

MySQL高可用架构

——分享技术 分享快乐

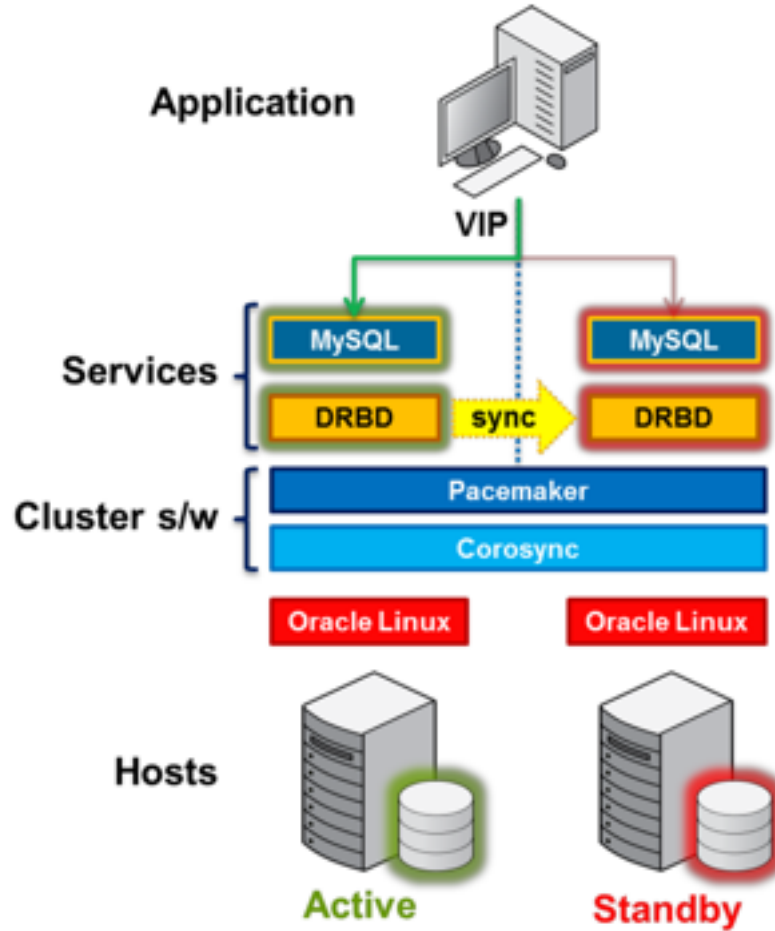
About Me

- 娄帅
- Qunar MySQL DBA
- GreatOpenSource DBScale
- DM7

About MySQL

- RDBMS
- Open Source
