



51CTO 传媒

WOT  
2015  
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# Percona在美团的实践

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# 大纲

- Percona介绍
- Percona Server特性
- Percona Xtrabackup
- Percona Toolkit



MariaDB



PERCONA

# Percona Server特性

- User Statistics
- 响应时间
- thread pool
- 其他特性

- 一张表(索引)是否还有用？
- 哪些表访问最频繁？
- 某个用户是否还有使用？

# User Statistics

- set global userstat=on

```
admin@test10:54:55>select * from information_schema.table_statistics;
```

TABLE_SCHEMA	TABLE_NAME	ROWS_READ	ROWS_CHANGED	ROWS_CHANGED_X_INDEX
stat	innodb_status	0	394	15
stat	processlist_stat	0	28431	852
test	test	4	0	

```
3 rows in set (0.00 sec)
```

```
admin@information_schema10:56:13>select * from USER_STATISTICS\G
```

```
***** 1. row *****  
USER: monitor  
TOTAL_CONNECTIONS: 2  
CONCURRENT_CONNECTIONS: 0  
CONNECTED_TIME: 0  
BUSY_TIME: 0  
CPU_TIME: 0  
BYTES_RECEIVED: 1640  
BYTES_SENT: 0  
BINLOG_BYTES_WRITTEN: 0  
ROWS_FETCHED: 1498  
ROWS_UPDATED: 0  
TABLE_ROWS_READ: 0  
SELECT_COMMANDS: 10  
UPDATE_COMMANDS: 0  
OTHER_COMMANDS: 18  
COMMIT_TRANSACTIONS: 0  
ROLLBACK_TRANSACTIONS: 0  
DENIED_CONNECTIONS: 0  
LOST_CONNECTIONS: 0  
ACCESS_DENIED: 0  
EMPTY_QUERIES: 0  
TOTAL_SSL_CONNECTIONS: 0
```

