MongoDB 副本集

mongodb单实例。这种配置只适合简易开发时使用，生产使用不行，因为单节点挂掉整个数据业务全挂。

主从模式：采用主从复制，主节点挂掉后，从节点可以接替主节点，继续服务。所以这种模式的服务比单节点服务要好很多。

优点：

读写分离：写操作走主节点，从节点同步主节点数据，读操作走从节点。

可靠性：主节点挂掉后，从节点可以接替主节点，继续服务。

不足：

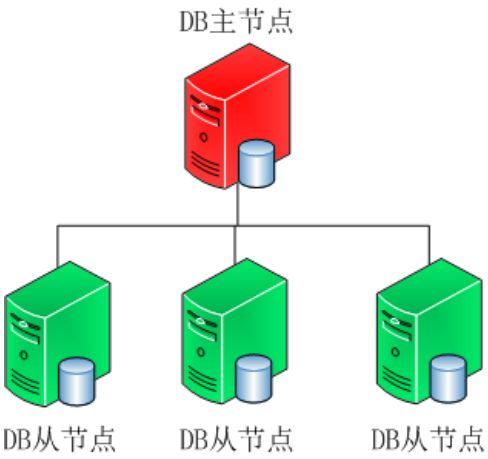
主节点挂掉后，从节点不能自动切换到主节点，需要手动切换。

所有写压力都落在一个master上，压力过大。

从节点每个上面的数据都是对主节点的全量拷贝，从节点压力过大

可扩展性不强

一主多从结构图



1. 准备多台虚拟机

   192.168.174.128 ， 192.168.174.129

2. 启动主节点 192.168.174.128:27017

   cd 到 .../bin 目录

   ./mongod --dbpath=/data/db/ -master

3. 启动从节点 192.168.174.129:27017

   cd 到bin目录

   ./mongod --dbpath=/data/db/ -slave -source 192.168.174.128:27017

   从节点默认没有读权限，需要开启：rs.slaveOk()

4. 测试

   4.1 分别连接到主，从节点

   4.2 在主节点插入一条数据

   4.3 在从节点查询，注意：从节点默认不可读，需要打开权限，rs.slaveOk()

4.4 测试从节点挂掉后，再次启动，是否会同步数据？

4.5 主节点挂掉后，从节点是否可以提升为主节点？不会，从节点会不停的扫描主节点

3.4.7 副本集搭建

#	副本集类型	192.168.174.128	192.168.174.129	192.168.174.130
2	一主一从一仲裁	主节点	从节点	仲裁节点

分别在每台机器上建立需要的目录

```
mkdir -p /usr/local/mongodb/conf
mkdir -p /usr/local/mongodb/log
mkdir -p /usr/local/mongodb/data
```

分别添加mongo 配置文件

```
vi /usr/local/mongodb/conf/mongo.conf
#content
pidfilepath = /usr/local/mongodb/log/replSet.pid
dbpath = /usr/local/mongodb/data
logpath = /usr/local/mongodb/replSet.log
logappend = true
bind_ip = 0.0.0.0
port = 27017
fork = true
rest=true
#replset name
replSet=replSet1
#declare this is a shard db of a cluster;
#max conns
maxConns=200
```

启动服务器的mongo server（一主一从一仲裁）

```
./mongod -f /usr/local/mongodb/conf/mongo.conf
## 登陆任意一台服务器，初始化副本集
./mongo --port 27017
##使用admin数据库
use admin
##定义副本集配置， "arbiterOnly":true 代表其为仲裁节点。
config = {
_id : "replSet1",
members : [
{_id : 0, host : "192.168.174.128:27017" },
{_id : 1, host : "192.168.174.129:27017" },
{_id : 2, host : "192.168.174.130:27017" , arbiterOnly: true }
```

]
}
##初始化副本集配置 （记得关闭linux 的防火墙）
    关闭防火墙：systemctl stop firewalld.service
    查看防火墙状态：firewall-cmd --state
rs.initiate(config);

##查看副本集状态
rs.status();