- Multi-Engine
- ACID

DRBD



<http://dev.mysql.com/doc/refman/5.6/en/ha-drbd.html>

DRBD

优点

数据一致

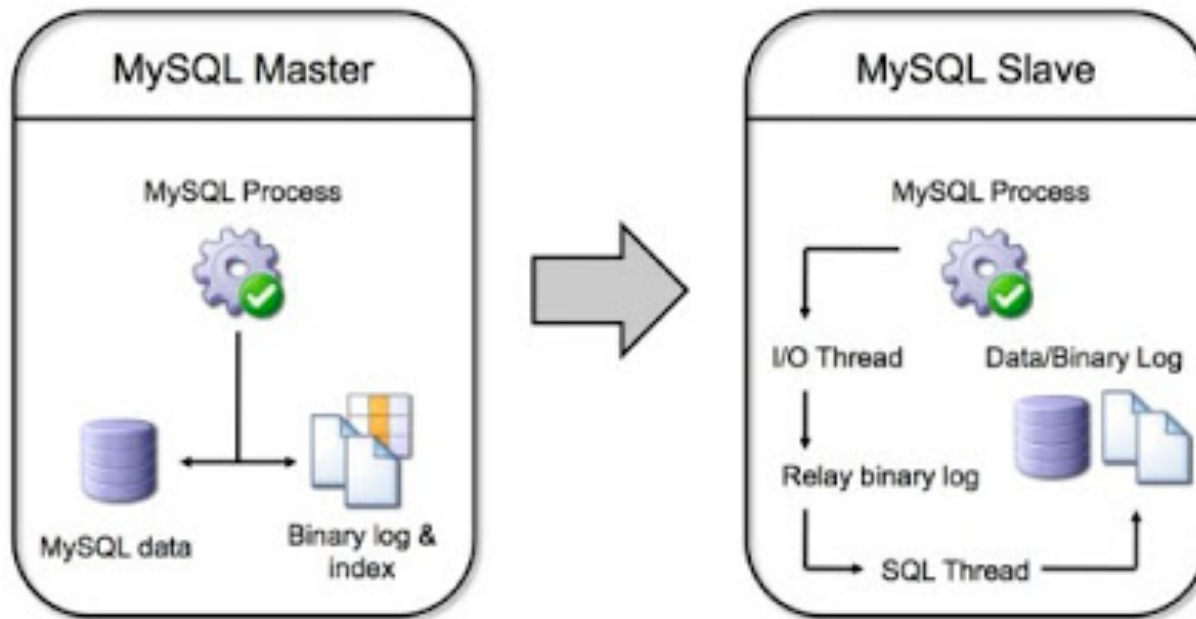
缺点

资源浪费