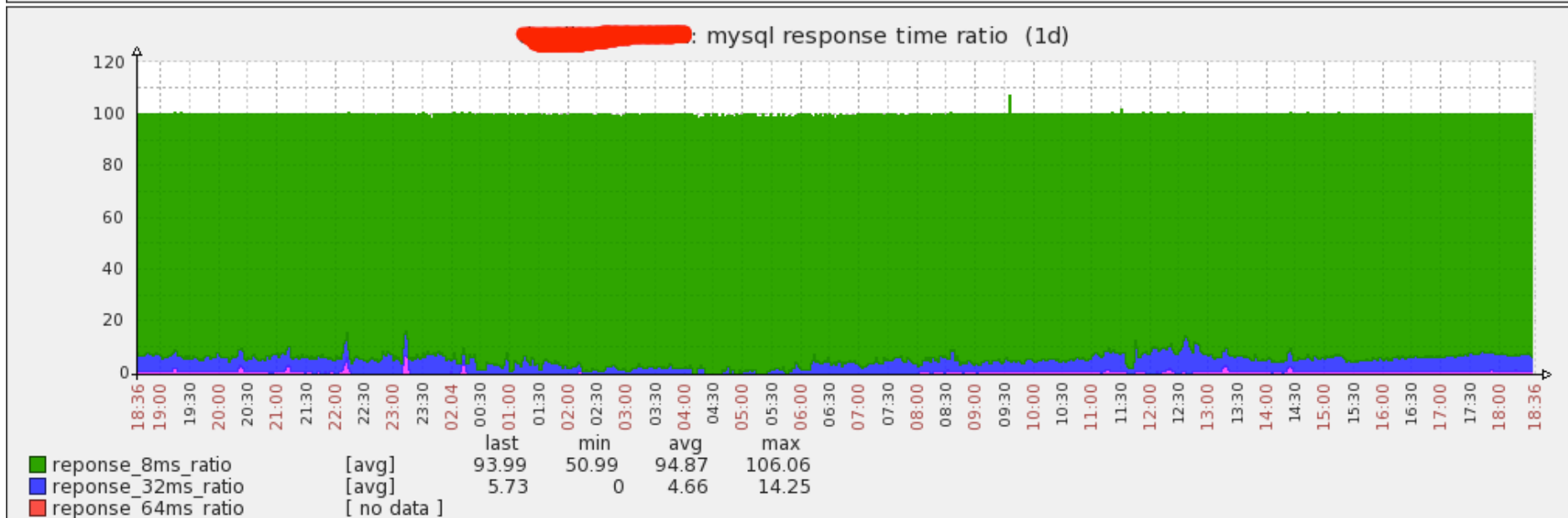
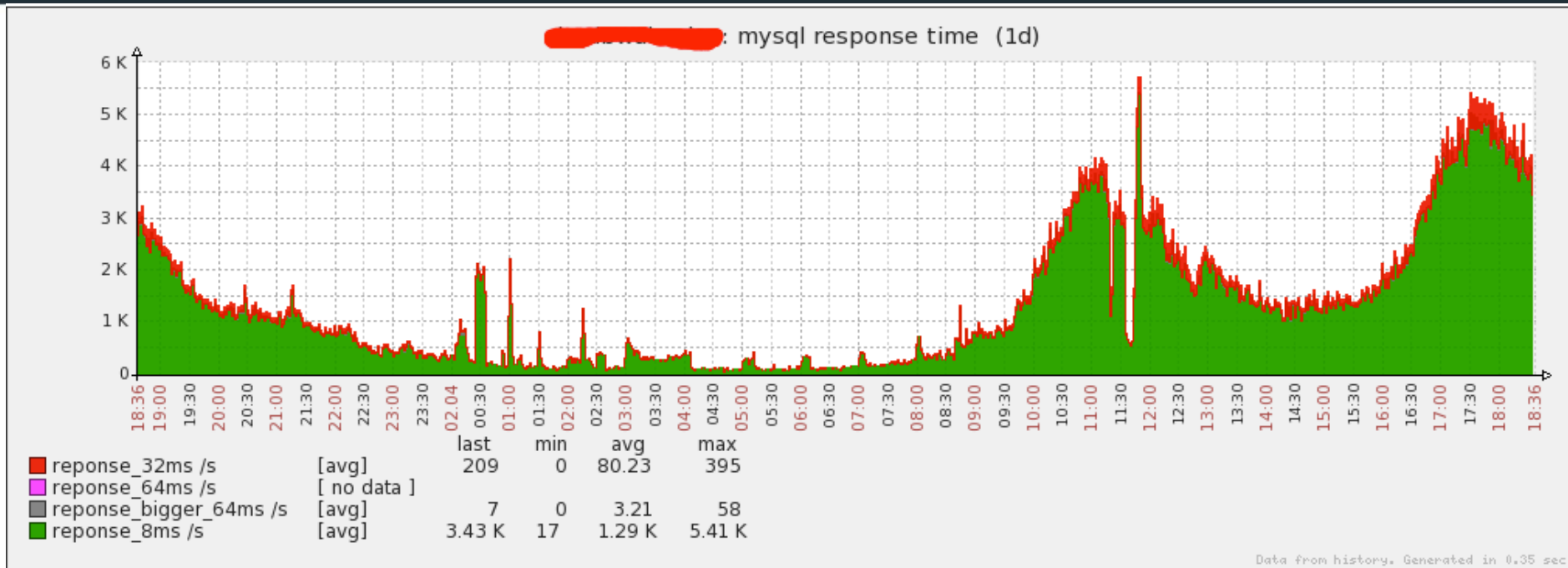
# 响应时间

- have\_response\_time\_distribution
- query\_reponse\_time\_range\_base

```
admin@(none)10:49:41>show create table information_schema.QUERY_RESPONSE_TIME\G
***** 1. row *****
      Table: QUERY_RESPONSE_TIME
Create Table: CREATE TEMPORARY TABLE `QUERY_RESPONSE_TIME` (
  `time` varchar(14) NOT NULL DEFAULT '',
  `count` int(11) unsigned NOT NULL DEFAULT '0',
  `total` varchar(14) NOT NULL DEFAULT ''
) ENGINE=MEMORY DEFAULT CHARSET=utf8
1 row in set (0.00 sec)
```