注： 需要重新连接，才能看到 主，从，仲裁 节点

```
> rs.initiate(config);
{ "ok" : 1 }
replSet1:OTHER> rs.status();
{
        "set" : "replSet1",
        "date" : ISODate("2017-09-06T05:35:59.027Z"),
        "myState" : 2,
        "term" : NumberLong(0),
        "heartbeatIntervalMillis" : NumberLong(2000),
        "optimes" : {
                "lastCommittedOpTime" : {
                        "ts" : Timestamp(0, 0),
                        "t" : NumberLong(-1)
                },
                "appliedOpTime" : {
                        "ts" : Timestamp(1504676151, 1),
                        "t" : NumberLong(-1)
                },
                "durableOpTime" : {
                        "ts" : Timestamp(1504676151, 1),
                        "t" : NumberLong(-1)
                }
        },
        "members" : [
                {
                        "_id" : 0,
                        "name" : "192.168.174.128:27017",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 853,
                        "optime" : {
                                "ts" : Timestamp(1504676151, 1),
                                "t" : NumberLong(-1)
                        },
                        "optimeDate" : ISODate("2017-09-06T05:35:51Z"),
                        "infoMessage" : "could not find member to sync from",
                        "configVersion" : 1,
                        "self" : true
                },
                {
                        "_id" : 1,
                        "name" : "192.168.174.129:27017",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 7,
                        "optime" : {
                                "ts" : Timestamp(1504676151, 1),
                                "t" : NumberLong(-1)
                        },
                        "optimeDurable" : {
                                "ts" : Timestamp(1504676151, 1),
                                "t" : NumberLong(-1)
                        },
                        "optimeDate" : ISODate("2017-09-06T05:35:51Z"),
                        "optimeDurableDate" : ISODate("2017-09-06T05:35:51Z"),
                        "lastHeartbeat" : ISODate("2017-09-06T05:35:56.562Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T05:35:58.606Z"),
                        "pingMs" : NumberLong(1),
                        "configVersion" : 1
                },
                {
                        "_id" : 2,
                        "name" : "192.168.174.130:27017",
                        "health" : 1,
                        "state" : 7,
                        "stateStr" : "ARBITER",
                        "uptime" : 7,
                        "lastHeartbeat" : ISODate("2017-09-06T05:35:56.563Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T05:35:58.545Z"),
                        "pingMs" : NumberLong(1),
                        "configVersion" : 1
                }
        ],
        "ok" : 1
}
replSet1:SECONDARY>
```

重连结果

```
replSet1:PRIMARY> use admin;
switched to db admin
replSet1:PRIMARY> rs.status();
{
        "set" : "replSet1",
        "date" : ISODate("2017-09-06T05:43:35.721Z"),
        "myState" : 1,
        "term" : NumberLong(1),
        "heartbeatIntervalMillis" : NumberLong(2000),
        "optimes" : {
                "lastCommittedOpTime" : {
                        "ts" : Timestamp(1504676613, 1),
                        "t" : NumberLong(1)
                },
                "appliedOpTime" : {
                        "ts" : Timestamp(1504676613, 1),
                        "t" : NumberLong(1)
                },
                "durableOpTime" : {
                        "ts" : Timestamp(1504676613, 1),
                        "t" : NumberLong(1)
                }
        },
        "members" : [
                {
                        "_id" : 0,
                        "name" : "192.168.174.128:27017",
                        "health" : 1,
                        "state" : 1,
                        "stateStr" : "PRIMARY",
                        "uptime" : 1309,
                        "optime" : {
                                "ts" : Timestamp(1504676613, 1),
                                "t" : NumberLong(1)
                        },
                        "optimeDate" : ISODate("2017-09-06T05:43:33Z"),
                        "electionTime" : Timestamp(1504676161, 1),
                        "electionDate" : ISODate("2017-09-06T05:36:01Z"),
                        "configVersion" : 1,
                        "self" : true
                },
                {
                        "_id" : 1,
                        "name" : "192.168.174.129:27017",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 464,
                        "optime" : {
                                "ts" : Timestamp(1504676613, 1),
                                "t" : NumberLong(1)
                        },
                        "optimeDurable" : {
                                "ts" : Timestamp(1504676613, 1),
                                "t" : NumberLong(1)
                        },
                        "optimeDate" : ISODate("2017-09-06T05:43:33Z"),
                        "optimeDurableDate" : ISODate("2017-09-06T05:43:33Z"),
                        "lastHeartbeat" : ISODate("2017-09-06T05:43:34.170Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T05:43:35.120Z"),
                        "pingMs" : NumberLong(0),
                        "syncingTo" : "192.168.174.128:27017",
                        "configVersion" : 1
                },
                {
                        "_id" : 2,
                        "name" : "192.168.174.130:27017",
                        "health" : 1,
                        "state" : 7,
                        "stateStr" : "ARBITER",
                        "uptime" : 464,
                        "lastHeartbeat" : ISODate("2017-09-06T05:43:34.170Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T05:43:33.770Z"),
                        "pingMs" : NumberLong(0),
                        "configVersion" : 1
                }
        ],
        "ok" : 1
}
replSet1:PRIMARY>
```