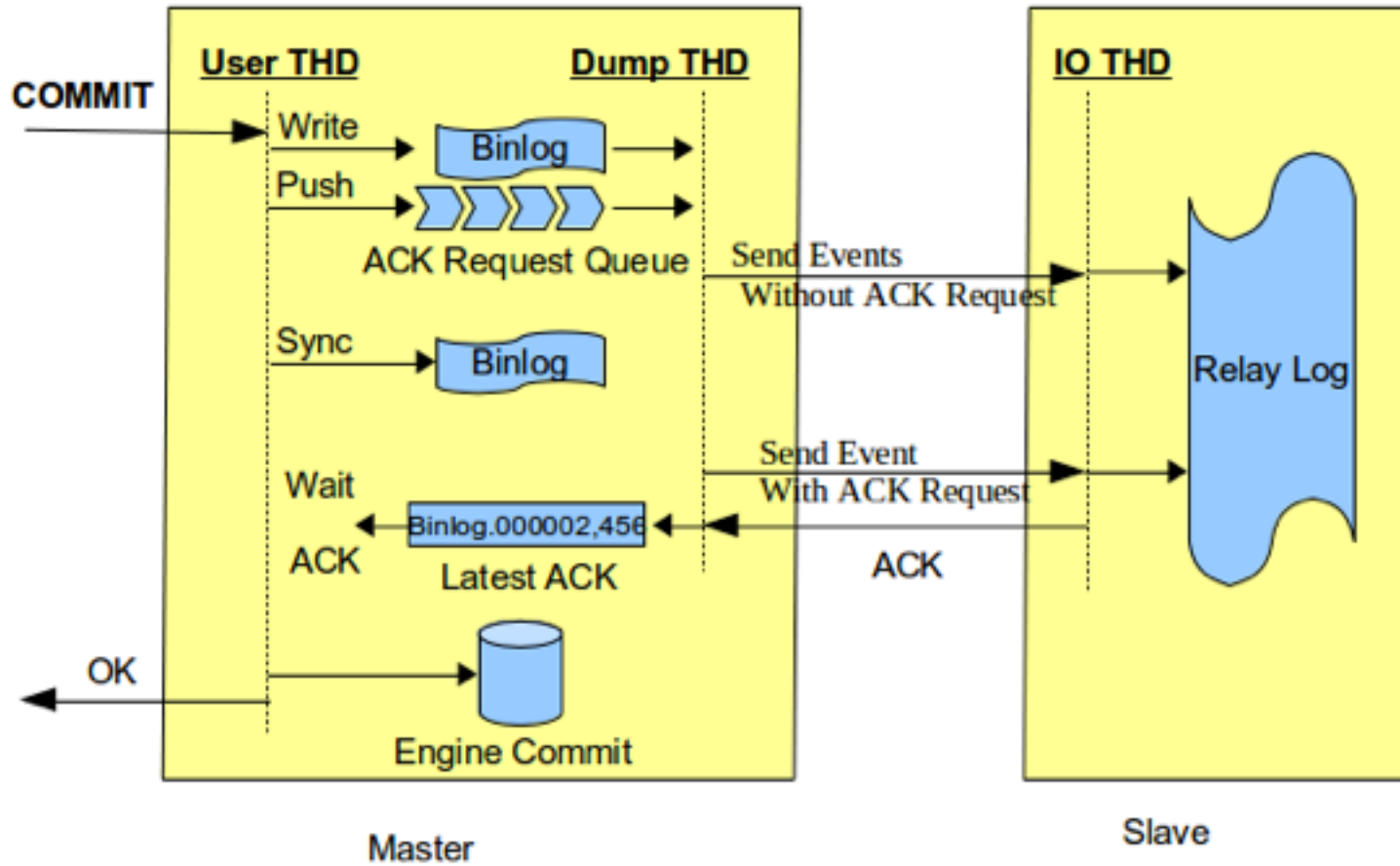
启动耗时，预热慢

类似方案？

Replication



Semi-Sync Replication



MMM

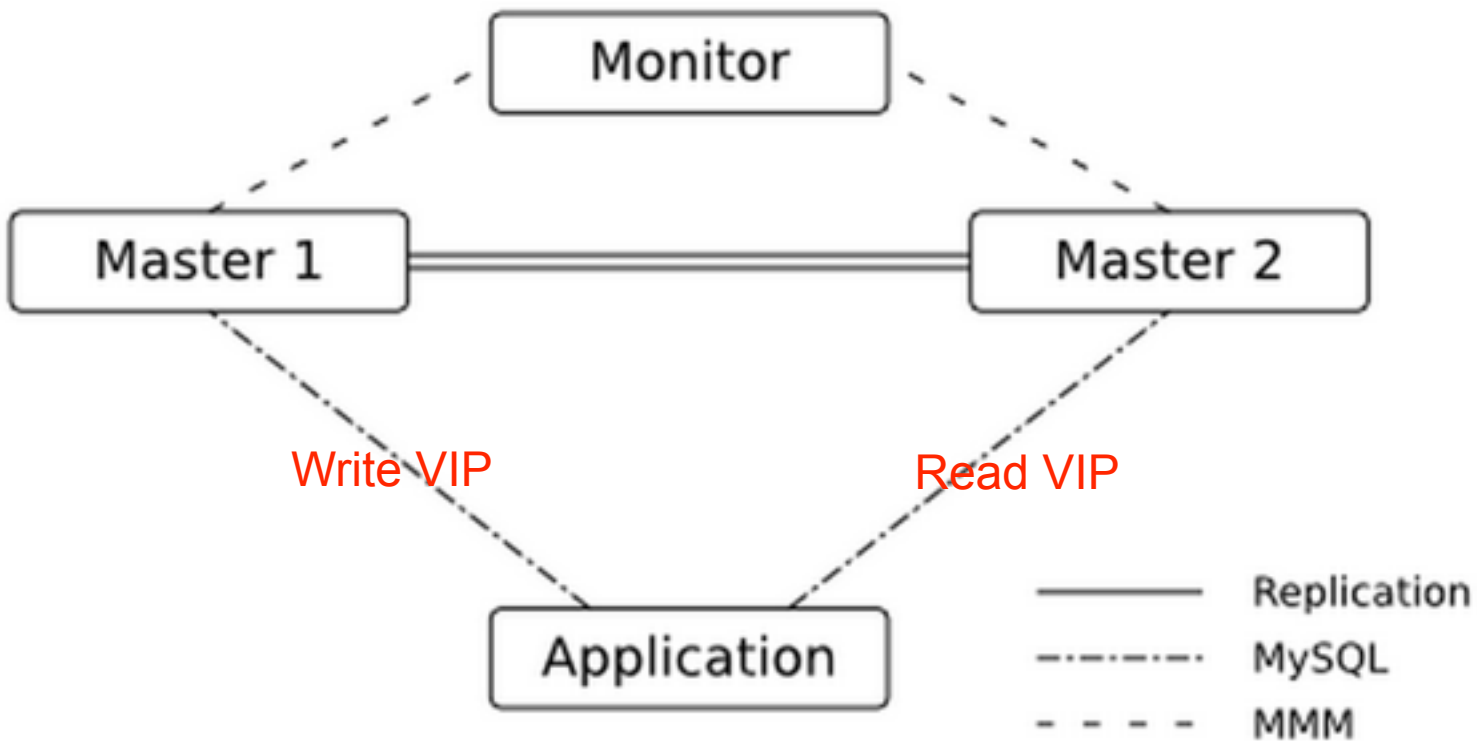
全称 Multi-Master Replication Manager for MySQL