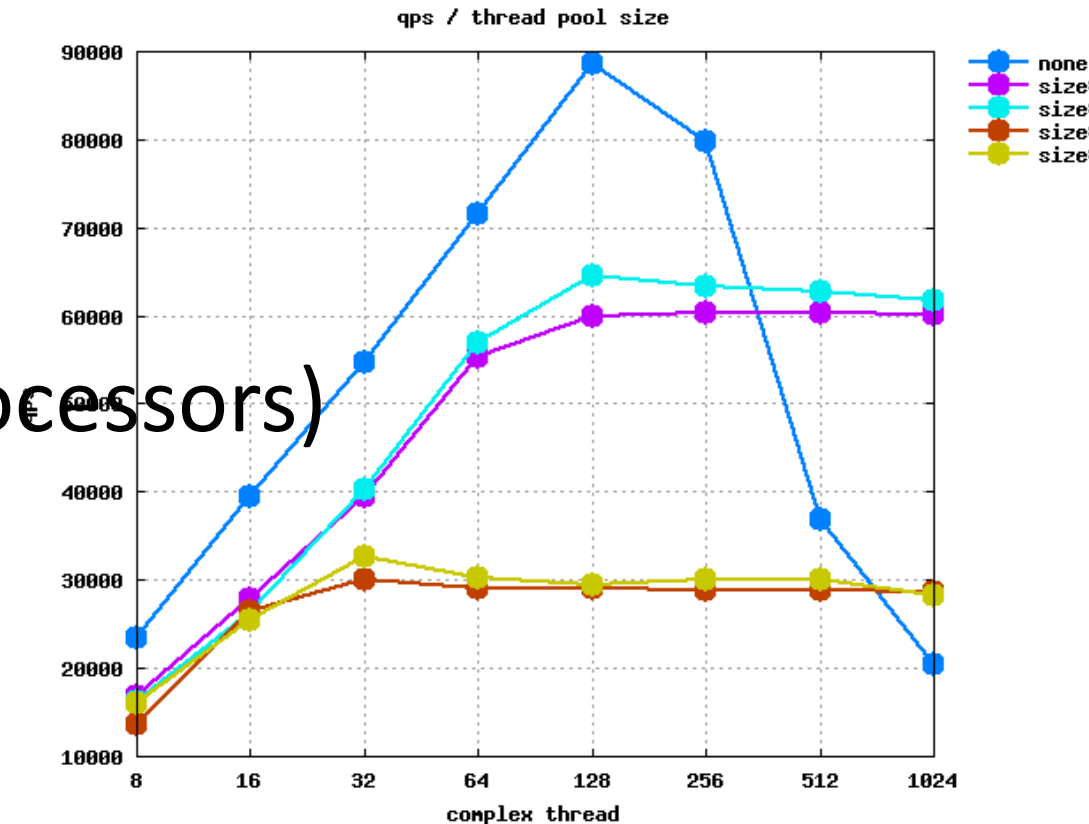
```
admin@(none)10:47:21>select * from information_schema.QUERY_RESPONSE_TIME;
+-----+-----+-----+
| time          | count      | total          |
+-----+-----+-----+
| 0.000001      | 498557158 | 0.000000      |
| 0.000003      | 4303643   | 11023.701050  |
| 0.000007      | 3875842386 | 16421.400021  |
| 0.000015      | 3657967265 | 296244.472178 |
| 0.000030      | 526275861 | 245459.637698 |
| 0.000061      | 1985148145 | 496381.094388 |
| 0.000122      | 3062087775 | 556079.585178 |
| 0.000244      | 1082833728 | 175425.627965 |
| 0.000488      | 369972452 | 146611.882997 |
| 0.000976      | 1760484744 | 1135228.300046 |
| 0.001953      | 671297496 | 933851.645281 |
| 0.003906      | 401910980 | 1123568.280042 |
| 0.007812      | 251542093 | 1339946.258012 |
| 0.015625      | 129823466 | 1427092.289263 |
| 0.031250      | 91150110  | 2018559.940620 |
| 0.062500      | 59542797  | 2594113.521262 |
| 0.125000      | 32744155  | 2831645.124770 |
```





# thread pool

- thread\_handling
  - one-thread-per-connection
  - pool-of-threads
- threa\_pool\_size (number of processors)
- thread\_pool\_stall\_limit

