Mysql读写分离

环境：rhel7.5虚拟机

Mariadb代替mysql

关闭防火墙/selinux

配置好yum

Ip地址：主库--192.168.4.10

从库--192.168.4.20

代理--192.168.4.50

客户端--192.168.4.60

##搭建主从结构，开启半同步复制

[root@server10 ~]# vim /etc/my.cnf

[root@server10 ~]# scp /etc/my.cnf 192.168.4.20:/etc/

Warning: Permanently added '192.168.4.20' (ECDSA) to the list of known hosts.

root@192.168.4.20's password:

my.cnf 100% 598 108.3KB/s 00:00

[root@server10 ~]# vim /etc/my.cnf

[root@server10 ~]# cat /etc/my.cnf | grep -v ^$ | grep -v ^#

[mysqld]

server\_id=10

log\_bin=server10

binlog\_format='mixed'

plugin-load=rpl\_semi\_sync\_master=semisync\_master.so

rpl\_semi\_sync\_master\_enabled=1

character\_set\_server='utf8'

datadir=/var/lib/mysql

socket=/var/lib/mysql/mysql.sock

symbolic-links=0

[mysqld\_safe]

log-error=/var/log/mariadb/mariadb.log

pid-file=/var/run/mariadb/mariadb.pid

!includedir /etc/my.cnf.d

[root@server10 ~]# systemctl start mariadb

[root@server10 ~]# ls /var/lib/mysql/server10.\*

/var/lib/mysql/server10.000001 /var/lib/mysql/server10.000003

/var/lib/mysql/server10.000002 /var/lib/mysql/server10.index

[root@server10 ~]# mysql

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 2

Server version: 5.5.56-MariaDB MariaDB Server

Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> set password=password('123456');

Query OK, 0 rows affected (10.00 sec)

MariaDB [(none)]> show variables like '%rpl\_semi%';

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

| Variable\_name | Value |

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

| rpl\_semi\_sync\_master\_enabled | ON |

| rpl\_semi\_sync\_master\_timeout | 10000 |

| rpl\_semi\_sync\_master\_trace\_level | 32 |

| rpl\_semi\_sync\_master\_wait\_no\_slave | ON |

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

4 rows in set (0.00 sec)

MariaDB [(none)]> exit

Bye

[root@server20 ~]# vim /etc/my.cnf

[root@server20 ~]# cat /etc/my.cnf | grep -v ^$ | grep -v ^#

[mysqld]

server\_id=20

log\_bin=server20

binlog\_format='mixed'

plugin-load=rpl\_semi\_sync\_slave=semisync\_slave.so

rpl\_semi\_sync\_slave\_enabled=1

character\_set\_server='utf8'

datadir=/var/lib/mysql

socket=/var/lib/mysql/mysql.sock

symbolic-links=0

[mysqld\_safe]

log-error=/var/log/mariadb/mariadb.log

pid-file=/var/run/mariadb/mariadb.pid

!includedir /etc/my.cnf.d

[root@server20 ~]# systemctl start mariadb

[root@server20 ~]# ls /var/lib/mysql/server20.\*

/var/lib/mysql/server20.000001 /var/lib/mysql/server20.000003

/var/lib/mysql/server20.000002 /var/lib/mysql/server20.index

[root@server20 ~]# mysql

MariaDB [(none)]> set password=password('123456');

Query OK, 0 rows affected (0.01 sec)

MariaDB [(none)]> show variables like '%rpl\_semi%';

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

| Variable\_name | Value |

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

| rpl\_semi\_sync\_slave\_enabled | ON |

| rpl\_semi\_sync\_slave\_trace\_level | 32 |

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

2 rows in set (0.00 sec)

MariaDB [(none)]> exit

Bye

[root@server10 ~]# mysql -uroot -p123456

MariaDB [(none)]> grant replication slave on repluser@'192.168.4.20' identified by '123456';

ERROR 1046 (3D000): No database selected

MariaDB [(none)]> grant replication slave on \*.\* to repluser@'192.168.4.20' identified by '123456';

Query OK, 0 rows affected (0.01 sec)

MariaDB [(none)]> show master status;

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

| File | Position | Binlog\_Do\_DB | Binlog\_Ignore\_DB |

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

| server10.000003 | 538 | | |

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

1 row in set (0.00 sec)

[root@server20 ~]# mysql -h192.168.4.10 -urepluser -p123456

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server10 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> exit

Bye

[root@server20 ~]# mysql -uroot -p123456

MariaDB [(none)]> reset slave;

Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> show slave status\G

Empty set (0.00 sec)