地址 <http://mysql-mmm.org/>

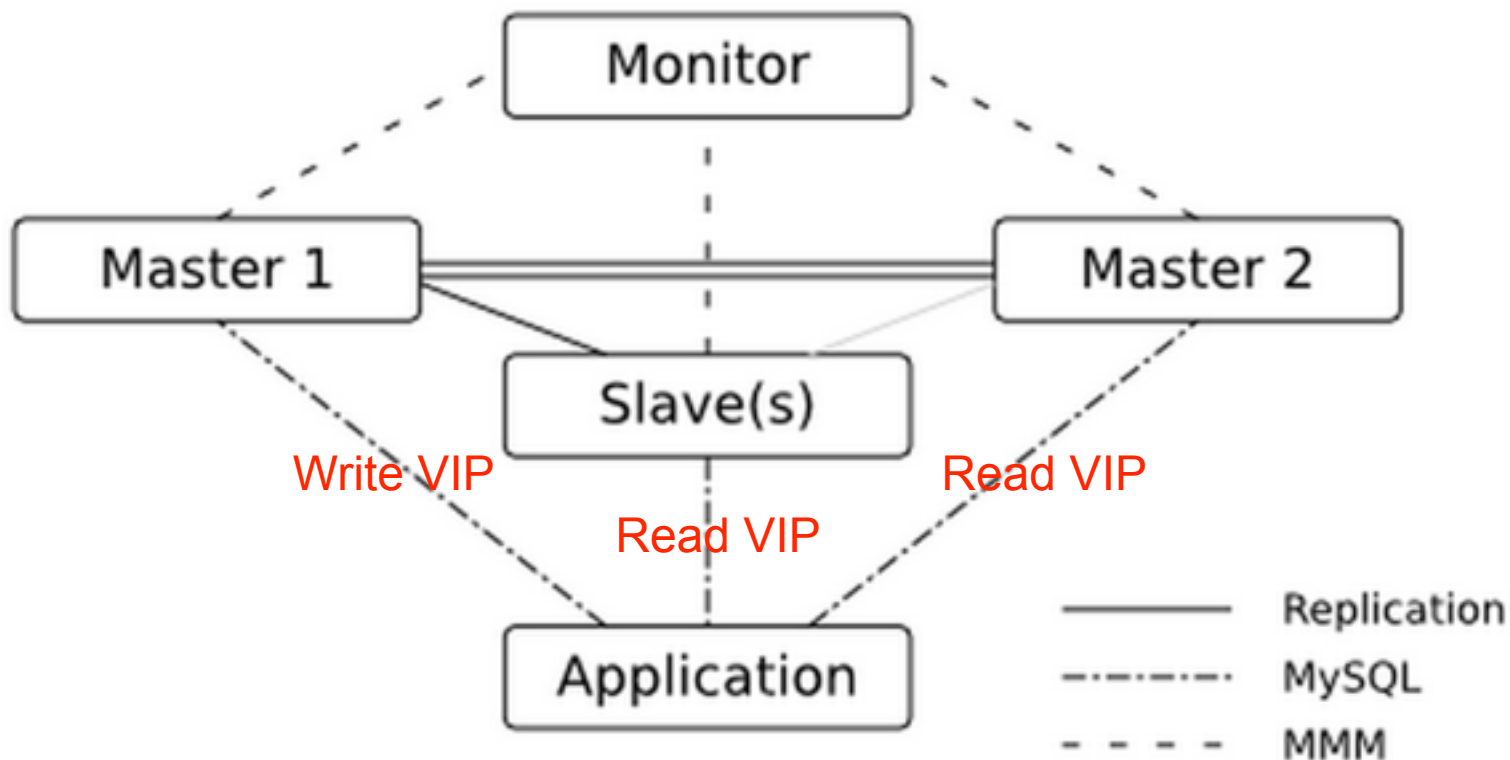
语言 Perl

基于MySQL Replication的HA方案，监控MySQL运行状态，通过漂读写VIP的方式实现故障切换。

MMM



MMM



MMM

mmm_mond

- 单独部署在Monitor机器上
- 对MySQL实例进行监控
 1. ping host
 2. SELECT NOW
 3. REPLICATION RUNNING CHECK
 4. REPLICATION DELAY CHECK
