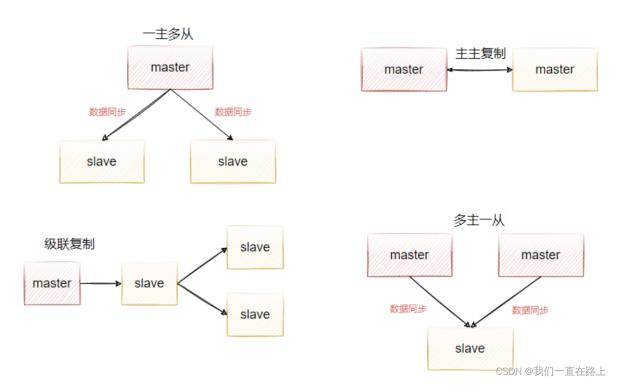
## 架構調整:從「一主多從」變為「級聯複製」



## UAT 實作細節

```
## 登入 lab: 10.21.1.3

## 查看現在的 node 關係

$ sudo su

$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6378 -a newld20200909 cluster nodes 2> /dev/null

04349595dc7b856fd27a2c87d33c842cd506e1f2 10.21.1.122:6380@16380 slave b96b5dd558e7568f383aa4ab2fa625edac4bd020 0 1673243148000 17 connected

959f6718cefd96214ec46025e835f9b405802983 10.21.1.3:6380@16380 slave b96b5dd558e7568f383aa4ab2fa625edac4bd020 0 1673243148000 17 connected

6de8c57e166e6987e4f66473181d237c261ce41e5 10.21.1.3:6380@16380 slave b96b5dd558e7568f383aa4ab2fa625edac4bd020 0 1673243148000 16 connetted

6de8c57e166e6987e4f66473181d237c261ce41e5 10.21.1.3:6378@16378 myself,slave 23a405fd0d07732e0117bb367f9e0b850ebfb14b 0 1673243148000 16 connetted

6de8c57e166e6987e4f66473181d2377c261ce41e5 10.21.1.122:6377@16377 master - 0 1673243147000 15 connected 10923-16383

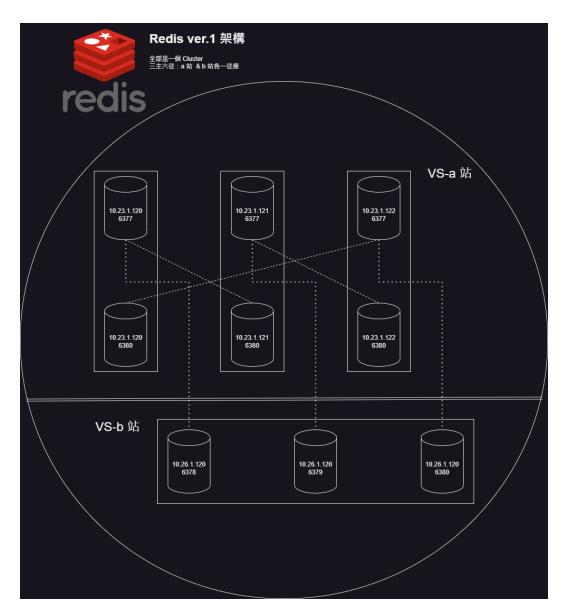
23a405fd0d07732e0117bb367f9e0b850ebfb14b 10.21.1.120:6387@16377 master - 0 1673243147000 16 connected 0-5461

b96b5dd558e7568f383aa4ab2fa625edac4bd020 10.21.1.121:6377@16377 master - 0 1673243146000 17 connected 5462-10922

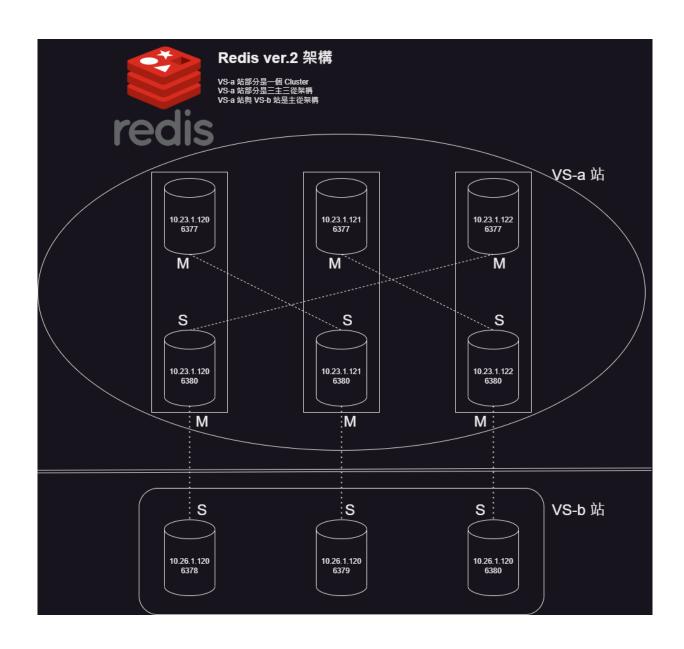
f7def362c61ae67a2025f8f820062c40d8061743 10.21.1.121:6370@16377 master - 0 1673243146000 17 connected 5462-10922

f7def362c61ae67a2025f8f820062c40d8061743 10.21.1.121:6380@16380 slave fb7a8a516331499dc0cce6e754651192487a2692 0 1673243148122 15 connected 9cc6fcd015145cfe8bf81150bd58b4b8397e07e0 10.21.1.121:6380@16380 slave 23a405fd0d07732e0117bb367f9e0b850ebfb14b 0 1673243149126 16 connected 289cd799d35d8362a87c94057879bb111875e57a 10.21.1.3:6382@16382 slave fb7a8a516331499dc0cce6e754651192487a2692 0 1673243146000 15 connected 289cd799d35
```

- Master 10.21.1.120:6377@16377
  - o Replica/Slave 10.21.1.121:6380@16380
  - o Replica/Slave 10.21.1.3:6378@16378
- Master 10.21.1.121:6377@16377
  - o Replica/Slave 10.21.1.122:6380@16380
  - o Replica/Slave 10.21.1.3:6380@16380
- Master 10.21.1.122:6377@16377
  - o Replica/Slave 10.21.1.120:6380@16380
  - o Replica/Slave 10.21.1.3:6382@16382



理想的聯級複製



• 最上面的圖都沒有提到 cluster 狀態,就代表 cluster 在這些架構轉換裡面是不被考慮的。

```
## 登入 cluster 任一主機,以 master 身分登入,撈取 vs-b 的 instance 資訊
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster nodes | grep 10.21.1.3
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
959f6718cefd96214ec46025e835f9b405802983 10.21.1.3:6380@16380 slave b96b5dd558e7568f383aa4ab2fa625edac4bd020 0 1673252273000 17 connected
289cd799d35d8362a87c94057879bb111875e57a 10.21.1.3:6382@16382 slave fb7a8a516331499dc0cce6e754651192487a2692 0 1673252272000 15 connected
6de8c57e166e6987e4f6473181d237c261ce41e5 10.21.1.3:6378@16378 master, fail - 1673247094291 1673247090282 16 disconnected
## 把三個 vs-b 的 instance 逐一從 cluster 刪除
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster forget 959f6718cefd96214ec46025e835f9b4058029
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
0K
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster forget 289cd799d35d8362a87c94057879bb111875e5
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster forget 6de8c57e166e6987e4f6473181d237c261ce41