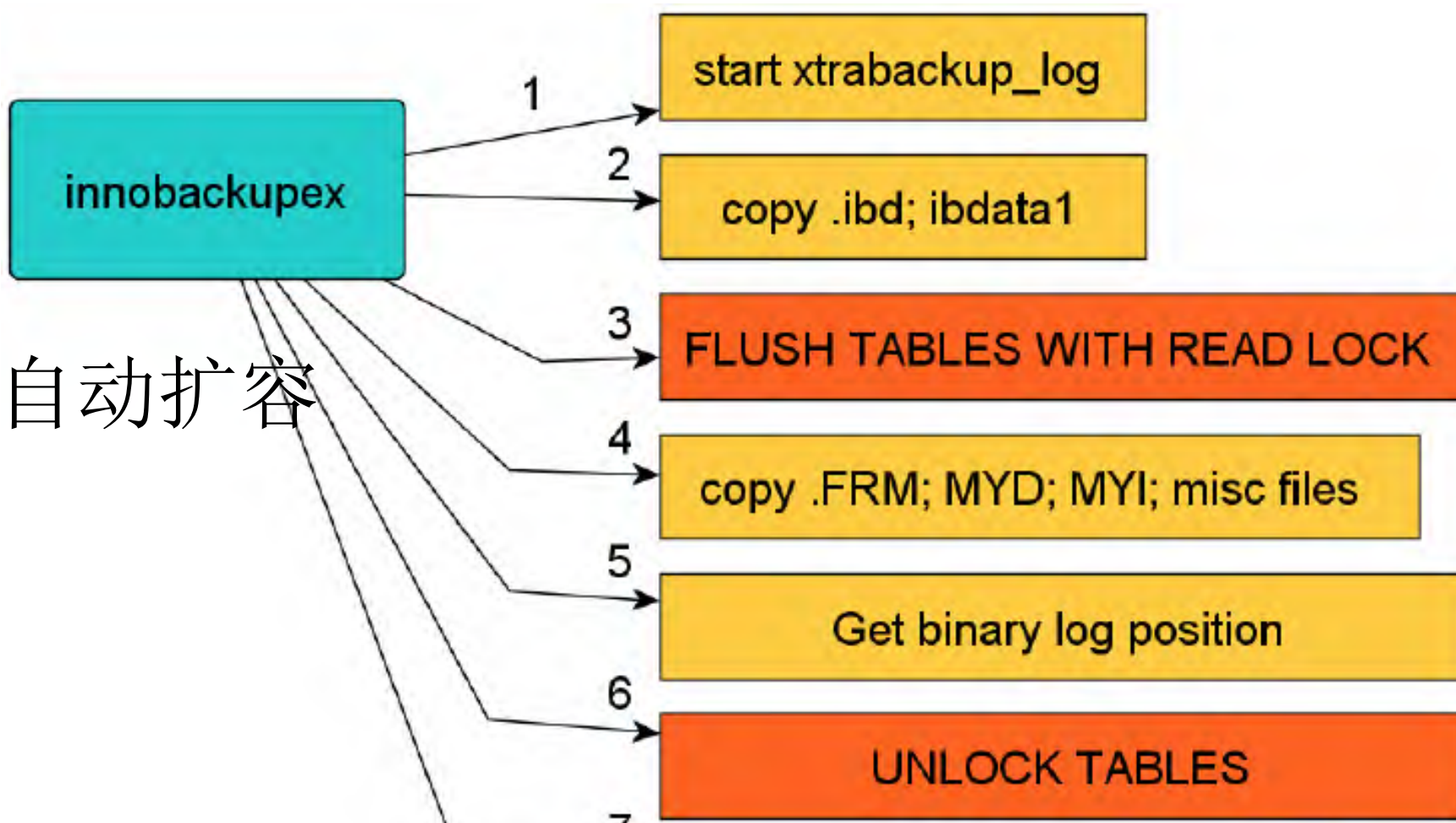


# 其他特性

- innodb\_deadlocks
- max\_binlog\_files

# Percona Xtrabackup

- 在线热备工具
- innodb
- 备份结果构建自动扩容



# Percona Toolkit

- pt-query-digest
- pt-kill
- **pt-online-schema-change**
- pt-duplicate-key-checker

# pt-query-digest

- `pt-query-digest --order-by="Bytes_sent:sum" --since="2014-12-24 17:00:00"`
- `pt-query-digest --processlist h=xxx --iterations=1 --run-time=2s`
- `tcpdump -s 65535 -x -nn -q -tttt -i any -c 50000 port 3306 > mysqltcp.txt`
- `pt-query-digest --type tcpdump mysqltcp.txt`

# pt-query-digest

- `pt-query-digest --charset=utf8 --review h=host,D=db,t=table --review-history h=host,D=db,t=table --no-report --limit=0% --filter=" \${event->Bytes} = length(\${event->arg}) and \${event->hostname}=\"\$HOSTNAME\"" --since --until mysql.slow`