- 通知agent进行故障处理

mmm_agent

- 等待mmm_mond发出的命令，进行处理

MMM

优点

- 可以实现读写分离，充分利用机器资源
- 故障自动切换

缺点

- 切换可能造成数据丢失
- 只支持VIP方式
- 已经停止开发

MHA

全称 Master High Availability Manager and tools for MySQL

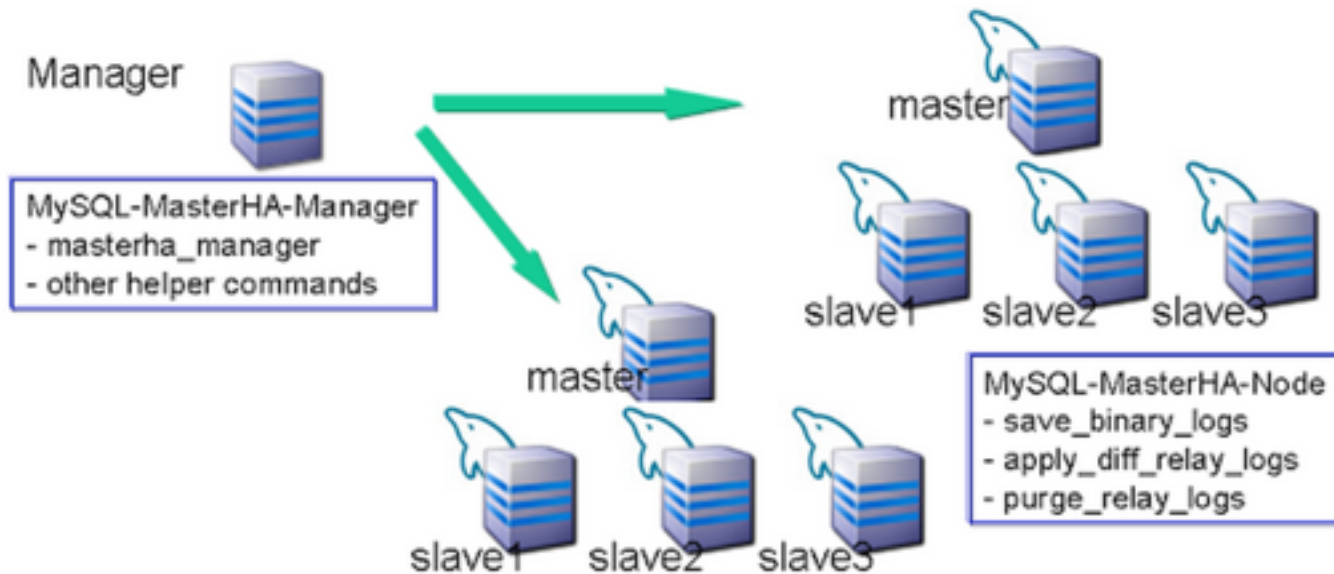
地址 <https://code.google.com/p/mysql-master-ha/>