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
[gok@vs-uat-redis-01 ~]$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster nodes | grep 10.21.1.3
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
```

```
## 確認現存的 cluster nodes 中是否還有 vs-b 的 instance 資訊
\ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6377 -c -a newld20200909 cluster nodes 2> /dev/null
f7def362c61ae67a2025f8f820062c40d8061743 10.21.1.120:6380@16380 slave fb7a8a516331499dc0cce6e754651192487a2692 0 1673252538000 15 connected
9cc6fcd015145cfe8bf81150bd58b4b8397e07e0 10.21.1.121:6380@16380 slave 23a405fd0d07732e0117bb367f9e0b850ebfb14b 0 1673252538000 17 connected
04349595 dc7b856fd27a2c87d33c842cd506e1f2\ 10.21.1.122:6380@16380\ slave\ b96b5dd558e7568f383aa4ab2fa625edac4bd020\ 0\ 1673252538963\ 17\ connected
289 cd 799 d35 d8362 a87 c94057879 bb111875 e57 a 10.21.1.3:6382 @16382 \ slave fb7 a8a516331499 dc0cce6e754651192487 a2692 \ 0 \ 1673252537000 \ 15 \ connected
b96b5dd558e7568f383aa4ab2fa625edac4bd020\ 10.21.1.121:6377@16377\ master\ -\ 0\ 1673252537959\ 17\ connected\ 5462-10922
42ce7ed8f1c54d4c7ea694fc034d644f514fb134 10.21.1.3:6378@16378 handshake - 1673252527819 0 0 disconnected
23a405fd0d07732e0117bb367f9e0b850ebfb14b \ 10.21.1.120:6377@16377 \ myself, master \ - \ 0 \ 1673252537000 \ 16 \ connected \ 0-5461 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.1.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.100 \ 10.21.1
## 修改 vs-b 各 instance 的 conf 檔案
## 主要是把 cluster-enabled yes 變成註解或是 cluster-enabled no
$ vim /opt/centos/redis-6378.conf
$ vim /opt/centos/redis-6380.conf
$ vim /opt/centos/redis-6382.conf
## 從 redis 源站的 dump.rdb 傳送檔案到 b 站機器
# 以 qok 身分
$ vim ~/.ssh/gok_rsa
$ chmod 600 ~/.ssh/qok_rsa
$ vim ~/.ssh/config
$ chmod 600 ~/.ssh/config
## 從 redis 源站分別傳送 dump.rdb 到 b 站主機
\label{local_rediscluster_data_dump.rdb} $$ scp -i gok_rsa gok@10.21.1.120:/usr/local/redis-cluster/data/dump.rdb /home/gok/
dump.rdb
                                                                                                                                                                                     100% 1
$ scp -i gok_rsa gok@10.21.1.121:/usr/local/redis-cluster/data/dump.rdb /home/gok/
\operatorname{dump.rdb}
                                                                                                                                                                                      100%
dump.rdb
                                                                                                                                                                                      100% 2
$ mv /home/gok/dump.rdb /home/gok/dump.rdb-122
$ touch /home/gok/dump.rdb
$ cat /home/gok/dump.rdb-120 >> /home/gok/dump.rdb
$ cat /home/gok/dump.rdb-122 >> /home/gok/dump.rdb
$ mv /home/gok/dump.rdb /home/gok/dump.rdb-source
$ sudo cp /home/gok/dump.rdb-source /usr/local/redis-cluster/data
## 關閉所有 redis 服務
$ sudo netstat -nutlp | grep -e :63 -e "redis-server 1" | awk '{print $7}' | awk -F '/' '{print $1}' | xargs kill
## 把源站的 dump.rdb 取代原本的 dump.rdb (拿到老早設定好的 key)
mv /usr/local/redis-cluster/data/dump.rdb /usr/local/redis-cluster/data/dump.rdb.origin