From

2015-03-27 18:24:18

To

2015-03-27 18:53:31

Filter By Host

[Redacted]

Show each host as a separate series

可以选择host进行过滤

Checksum

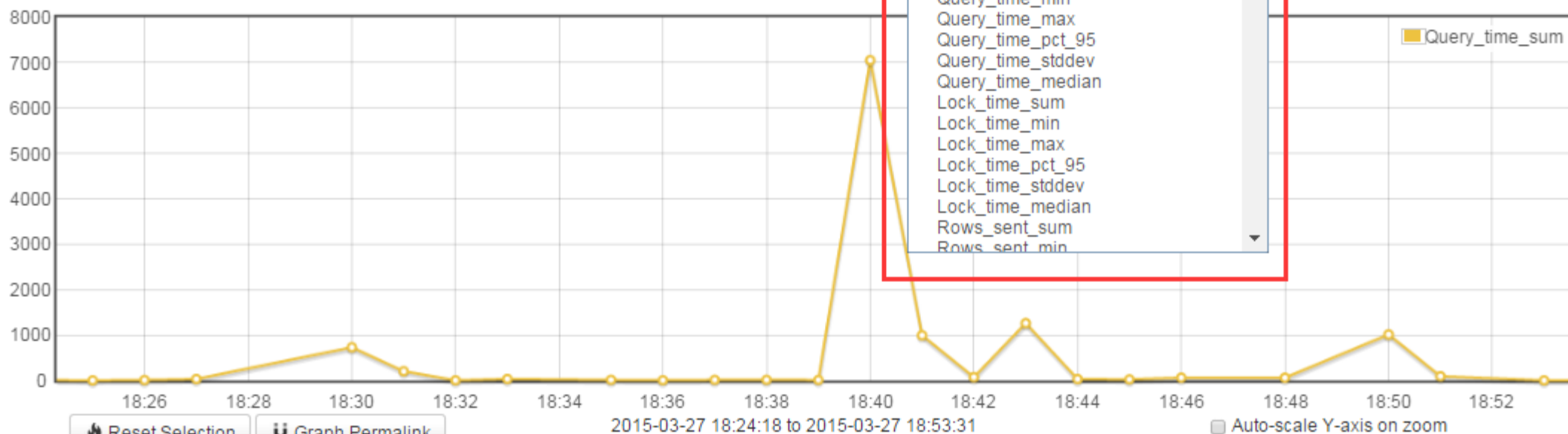
[Empty input field]

Column to plot

Query\_time\_sum

- db\_max
- checksum
- sample
- ts\_min
- ts\_max
- ts\_cnt
- Query\_time\_sum**
- Query\_time\_min
- Query\_time\_max
- Query\_time\_pct\_95
- Query\_time\_stddev
- Query\_time\_median
- Lock\_time\_sum
- Lock\_time\_min
- Lock\_time\_max
- Lock\_time\_pct\_95
- Lock\_time\_stddev
- Lock\_time\_median
- Rows\_sent\_sum
- Rows\_sent\_min

可以选择绘图属性



Show Raw SQL

Permalink

JSON

checksum	snippet	index_ratio	query_time_avg	rows_sent_avg	ts_cnt	Query_time_sum	Lock_time_sum	Rows_sent_sum	Rows_examined_sum	Tmp_table_sum	Filesort
8DAC91AEF3D127C6	SELECT * FROM [Redacted]	1.00	2.7118066433256707	3	2712	7354.419616699219	0.06118300091475248	7513	7513	0	0
E214BDC59114DC50	SELECT COUNT(*) FROM	3.13	1.7142965683391784	1	822	1409.1517791748047	0.012786999577656388	822	10791	0	0