MariaDB [(none)]> change master to

-> master\_host='192.168.4.10',

-> master\_user='repluser',

-> master\_password='123456',

-> master\_log\_file='server10.000003',

-> master\_log\_pos=538;

Query OK, 0 rows affected (0.08 sec)

MariaDB [(none)]> start slave;

Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> show slave status\G

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Slave\_IO\_State: Waiting for master to send event

Master\_Host: 192.168.4.10

Master\_User: repluser

Master\_Port: 3306

Connect\_Retry: 60

Master\_Log\_File: server10.000003

Read\_Master\_Log\_Pos: 538

Relay\_Log\_File: mariadb-relay-bin.000002

Relay\_Log\_Pos: 528

Relay\_Master\_Log\_File: server10.000003

Slave\_IO\_Running: Yes

Slave\_SQL\_Running: Yes

#测试主从同步

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server10 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> grant all on db12.\* to stu@'%' identified by '123456';

Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> create database db12;

Query OK, 1 row affected (0.00 sec)

[root@server60 ~]# mysql -h 192.168.4.10 -ustu -p123456

MariaDB [(none)]> show databases;

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

| Database |

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

| information\_schema |

| db12 |

| test |

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

3 rows in set (0.00 sec)

MariaDB [(none)]> use db12

Database changed

MariaDB [db12]> create table t1 (id int);

Query OK, 0 rows affected (0.04 sec)

MariaDB [db12]> insert into t1 values(100);

Query OK, 1 row affected (0.01 sec)

MariaDB [db12]> select @@hostname;

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

| @@hostname |

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

| server10 |

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

1 row in set (0.00 sec)

MariaDB [db12]> select \* from t1;

+------+

| id |

+------+

| 100 |

+------+

1 row in set (0.00 sec)

MariaDB [(none)]> select @@hostname ;

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

| @@hostname |

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

| server20 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> select \* from db12.t1;

+------+

| id |

+------+

| 100 |

+------+

1 row in set (0.00 sec)

#安装中间件

[root@server50 ~]# ls

maxscale-2.1.2-1.rhel.7.x86\_64.rpm

[root@server50 ~]# rpm -ivh maxscale-2.1.2-1.rhel.7.x86\_64.rpm

警告：maxscale-2.1.2-1.rhel.7.x86\_64.rpm: 头V4 RSA/SHA1 Signature, 密钥 ID 8167ee24: NOKEY

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

正在升级/安装...

1:maxscale-2.1.2-1 ################################# [100%]

[root@server50 ~]# rpm -qc maxscale

/etc/maxscale.cnf.template

[root@server50 ~]# cp /etc/maxscale.cnf /etc/maxscale.cnf.bak

#用户授权

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server10 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> grant replication slave, replication client on \*.\* to scalemon@'%' identified by '123456';

Query OK, 0 rows affected (0.01 sec)

MariaDB [(none)]> grant select on mysql.\* to maxscale@'%' identified by '123456';

Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> select user from mysql.user where user in ('maxscale','scalemon');

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

| user |

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

| maxscale |

| scalemon |

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

2 rows in set (0.00 sec)

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server20 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> select user from mysql.user where user in ('scalemon','maxscale');

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

| user |

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

| maxscale |

| scalemon |

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

2 rows in set (0.00 sec)

#修改配置

[root@server50 ~]# mysql -h192.168.4.10 -uscalemon -p123456

MariaDB [(none)]> show databases;

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

| Database |

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

| information\_schema |

| test |

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

2 rows in set (0.00 sec)

MariaDB [(none)]> exit

Bye

[root@server50 ~]# mysql -h192.168.4.10 -umaxscale -p123456

MariaDB [(none)]> show databases;

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

| Database |

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

| information\_schema |

| mysql |

| test |

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

3 rows in set (0.00 sec)

MariaDB [(none)]> exit

Bye

[root@server50 ~]# vim /etc/maxscale.cnf

[root@server50 ~]# cat /etc/maxscale.cnf | grep -v ^$ | grep -v ^#

[maxscale]

threads=auto

[server10]

type=server

address=192.168.4.10

port=3306

protocol=MySQLBackend

[server20]

type=server

address=192.168.4.20

port=3306

protocol=MySQLBackend

[MySQL Monitor]

type=monitor

module=mysqlmon

servers=server10,server20

user=scalemon

passwd=123456

monitor\_interval=10000

[Read-Write Service]

type=service

router=readwritesplit

servers=server10,server20

user=maxscale

passwd=123456

max\_slave\_connections=100%

[MaxAdmin Service]

type=service

router=cli

[Read-Write Listener]

type=listener

service=Read-Write Service

protocol=MySQLClient

port=4006

[MaxAdmin Listener]

type=listener

service=MaxAdmin Service

protocol=maxscaled

socket=default

port=4009

[root@server50 ~]# maxscale -f /etc/maxscale.cnf

[root@server50 ~]# netstat -antpu | grep max

tcp 0 0 192.168.4.50:50988 192.168.4.20:3306 ESTABLISHED 2175/maxscale

tcp 0 0 192.168.4.50:50022 192.168.4.10:3306 ESTABLISHED 2175/maxscale

tcp6 0 0 :::4006 :::\* LISTEN 2175/maxscale

tcp6 0 0 :::4009 :::\* LISTEN 2175/maxscale

[root@server50 ~]# maxadmin -uadmin -pmariadb -P4009

MaxScale> list servers

Servers.