语言 Perl

基于MySQL Replication的HA方案，监控MySQL运行状态，
可以自定义切换脚本，最大限度的保证数据一致性。

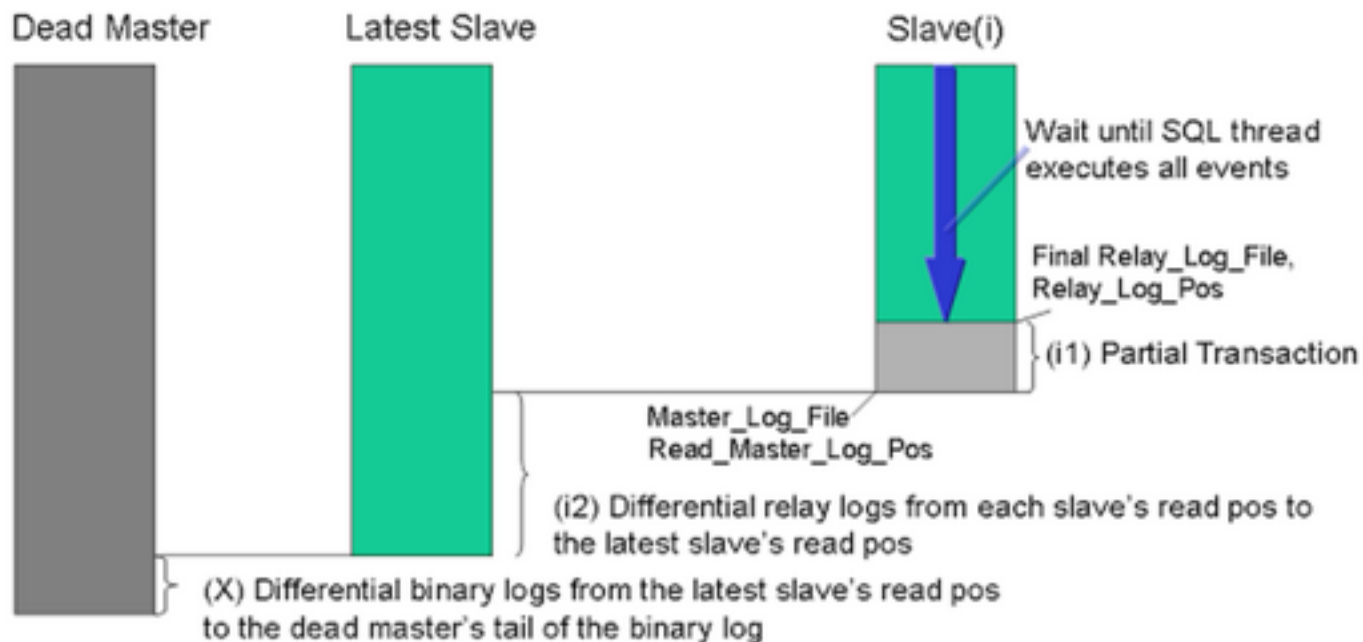
MHA

MHA consists of MHA Manager and MHA Node as below.