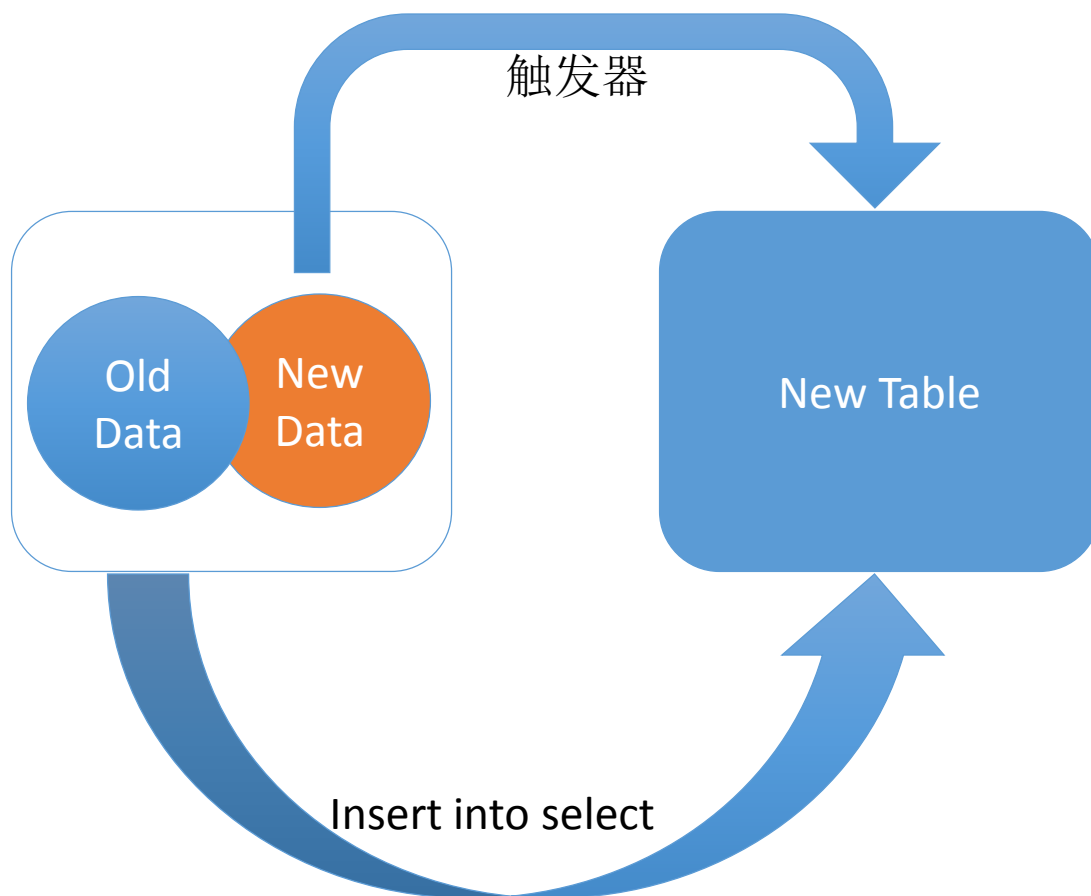


# pt-kill

- `pt-kill -hxx -p3306 --idle-time=100 --print --kill --victims all --interval 1`
- `pt-kill -hxx -p3306 --match-info="m-24983494-1405917338-437-r-1418639010" --print --kill --victims all --interval 1`

- 修改一张大表?
  - 不可写
  - Slave延迟

# pt-online-chema-change



业务组: 服务组: 数据库: 表变更操作:  创建表  更改表  删除表调度时间: 

此处可以修改调度时间，错开业务高峰期

## Alter SQL语句:

```
1 Press Shift+Space to activate code completion.
```

```
pt-online-schema-change --charset="utf8" ${check_slave_option} --drop-old-table \  
--check-replication-filters --check-interval=5 --max-lag=1 --chunk-time=0.5 --print \  
--critical-load="Threads_connected:1500,Threads_running:1000" --max-load="Threads_connected:1300,Threads_\  
running:1000" --set-vars "lock_wait_timeout=30" \  
--alter="$alter_sql" --tries create_triggers:1:1,drop_triggers:3:1,swap_tables:3:1 \  
--execute --print h=$host,D=$db,t=$table,P=5002,A=utf8,u=,p=
```

# 遇到的问题

- `--set-vars "lock_wait_timeout=30"`
- 长事务导致create trigger/drop trigger/rename table等待metadatalock阻塞其他正常访问

# pt-duplicate-key-checker

- show create table
- 最左前缀
- 定期执行邮件

```
# userid is a left-prefix of ug
# Key definitions:
#   KEY `userid` (`userid`)
#   UNIQUE KEY `ug` (`userid`,`groupid`),
# Column types:
#   `userid` int(10) unsigned default null
#   `groupid` smallint(5) unsigned not null de
# To remove this duplicate index, execute:
ALTER TABLE `meituanoa`.`aclshowgroup` DROP INDEX `u
```

谢谢大家