db.shutdownServer() //宕机主节点，然后恢复， 查看结果

```
replSet1:SECONDARY> rs.status();
{
        "set" : "replSet1",
        "date" : ISODate("2017-09-06T06:09:21.907Z"),
        "myState" : 2,
        "term" : NumberLong(2),
        "syncingTo" : "192.168.174.129:27017",
        "heartbeatIntervalMillis" : NumberLong(2000),
        "optimes" : {
                "lastCommittedOpTime" : {
                        "ts" : Timestamp(1504678132, 1),
                        "t" : NumberLong(2)
                },
                "appliedOpTime" : {
                        "ts" : Timestamp(1504678132, 1),
                        "t" : NumberLong(2)
                },
                "durableOpTime" : {
                        "ts" : Timestamp(1504678132, 1),
                        "t" : NumberLong(2)
                }
        },
        "members" : [
                {
                        "_id" : 0,
                        "name" : "192.168.174.128:27017",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 11,
                        "optime" : {
                                "ts" : Timestamp(1504678132, 1),
                                "t" : NumberLong(2)
                        },
                        "optimeDate" : ISODate("2017-09-06T06:08:52Z"),
                        "syncingTo" : "192.168.174.129:27017",
                        "configVersion" : 1,
                        "self" : true
                },
                {
                        "_id" : 1,
                        "name" : "192.168.174.129:27017",
                        "health" : 1,
                        "state" : 1,
                        "stateStr" : "PRIMARY",
                        "uptime" : 10,
                        "optime" : {
                                "ts" : Timestamp(1504678132, 1),
                                "t" : NumberLong(2)
                        },
                        "optimeDurable" : {
                                "ts" : Timestamp(1504678132, 1),
                                "t" : NumberLong(2)
                        },
                        "optimeDate" : ISODate("2017-09-06T06:08:52Z"),
                        "optimeDurableDate" : ISODate("2017-09-06T06:08:52Z"),
                        "lastHeartbeat" : ISODate("2017-09-06T06:09:21.598Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T06:09:20.499Z"),
                        "pingMs" : NumberLong(0),
                        "electionTime" : Timestamp(1504678093, 2),
                        "electionDate" : ISODate("2017-09-06T06:08:13Z"),
                        "configVersion" : 1
                },
                {
                        "_id" : 2,
                        "name" : "192.168.174.130:27017",
                        "health" : 1,
                        "state" : 7,
                        "stateStr" : "ARBITER",
                        "uptime" : 10,
                        "lastHeartbeat" : ISODate("2017-09-06T06:09:21.598Z"),
                        "lastHeartbeatRecv" : ISODate("2017-09-06T06:09:19.507Z"),
                        "pingMs" : NumberLong(1),
                        "configVersion" : 1
                }
        ],
        "ok" : 1
}
replSet1:SECONDARY>
```