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

Server | Address | Port | Connections | Status

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

server10 | 192.168.4.10 | 3306 | 0 | Master, Running

server20 | 192.168.4.20 | 3306 | 0 | Slave, Running

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

MaxScale> list services

Services.

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

Service Name | Router Module | #Users | Total Sessions | Backend databases

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

Read-Write Service | readwritesplit | 1 | 1 | server10, server20

MaxAdmin Service | cli | 3 | 5 |

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

[root@server60 ~]# mysql -h192.168.4.50 -P4006 -ustu -p123456

MySQL [(none)]> show databases;

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

| Database |

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

| information\_schema |

| db12 |

| test |

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

3 rows in set (0.00 sec)

MySQL [(none)]> select @@hostname;

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

| @@hostname |

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

| server20 |

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

1 row in set (0.00 sec)

MySQL [(none)]> insert into db12.t1 values(200),(200),(200);

Query OK, 3 rows affected (0.02 sec)

Records: 3 Duplicates: 0 Warnings: 0

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server10 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> select \* from db12.t1;

+------+

| id |

+------+

| 100 |

| 200 |

| 200 |

| 200 |

+------+

4 rows in set (0.01 sec)

MariaDB [(none)]> select @@hostname;

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

| @@hostname |

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

| server20 |

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

1 row in set (0.00 sec)

MariaDB [(none)]> select \* from db12.t1;

+------+

| id |

+------+

| 100 |

| 200 |

| 200 |

| 200 |

+------+

4 rows in set (0.00 sec)

##扩展实验，maxscale高可用（keepalived）

#沿用上边的结构继续添加配置

[root@server60 ~]# ls maxscale-2.1.2-1.rhel.7.x86\_64.rpm

maxscale-2.1.2-1.rhel.7.x86\_64.rpm

[root@server60 ~]# rpm -ivh maxscale-2.1.2-1.rhel.7.x86\_64.rpm

警告：maxscale-2.1.2-1.rhel.7.x86\_64.rpm: 头V4 RSA/SHA1 Signature, 密钥 ID 8167ee24: NOKEY

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

正在升级/安装...

1:maxscale-2.1.2-1 ################################# [100%]

[root@server60 ~]# cp /etc/maxscale.cnf /etc/maxscale.cnf.bak

[root@server60 ~]# vim /etc/maxscale.cnf

[root@server60 ~]# cat /etc/maxscale.cnf | grep -v ^$ | grep -v ^#

[maxscale]

threads=auto

[server10]

type=server

address=192.168.4.10

port=3306

protocol=MySQLBackend

[server20]

type=server

address=192.168.4.20

port=3306

protocol=MySQLBackend

[MySQL Monitor]

type=monitor

module=mysqlmon

servers=server10,server20

user=scalemon

passwd=123456

monitor\_interval=10000

[Read-Write Service]

type=service

router=readwritesplit

servers=server10,server20

user=maxscale

passwd=123456

max\_slave\_connections=100%

[MaxAdmin Service]

type=service

router=cli

[Read-Write Listener]

type=listener

service=Read-Write Service

protocol=MySQLClient

port=4006

[MaxAdmin Listener]

type=listener

service=MaxAdmin Service

protocol=maxscaled

socket=default

port=4009

[root@server60 ~]# maxscale -f /etc/maxscale.cnf

[root@server60 ~]# ps aux | grep max

root 3104 0.6 0.4 279048 4816 ? Ssl 16:11 0:00 maxscale -f /etc/maxscale.cnf

root 3110 0.0 0.0 112720 992 pts/1 S+ 16:11 0:00 grep --color=auto max

[root@server60 ~]# netstat -antpu | grep amx

[root@server60 ~]# netstat -antpu | grep max

tcp 0 0 192.168.4.60:51804 192.168.4.10:3306 ESTABLISHED 3104/maxscale

tcp 0 0 192.168.4.60:60600 192.168.4.20:3306 ESTABLISHED 3104/maxscale

tcp6 0 0 :::4006 :::\* LISTEN 3104/maxscale

tcp6 0 0 :::4009 :::\* LISTEN 3104/maxscale

#注意，修改完配置文件以后，可以使用systemctl start maxscale.service启动服务，这种方式为降级启动服务，进程采用的用户是maxscale，所有日志等相关文件的归属均为此用户，如果用maxscale -f /etc/maxscale.cnf的方式，是以root身份运行此服务，如果首次以这种方式启动服务，如果不修改相关文件的权限，无法再使用脚本控制服务

[root@server60 ~]# maxadmin -uadmin -pmariadb -P4009

MaxScale> list servers

Servers.