- Manager package: Can manage multiple {master, slaves} pairs
 - masterha_manager : Automated master monitoring and failover command
 - Other helper scripts: Manual master failover, online master switch, con checking, etc
- Node package: Deploying on all MySQL servers
 - save_binary_logs: Copying master's binary logs if accessible
 - apply_diff_relay_logs: Generating differential relay logs from the latest slave, and applying all differential binlog events
 - purge_relay_logs: Deleting relay logs without stopping SQL thread

MHA



- On slave(i),
 - Wait until the SQL thread executes events
 - Apply i1 -> i2 -> X
 - On the latest slave, i2 is empty

MHA

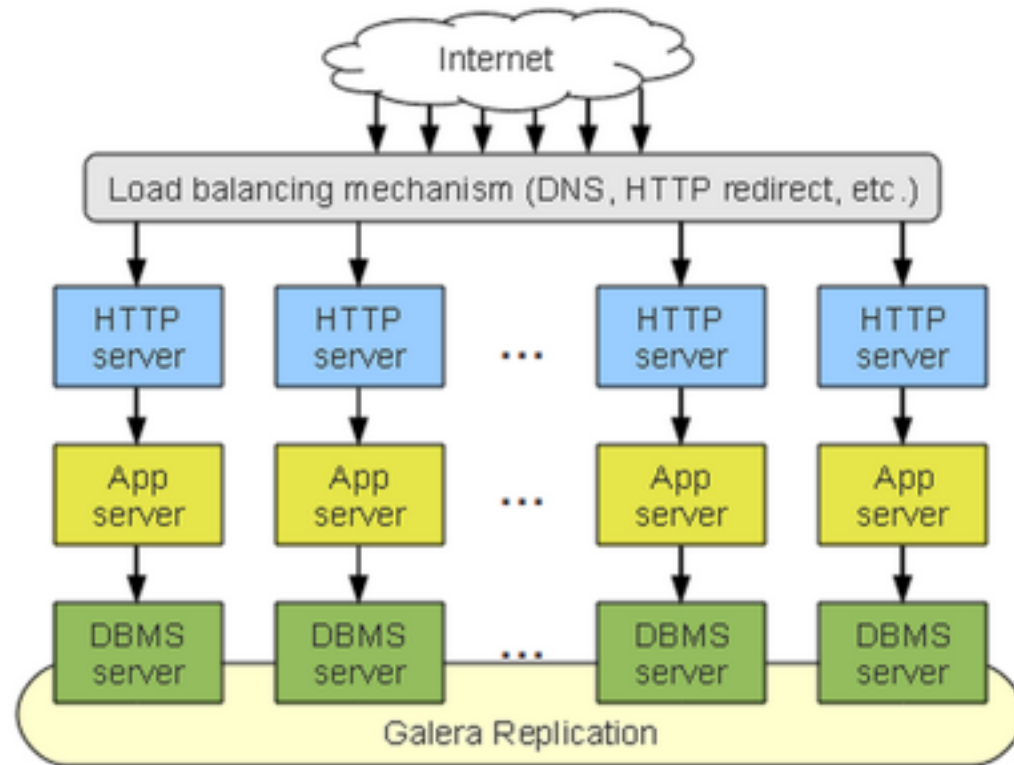
优点

- 尽可能保证数据一致性
- 支持自定义脚本

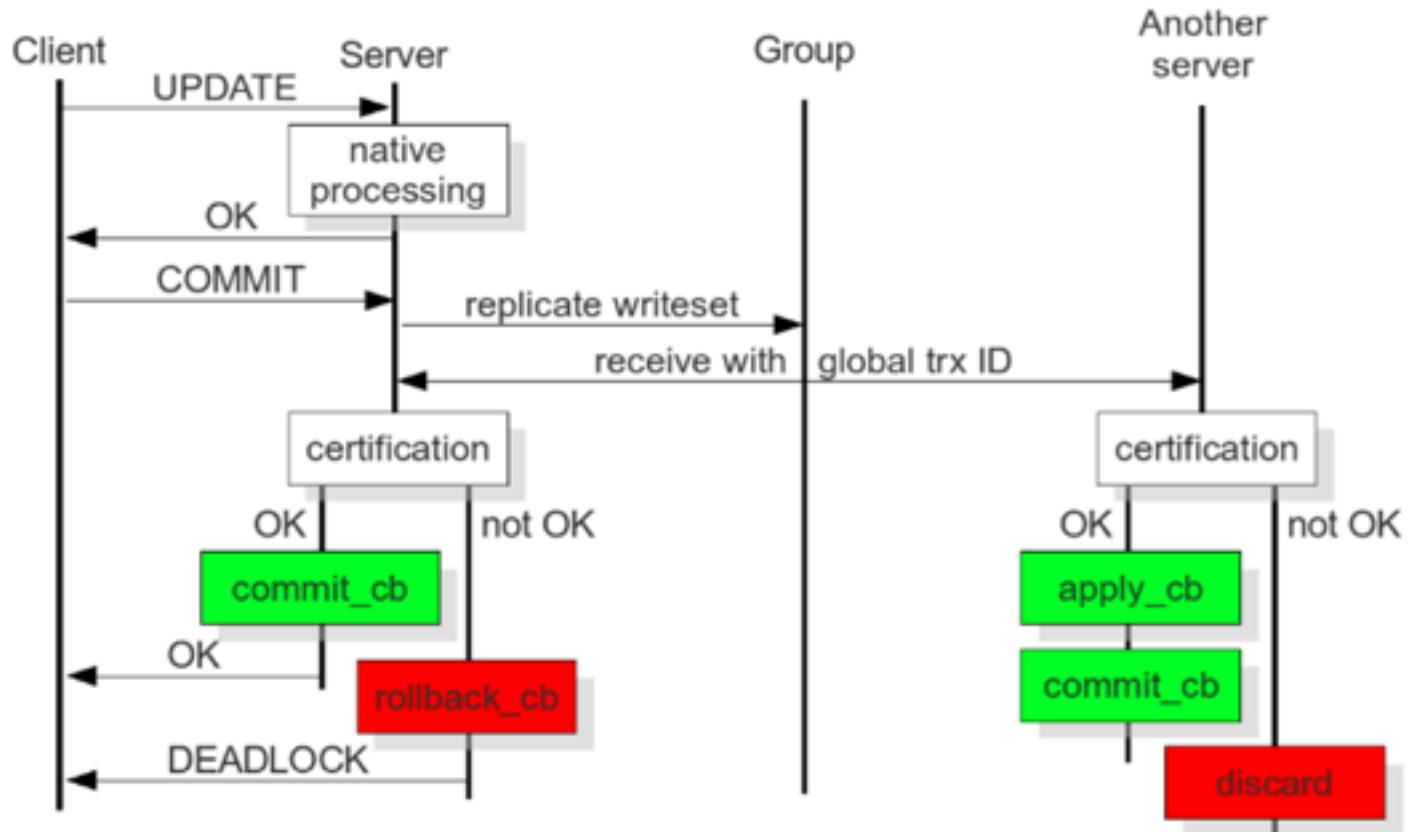
缺点

- 只监控Master
- 任意两个节点SSH互通

Galera Cluster



Galera Cluster



Galera Cluster

优点

- 同步复制，数据完全一致
- 支持多点写入
- 多个版本支持 MySQL MariaDB Percona

缺点

- 多点写入会造成性能问题
- 加入新节点时会影响集群中其它节点
- 广播writerset，大事务需谨慎

תודה

Merci 謝謝

Kiitos

ευχαριστώ

Dank u

Tack

谢谢

Thank You

Gracias

Takk

Спасибо

Asante

감사합니다

ありがとう

Mulțumesc

Obrigado

Danke

Tak

dhanayawad

Grazie

شكراً: