

MySQL 规范

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集群规范

单机规范 - 用 int unsigned 存 IP

```
mysql> select inet_aton('127.0.0.1');
+-----+
| inet_aton('127.0.0.1') |
+-----+
|          2130706433 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select inet_ntoa(2130706433);
+-----+
| inet_ntoa(2130706433) |
+-----+
| 127.0.0.1 |
+-----+
1 row in set (0.00 sec)
```

$$127 \times 256^3 + 0 \times 256^2 + 0 \times 256 + 1$$

课堂练习

1. where inet_ntoa (c) > 'ip' 跟 where c > inet_aton('ip') 是不是语义一致的?

```
mysql> create table i(ipn int unsigned);
Query OK, 0 rows affected (0.13 sec)
```

```
mysql> select inet_aton('127.0.0.2');
+-----+
| inet_aton('127.0.0.2') |
+-----+
|          2130706434 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> insert into i values(2130706434);
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from i where ipn>inet_aton('127.0.0.10');
Empty set (0.00 sec)
```

```
mysql> select * from i where inet_ntoa(ipn)>'127.0.0.10';
+-----+
| ipn |
+-----+
| 2130706434 |
+-----+
1 row in set (0.00 sec)
```

课堂练习

2. 可以用 **where between $(127 \times 256^3 + 0 \times 256^2 + 0 \times 256)$ and $(127 \times 256^3 + 0 \times 256^2 + 1 \times 256)$** 来表示 **127.0.0.*** 吗?
3. **127.0.0.2 ? 127.0.0.10**

单机规范 - timestamp 还是 datetime?

WHY

1. 表示范围
2. 微秒支持
3. 存储空间
4. 读取性能

课堂练习

time_zone 官方文档写取值范围是 '1970-01-01 00:00:01' 到 '2038-01-19 03:14:07'

为什么插入 '1970-01-01 00:00:01' 报错?

单机规范 - datetime 使用偶数的精度位

WHY

datetime(1) 和 datetime(2) 额外占用1个字节;

datetime(3) 和 datetime(4) 额外占用2个字节;

datetime(5) 和 datetime(6) 额外占用3个字节;

课堂练习

`datetime(3)='1000-01-01 00:00:01.255'`, 这个微秒的时间是怎么存储的?

