproxy.cfg
```

删除 31 行及以下内容,添加以下内容

```
31 listen status
```

```
32     mode http
```

```
33     bind *:80
```

```
34     stats enable
```

```
35     stats uri /admin    #查看监控新目录名
```

```
36     stats auth admin:admin    #登录监控页面的用户名和密码
```

```
37
```

```
38 listen mysql_3306 *:3306
```

```
39     mode tcp    #mysql 使用 tcp 协议
```

```
40     option tcpka    #使用长连接: 一次连接请求连接后,可执行多次命令
```

```
41     balance roundrobin    #调度算法
```

```
42     server mysql_01 192.168.4.66:3306 check
```



```
43      server mysql_02 192.168.4.10:3306 check
```

```
44      server mysql_03 192.168.4.88:3306 check
```

## 8.5 启动服务

```
haproxy99 ~]# systemctl status haproxy.service
```

```
haproxy99 ~]# systemctl start haproxy
```

```
haproxy99 ~]# systemctl status haproxy.service
```

## 8.6 测试配置

```
firefox http://192.168.4.99/admin
```

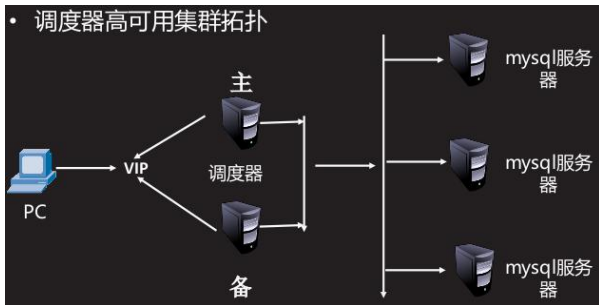
账号和密码输入 admin

33 或 44 命令行多次执行以下命令,显示主机名:

```
mysql -h192.168.4.99 -uadmin -p123qqq...A -e "select @@hostname"
```

## 九 部署集群-HA 集群

### 9.1 拓扑结构



### 9.2 IP 规划

主机名	IP地址	角色
client50	192.168.4.50	客户端
haproxy99	192.168.4.99	调度器(主)
haproxy98	192.168.4.98	调度器(备)
无	192.168.4.100	VIP地址
pxcnode77	192.168.4.77	数据库服务器
pxcnode66	192.168.4.66	数据库服务器
pxcnode88	192.168.4.88	数据库服务器

### 9.3 准备备用调用器主机

```
proxy98 ~]# yum -y install haproxy
```

```
aproxy99 ~]# scp /etc/haproxy/haproxy.cfg
```

```
root@192.168.4.98:/etc/haproxy/haproxy.cfg
```

#两主机 haproxy 配置文件相同

启动服务,测试配置

## 9.4 安装软件

```
haproxy98 ~]# yum -y install keepalived
```

```
haproxy99 ~]# yum -y install keepalived
```

## 9.5 修改配置文件,设置 99 为主,98 为备

```
haproxy99 ~]# vim /etc/keepalived/keepalived.conf
```

删除 36 行及以下内容

16 行下添加

```
17    vrrp_iptables    #禁用 iptables
```

```
30    virtual_ipaddress {    #vip 段修改为 192.168.4.100
```

```
31        192.168.4.100
```

```
32    }
```

```
haproxy99 ~]# scp /etc/keepalived/keepalived.conf
```

```
root@192.168.4.98:/etc/keepalived/keepalived.conf
```

```
proxy98 ~]# vim /etc/keepalived/keepalived.conf
```

```
21     state BACKUP      #修改为 BACKUP
```

```
24     priority 90       #调整值小于 99 主机上设置的值
```

## 9.6 启动服务

```
haproxy99\98 ~]# systemctl start keepalived
```

```
haproxy99\98 ~]# systemctl enable keepalived
```

## 9.7 测试配置

```
haproxy99 ~]# ip addr show | grep 192.168.4.100
```

```
inet 192.168.4.100/32 scope global eth0
```

33 或 44 命令行多次执行以下命令,显示主机名:

```
mysql -h192.168.4.100 -uadmin -p123qqq...A -e "select @@hostname"
```

```
mysql -h192.168.4.100 -uadmin -p123qqq...A -e "alter table  
projectdb.user add id int primary key auto_increment first"
```

增加主键,再往表中写入数据,主键 **id** 会根据 PXC 服务器台数自增加

```
web33 ~]# mysql -h192.168.4.100 -uadmin -p123qqq...A -e "insert  
into projectdb.user(name) values('abc');"
```