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

Server | Address | Port | Connections | Status

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

server10 | 192.168.4.10 | 3306 | 0 | Master, Running

server20 | 192.168.4.20 | 3306 | 0 | Slave, Running

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

MaxScale> exit

#部署高可用

[root@server50 ~]# yum -y install keepalived

[root@server50 ~]# vim /etc/keepalived/keepalived.conf

[root@server50 ~]# cat /etc/keepalived/keepalived.conf | grep -v ^$

! Configuration File for keepalived

global\_defs {

notification\_email {

admin@tedu.cn

}

notification\_email\_from root@tedu.cn

smtp\_server 127.0.0.1

smtp\_connect\_timeout 30

router\_id max50

}

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 {

192.168.4.100

}

}

[root@server50 ~]# systemctl start keepalived.service

[root@server50 ~]# ps aux | grep keep

root 1273 0.0 0.0 110088 892 ttyS0 Ss+ 14:18 0:00 /sbin/agetty --keep-baud 115200 38400 9600 ttyS0 vt220

root 6782 0.0 0.1 118668 1400 ? Ss 16:33 0:00 /usr/sbin/keepalived -D

root 6783 0.0 0.3 122868 3140 ? S 16:33 0:00 /usr/sbin/keepalived -D

root 6784 0.0 0.2 122868 2408 ? S 16:33 0:00 /usr/sbin/keepalived -D

root 6823 0.0 0.0 112720 992 pts/1 R+ 16:33 0:00 grep --color=auto keep

[root@server60 ~]# yum -y install keepalived

[root@server60 ~]# vim /etc/keepalived/keepalived.conf

[root@server60 ~]# cat /etc/keepalived/keepalived.conf | grep -v ^$

! Configuration File for keepalived

global\_defs {

notification\_email {

admin@tedu.cn

}

notification\_email\_from root@tedu.cn

smtp\_server 127.0.0.1

smtp\_connect\_timeout 30

router\_id max2

}

vrrp\_instance VI\_1 {

state BACKUP

interface eth0

virtual\_router\_id 51

priority 50

advert\_int 1

authentication {

auth\_type PASS

auth\_pass 1111

}

virtual\_ipaddress {

192.168.4.100

}

}

[root@server60 ~]# systemctl start keepalived.service

[root@server60 ~]# ps aux | grep keep

root 1294 0.0 0.0 110088 892 ttyS0 Ss+ 14:22 0:00 /sbin/agetty --keep-baud 115200 38400 9600 ttyS0 vt220

root 3493 0.0 0.1 118668 1404 ? Ss 16:36 0:00 /usr/sbin/keepalived -D

root 3494 0.0 0.3 122868 3144 ? S 16:36 0:00 /usr/sbin/keepalived -D

root 3495 0.1 0.2 122868 2416 ? S 16:36 0:00 /usr/sbin/keepalived -D

root 3505 0.0 0.0 112720 988 pts/1 R+ 16:36 0:00 grep --color=auto keep

[root@server50 ~]# ip a s | grep 4.100

inet 192.168.4.100/32 scope global eth0

[root@server60 ~]# ip a s | grep 4.100

[root@room8pc205 vipd]# mysql -h 192.168.4.100 -P 4006 -ustu -p123456

MySQL [(none)]> show databases;

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

| Database |

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

| information\_schema |

| db12 |

| test |

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

3 rows in set (0.01 sec)

#测试，server50关机

[root@server50 ~]# init 0

Connection to 192.168.4.50 closed by remote host.

Connection to 192.168.4.50 closed.

#192.168.4.100漂移到server60

[root@server60 ~]# ip a s | grep 4.100

inet 192.168.4.100/32 scope global eth0

[root@room8pc205 vipd]# mysql -h 192.168.4.100 -P 4006 -ustu -p123456

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MySQL connection id is 3108

Server version: 10.0.0 2.1.2-maxscale MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show databases;

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

| Database |

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

| information\_schema |

| db12 |

| test |

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

3 rows in set (0.00 sec)

#客户端无影响