2550

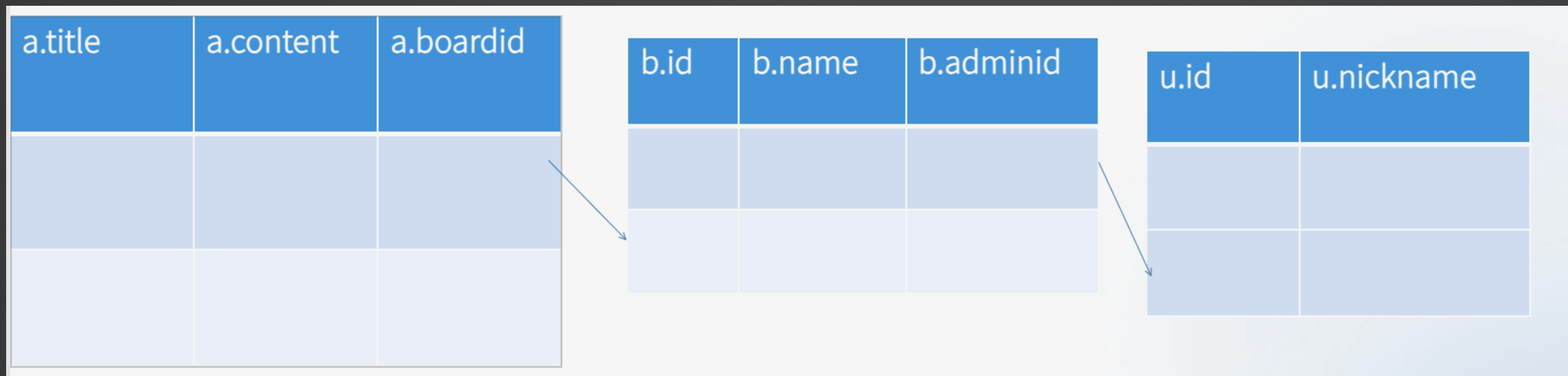
09 F6

单机规范

讨论合理性：禁止给表中的每一列都建立单独的索引

单机规范

讨论合理性：超过三个表禁止 join



单机规范：禁止直接 drop 生产表

先 rename

单机规范：禁止 `grant 'a'@%`

优先考虑使用通配符设置网段

案例：测试环境连上了生产库

单机规范：不允许直接修改 mysql.user 表

grant 命令

课堂练习：grant 命令之后，要跟上执行 flush privileges 吗？

单机规范：手动执行的 update 和 delete 语句必须带 limit

先 select，再更新

单机规范：建议总是使用 `isnull(a)` 代替 `a is null`

```
mysql> select c is null, c=null from t1 limit 4
```

c is null	c=null
0	NULL
0	NULL
0	NULL
1	NULL

4 rows in set (0.00 sec)

课堂练习：isnull(a) 和 a is null 哪个快？

```
Thread 35 "connection" hit Breakpoint 1, Item_func_isnull::val_int () at /root/dq/mysql-9.0.0/sql/item_cmpfunc.cc:6386
6386      return args[0]->is_null() ? 1 : 0;
(gdb) bt
#0  Item_func_isnull::val_int () at /root/dq/mysql-9.0.0/sql/item_cmpfunc.cc:6386
#1  Item_func_isnull::val_int () at /root/dq/mysql-9.0.0/sql/item_cmpfunc.cc:6383
#2  0x0000000011eaf5f in Item::send () at /root/dq/mysql-9.0.0/sql/item.cc:7591
#3  0x000000000ea3258 in THD::send_result_set_row () at /root/dq/mysql-9.0.0/sql/sql_class.cc:2897
#4  0x00000000013d37d6 in Query_result_send::send_data () at /root/dq/mysql-9.0.0/sql/query_result.cc:103
#5  0x0000000001009a55 in Query_expression::ExecuteIteratorQuery () at /root/dq/mysql-9.0.0/sql/sql_union.cc:1783
#6  0x0000000001009e52 in Query_expression::execute () at /root/dq/mysql-9.0.0/sql/sql_union.cc:1830
#7  0x000000000f8c7db in Sql_cmd_dml::execute_inner () at /root/dq/mysql-9.0.0/sql/sql_select.cc:1064
#8  0x000000000f97561 in Sql_cmd_dml::execute () at /root/dq/mysql-9.0.0/sql/sql_select.cc:782
#9  0x000000000f343bc in mysql_execute_command () at /root/dq/mysql-9.0.0/sql/sql_parse.cc:4669
#10 0x000000000f38024 in dispatch_sql_command () at /root/dq/mysql-9.0.0/sql/sql_parse.cc:5331
#11 0x000000000f3ab28 in dispatch_command () at /root/dq/mysql-9.0.0/sql/sql_parse.cc:2122
#12 0x000000000f3b746 in do_command () at /root/dq/mysql-9.0.0/sql/sql_parse.cc:1466
#13 0x0000000001093d38 in handle_connection () at /root/dq/mysql-9.0.0/sql/conn_handler/connection_handler_per_thread.cc:304
#14 0x0000000002894d87 in pfs_spawn_thread () at /root/dq/mysql-9.0.0/storage/perfschema/pfs.cc:3061
#15 0x00007f717801d17a in start_thread () from /lib64/libpthread.so.0
#16 0x00007f716e26adc3 in clone () from /lib64/libc.so.6
(gdb) c
```


单机规范: ipv6 用 varbinary

```
mysql> SELECT HEX(INET6_ATON('::')) AS 'all zeros';
+-----+
| all zeros |
+-----+
| 000000000000000000000000000000000000 |
+-----+
```