# mv /usr/local/redis-cluster/data/appendonly.aof /usr/local/redis-cluster/data/appendonly.aof.origin
my /usr/local/redis-cluster/data/nodes-6378.conf /usr/local/redis-cluster/data/nodes-6378.conf.origin
mv /usr/local/redis-cluster/data/nodes-6380.conf /usr/local/redis-cluster/data/nodes-6380.conf.origin
mv /usr/local/redis-cluster/data/nodes-6382.conf /usr/local/redis-cluster/data/nodes-6382.conf.origin
## 啟動三個 port
$ /usr/local/redis-cluster/bin/redis-server /opt/centos/redis-6378.conf
$ /usr/local/redis-cluster/bin/redis-server /opt/centos/redis-6380.conf
\verb| $ /usr/local/redis-cluster/bin/redis-server /opt/centos/redis-6382.conf| \\
## 串連 vs-a 的 slave 成為 vs-b 的 master
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6378 -a newld20200909 replicaof 10.21.1.120 6380 2> /dev/nul
OK
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6380 -a newld20200909 replicaof 10.21.1.121 6380 2> /dev/nul
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6382 -a newld20200909 replicaof 10.21.1.122 6380 2> /dev/nul
### 查看 vs-b 這三個 instance 的 replication 狀態
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6378 -a newld20200909 info replication 2> /dev/null
# Replication
```

```
role:slave
master_host:10.21.1.120
master_port:6380
master_link_status:up
master_last_io_seconds_ago:1
master_sync_in_progress:0
slave_read_repl_offset:248610
slave_repl_offset:248610
slave_priority:100
slave_read_only:1
replica_announced:1
connected_slaves:0
master_failover_state:no-failover
master_replid:5f1a3512883d1fc76f0ade1bcb73ba99ae2c85d9
master_repl_offset:248610
second_repl_offset:-1
repl_backlog_active:1
repl_backlog_size:1048576
repl_backlog_first_byte_offset:248205
repl backlog histlen: 406
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6380 -a newld20200909 info replication 2> /dev/null
# Replication
role:slave
master host:10.21.1.121
master_port:6380
master_link_status:up
master_last_io_seconds_ago:2
master_sync_in_progress:0
slave_read_repl_offset:37688
slave_repl_offset:37688
slave_priority:100
slave_read_only:1
replica_announced:1
connected_slaves:0
master_failover_state:no-failover
master_replid:3de5caa192a71b081a666a1d0035d63719d9f08e
master_repl_offset:37688
second_repl_offset:-1
repl_backlog_active:1
repl_backlog_size:1048576
repl_backlog_first_byte_offset:37311
repl_backlog_histlen:378
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i | cut -d ' ' -f 1` -p 6382 -a newld20200909 info replication 2> /dev/null
# Replication
role:slave
master_host:10.21.1.122
master_port:6380
master_link_status:up
master_last_io_seconds_ago:2
master_sync_in_progress:0
slave read repl offset:244300
slave_repl_offset:244300
slave_priority:100
slave read only:1
replica announced:1
connected_slaves:0
{\tt master\_failover\_state:no\text{-}failover}
master_replid:afd627ca25bd3647640461dcf8c9dd0526cf0f08
master_repl_offset:244300
second_repl_offset:-1
repl_backlog_active:1
repl_backlog_size:1048576
repl_backlog_first_byte_offset:243923
repl_backlog_histlen:378
```

```
### 如果現在回到 vs-a 查看 cluster nodes 狀態,會出現 fail 為正常
### 因為 vs-b 的主機在 cluster 中無法被正確定位:#cluster-enabled yes
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i ` -p 6380 -c -a newld20200909 cluster nodes | grep fail
