MongoDB分片集群

MongoDB分片群集主要有如下三个组件：

Shard：分片服务器，用于存储实际的数据块

Config Server：配置服务器，存储了整个分片群集的配置信息，其中包括chunk信息。

Routers：前端路由，客户端由此接入，且让整个群集看上去像单一数据库。路由服务器不存储数据

规划：

192.168.1.48

27017 mongo-routes

27018 mongo-config

27019 mongo-shard11

192.168.1.185

27019 mongo-shard12

27021 mongo-shard21

27022 mongo-shard22

**1. 配置yum源、安装(1.48、1.185)**

1.1 配置yum.repo、安装

# vim /etc/yum.repos.d/mongo.repo

[mongodb-org-4.0]

name=MongoDB Repository

baseurl=https://repo.mongodb.org/yum/redhat/$releasever/mongodb-org/4.0/x86\_64/

gpgcheck=0

enabled=1

gpgkey=https://www.mongodb.org/static/pgp/server-4.0.asc

1.2 安装mongo

# yum -y install mongodb-org

**2.创建秘钥、目录、修改权限**

2.1 创建秘钥、拷贝到两台机器、修改权限

*//192.168.10.48*

# openssl rand -base64 756 >/etc/mongo.key

# chown -R mongod.mongod /etc/mongo.key

# chmod -R 600 /etc/mongo.key

# scp -r /etc/mongo.key root@192.168.1.185:/etc/

*//192.168.1.185*

# chown -R mongod.mongod /etc/mongo.key

# chmod -R 600 /etc/mongo.key

2.1 创建目录、修改权限

*//192.168.1.48*

# mkdir -p /opt/mongodb/logs

# mkdir -p /opt/mongodb/mongo-config

# mkdir -p /opt/mongodb/mongo-shard11

# chown -R mongod.mongod mongodb/

*//192.168.1.185*

# mkdir -p mongodb/logs

# mkdir -p mongodb/mongo-shard12

# mkdir -p mongodb/mongo-shard21

# mkdir -p mongodb/mongo-shard22

# chown -R mongod.mongod mongodb/

3.部署配置服务器

3.1修改配置文件

*//192.168.1.48*

# vim /etc/mongo-config.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-config.log

storage:

dbPath: /opt/mongodb/mongo-config

journal:

enabled: true

wiredTiger:

engineConfig:

directoryForIndexes: true

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongod-config.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27018

bindIpAll: true

maxIncomingConnections: 50

unixDomainSocket:

enabled: true

pathPrefix: /tmp/

filePermissions: 0700

security:

keyFile: /etc/mongo.key

authorization: enabled

replication:

replSetName: ych

sharding:

clusterRole: configsvr

3. *2 启动配置服务器*

# mongod -f /etc/mongo-config.conf

# mongo --port 27018

3.3*初始化配置服务器*

> rs.initiate(

{

\_id: "ych",

version: 1,

protocolVersion: 1,

writeConcernMajorityJournalDefault: true,

configsvr: true,

members: [

{

\_id: 0,

host: "192.168.1.48:27018",

arbiterOnly: false,

buildIndexes: true,

hidden: false,

priority: 66,

tags: {

ych: "YES"

},

slaveDelay: 0,

votes: 1

},

],

settings: {

chainingAllowed : true,

}

}

)

3.4 *查看副本集状态*

mongo> rs.status()

**4.部署分片集shard1**

*4.1配置shard11*

//192.168.1.48

# vim /etc/mongo-shard11.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-shard11.log

storage:

dbPath: /opt/mongodb/mongo-shard11

journal:

enabled: true

wiredTiger:

engineConfig:

directoryForIndexes: true

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongo-shard11.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27019

bindIpAll: true

maxIncomingConnections: 50

unixDomainSocket:

enabled: true

pathPrefix: /tmp

filePermissions: 0700

security:

keyFile: /etc/mongo.key

authorization: enabled

replication:

replSetName: shard1

sharding:

clusterRole: shardsvr

*4.2 启动shard11*

# mongod -f /etc/mongo-shard11.conf

*4.3配置shard12*

//192.168.10.185

# vim /etc/mongo-shard12.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-shard12.log

storage:

dbPath: /opt/mongodb/mongo-shard12

journal:

enabled: true

wiredTiger:

engineConfig:

directoryForIndexes: true

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongo-shard12.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27019

bindIpAll: true

maxIncomingConnections: 50

unixDomainSocket:

enabled: true

pathPrefix: /tmp

filePermissions: 0700

security:

keyFile: /etc/mongo.key

authorization: enabled

replication:

replSetName: shard1

sharding:

clusterRole: shardsvr

*4.4启动shard12*

# mongod -f /etc/mongo-shard12.conf

*4.5 初始化shard1集群*

//192.168.10.48

# mongo --port 27019

> rs.initiate(

{

\_id: "shard1",

version: 1,

protocolVersion: 1,

writeConcernMajorityJournalDefault: true,

members: [

{

\_id: 0,

host: "192.168.1.48:27019",

arbiterOnly: false,

buildIndexes: true,

hidden: false,

priority: 66,

tags: {

ych: "YES"