目录

1 单机规范

2 集群规范

集群规范：总是开 gtid

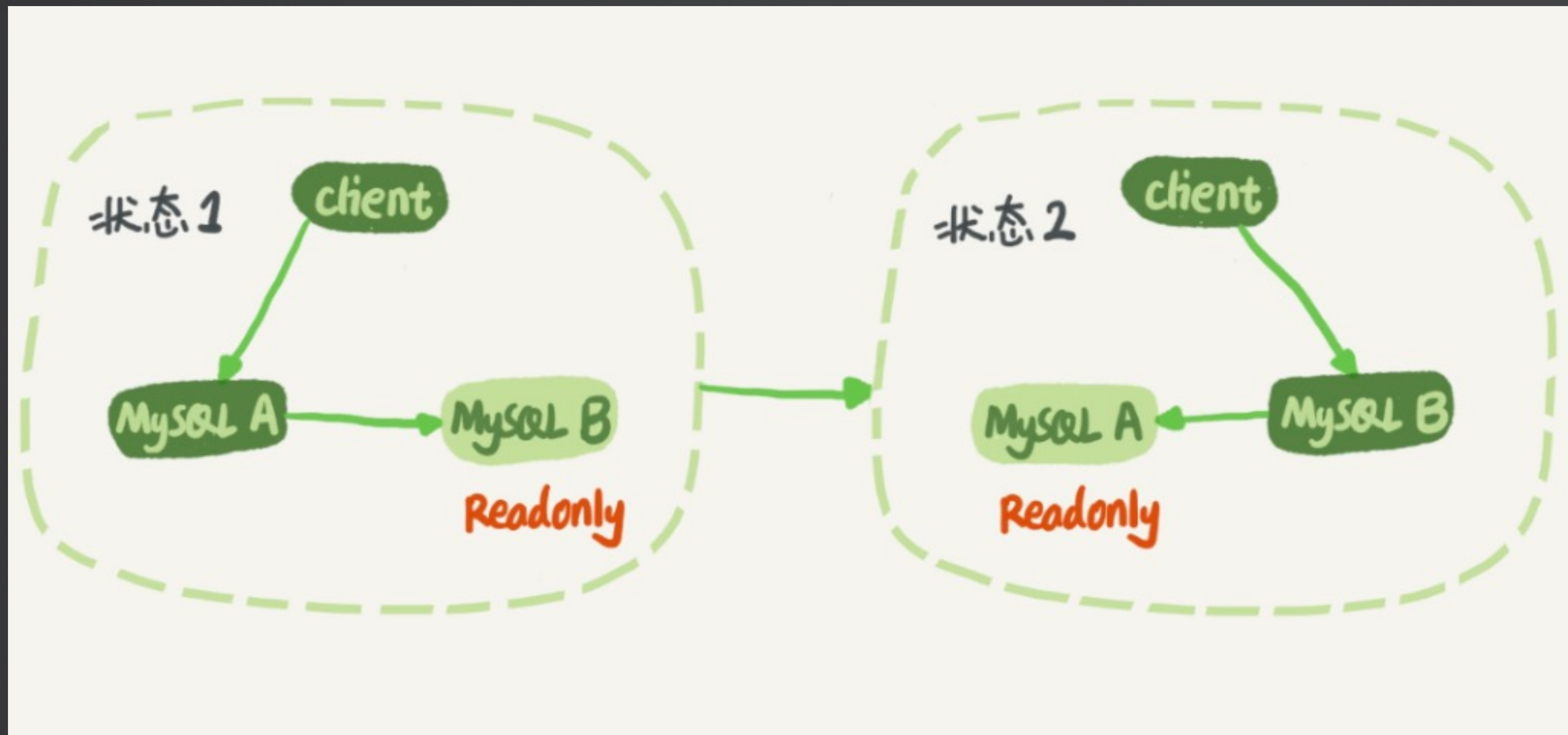
Why：切换方便

A:[1:3-10]