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
6de8c57e166e6987e4f6473181d237c261ce41e5 10.21.1.3:6378@16378 master,fail - 1673247094299 1673247090000 16 disconnected
289cd799d35d8362a87c94057879bb111875e57a 10.21.1.3:6382@16382 slave,fail fb7a8a516331499dc0cce6e754651192487a2692 1673252949003 16732529480
959f6718cefd96214ec46025e835f9b405802983 10.21.1.3:6380@16380 slave,fail b96b5dd558e7568f383aa4ab2fa625edac4bd020 1673252949003 16732529456
```

```
## 如果看到 cluster nodes 有 0@0 這樣的資料,
## 代表這個 node-id 已經斷了,必須要從個別主機的 port 分別登入去用 cluster forget 刪除它
## 只有在單一節點刪除,不會在所有節點都消失
\ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster nodes | grep ':000'
3 \verb|ccf37ae8262cbb85040f84ca913b055a5f2a3bc : 0@0 slave, fail, noaddr 23a405fd0d07732e0117bb367f9e0b850ebfb14b 1675655056027 1675655052017 23 discount of the contract of th
6 de 8 c 5 7 e 166 e 698 7 e 4 f 647 3181 d 237 c 261 c e 41 e 5 \cdot 0 @ 0 \ master, fail, no addr - 1675 0 625 64495 \ 1675 0 625 64495 \ 16 \ disconnected
289cd799d35d8362a87c94057879bb111875e57a :0@0 slave,fail,noaddr fb7a8a516331499dc0cce6e754651192487a2692 1675062564495 1675062564495 15 dis
3256da6d81899f6fc84a44e41f20bd1db2799d7d :0@0 slave,fail,noaddr 23a405fd0d07732e0117bb367f9e0b850ebfb14b 1675655056027 1675655054022 23 dis
8b33dead87439267ce24e6fa08b85160fc826a35 :0@0 slave,fail,noaddr fb7a8a516331499dc0cce6e754651192487a2692 1675655056027 1675655050000 21 dis
959f6718cefd96214ec46025e835f9b405802983 :0@0 slave,fail,noaddr b96b5dd558e7568f383aa4ab2fa625edac4bd020 1675062564495 1675062564495 17 dis
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster forget 3ccf37ae8262cbb85040f84ca913
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld202000909 2> /dev/null cluster forget 6de8c57e166e6987e4f6473181d2
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster forget 289cd799d35d8362a87c94057879
0K
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster forget 3256da6d81899f6fc84a44e41f20
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster forget 8b33dead87439267ce24e6fa08b8
0K
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster forget 959f6718cefd96214ec46025e835
0K
## 最後檢查
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster nodes | grep ':0@0'
## 完整結果 (這樣 check redis.sh 才不會報錯)
$ /usr/local/redis-cluster/bin/redis-cli -h `hostname -i` -p 6380 -a newld20200909 2> /dev/null cluster nodes
04349595dc7b856fd27a2c87d33c842cd506e1f2 10.21.1.122:6380@16380 slave b96b5dd558e7568f383aa4ab2fa625edac4bd020 0 1675671057914 20 connected
23a405fd0d07732e0117bb367f9e0b850ebfb14b 10.21.1.120:6377@16377 master - 0 1675671056911 23 connected 0-5460
b96b5dd558e7568f383aa4ab2fa625edac4bd020\ 10.21.1.121:6377@16377\ master\ -\ 0\ 1675671055000\ 19\ connected\ 10922-16383
fb7a8a516331499dc0cce6e754651192487a2692 10.21.1.122:6377@16377 master - 0 1675671056000 21 connected 5461-10921
a9cc6fcd015145cfe8bf81150bd58b4b8397e07e0 \ 10.21.1.121:6380@16380 \ slave \ 23a405fd0d07732e0117bb367f9e0b850ebfb14b \ 0 \ 1675671055908 \ 23 \ connected
f7def362c61ae67a2025f8f820062c40d8061743 10.21.1.120:6380@16380 myself,slave fb7a8a516331499dc0cce6e754651192487a2692 0 1675671056000 9 con
```