},

slaveDelay: 0,

votes: 1

},

{

\_id: 1,

host: "192.168.1.185:27019",

arbiterOnly: false,

buildIndexes: true,

hidden: false,

priority: 55,

tags: {

ych: "NO"

},

slaveDelay: 0,

votes: 1

},

],

settings: {

chainingAllowed : true,

}

}

)

*4.6 查看状态*

mongo> rs.status()

**5.部署分片集shard2**

*5.1配置shard21*

//192.168.1.185

# vim /etc/mongo-shard21.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-shard21.log

storage:

dbPath: /opt/mongodb/mongo-shard21

journal:

enabled: true

wiredTiger:

engineConfig:

directoryForIndexes: true

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongo-shard21.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27021

bindIpAll: true

maxIncomingConnections: 50

unixDomainSocket:

enabled: true

pathPrefix: /tmp

filePermissions: 0700

security:

keyFile: /etc/mongo.key

authorization: enabled

replication:

replSetName: shard2

sharding:

clusterRole: shardsvr

*5.2 启动shard21*

# mongod -f /etc/mongo-shard21.conf

*5.3 配置shard22*

//192.168.1.185

# vim /etc/mongo-shard22.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-shard22.log

storage:

dbPath: /opt/mongodb/mongo-shard22

journal:

enabled: true

wiredTiger:

engineConfig:

directoryForIndexes: true

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongo-shard22.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27022

bindIpAll: true

maxIncomingConnections: 50

unixDomainSocket:

enabled: true

pathPrefix: /tmp

filePermissions: 0700

security:

keyFile: /etc/mongo.key

authorization: enabled

replication:

replSetName: shard2

sharding:

clusterRole: shardsvr

*5.4启动shard22*

# mongod -f /etc/mongo-shard22.conf

*5.5 初始化shard2*

> rs.initiate(

{

\_id: "shard2",

version: 1,

protocolVersion: 1,

writeConcernMajorityJournalDefault: true,

members: [

{

\_id: 0,

host: "192.168.1.185:27021",

arbiterOnly: false,

buildIndexes: true,

hidden: false,

priority: 66,

tags: {

ych: "YES"

},

slaveDelay: 0,

votes: 1

},

{

\_id: 1,

host: "192.168.1.185:27022",

arbiterOnly: false,

buildIndexes: true,

hidden: false,

priority: 55,

tags: {

ych: "NO"

},

slaveDelay: 0,

votes: 1

},

],

settings: {

chainingAllowed : true,

}

}

)

*5.6 查看状态*

mongo> rs.status()

6.部署路由服务器

*6.1 配置路由服务器*

//192.168.1.48

# vim /etc/mongo-routes.conf

systemLog:

destination: file

logAppend: true

path: /opt/mongodb/logs/mongo-routes.log

processManagement:

fork: true

pidFilePath: /var/run/mongodb/mongo-routes.pid

timeZoneInfo: /usr/share/zoneinfo

net:

port: 27017

bindIpAll: true

maxIncomingConnections: 500

unixDomainSocket:

enabled: true

pathPrefix: /tmp/

filePermissions: 0700

security:

keyFile: /etc/mongo.key

sharding:

configDB: ych/192.168.1.48:27018

*6.2启动、配置管理账号*

# mongo

mongos> use admin

mongos> db.createUser(

{

user: "root",

pwd: "ych.123.mongo",

roles: [ { role: "\_\_system", db: "admin" } ]

}

)

*6.3添加分片集群*

# mongo admin -u root -p ych.123.mongo

mongos> sh.addShard("shard1/192.168.1.48:27019,192.168.1.185:27019")

mongos> sh.addShard("shard2/192.168.1.185:27021,192.168.1.185:27022")

7.测试

*7.1 设置chunksize的大小为1M*

mongos> use config

mongos> db.settings.save( { \_id:"chunksize", value: 1 } )

*7.2 为test数据库开启分片，根据age对mycoll表进行分片*

mongos> sh.enableSharding("test")

mongos> sh.shardCollection("test.mycoll", {"age": 1})

*7.3 查看是否开启分片*

mongos> use test

mongos> db.mycoll.stats().sharded

true

*7.4 测试分片，写入数据到数据库中*

mongos> use test

mongos> for (i = 1; i <= 10000; i++) db.mycoll.insert({age:(i%100), name:"bigboss\_user"+i, address:i+", Some Road, Zhengzhou, Henan", country:"China", course:"cousre"+"(i%12)"})

*7.5 查看分片信息了*

mongos> sh.status()

mongos> printShardingStatus(db.getSisterDB("config"),1);