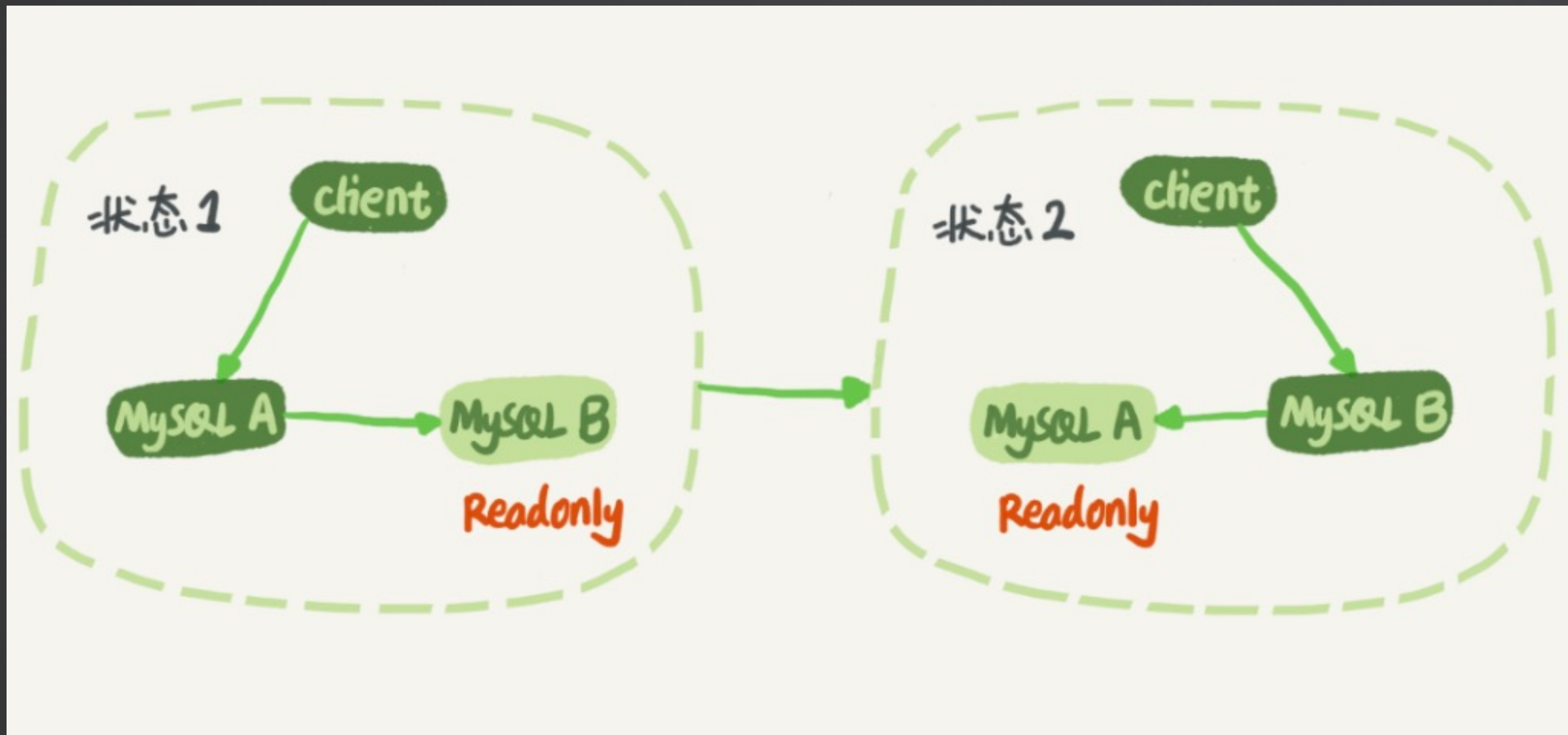
```
set gtid_next='A:2';  
begin;  
commit;
```

A:[1-10]

集群规范：备库不接查询



集群规范：HA 总是设置成可靠性优先策略



集群规范：备库修复数据时关掉 binlog

```
set sql_log_bin=off;
```

集群规范: semi-sync

1. 设置退化时间 1s

or

2. 至少 3 个节点

Q&A

THANKS