



Industrial-Strength MySQL Applications using Percona and Continuent

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Technical Webinar
Nov 28, 2012

The Background

- Percona Started in 2006
 - Goal of Making Businesses successful with MySQL
- Started with “Consulting” Services
- Many problems in the field required better software for optimal solution
 - Engaged in Developing our own Software

Percona Software

- Created to resolve real application challenges
- Ready for Most Demanding Enterprise Applications
- Compatible
- Open Source

Percona Server

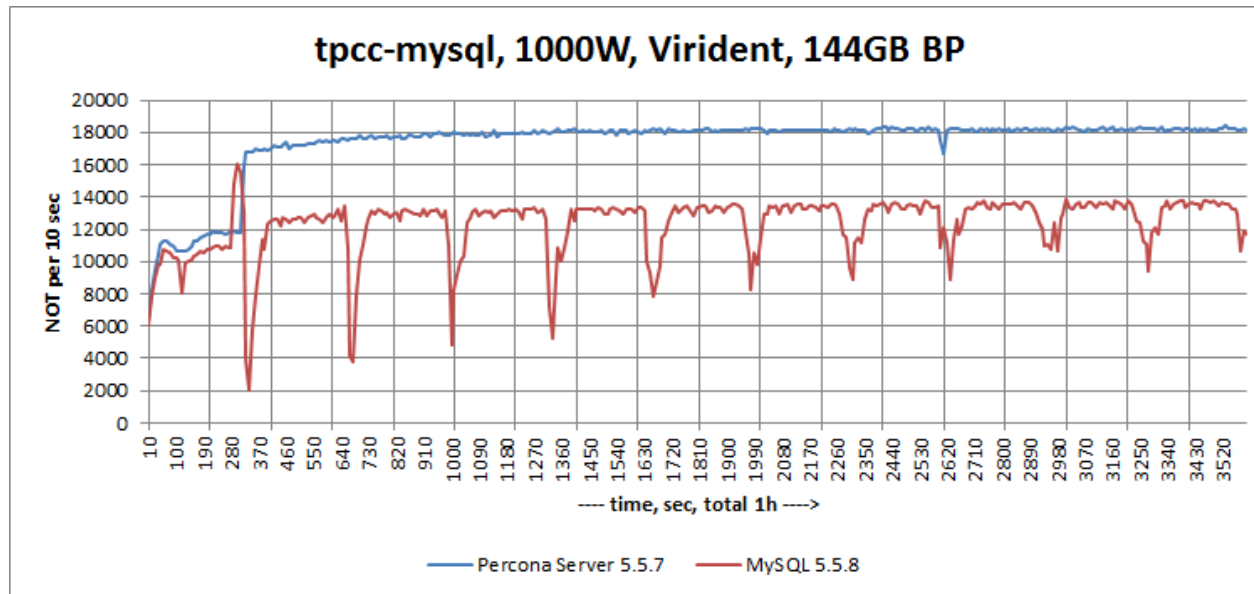
- Drop in Replacement for MySQL
- Helps to achieve better performance and reliability
- Agile **Support** with quick resolution of bugs and problems

Performance

- Generally better or equal performance compared to MySQL Server
 - Focus on SSD, Many cores
- Stable Performance
 - Reduced “stalls” and “dips”
- Ability to achieve better performance
 - Flexible configuration
 - Transparency
 - Special Features

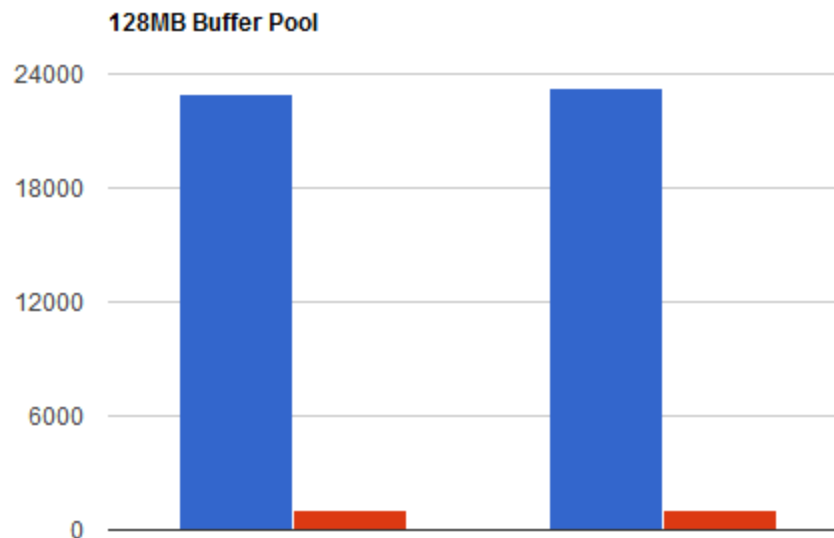
Performance & Stability

- Percona Server shows better and more stable Performance



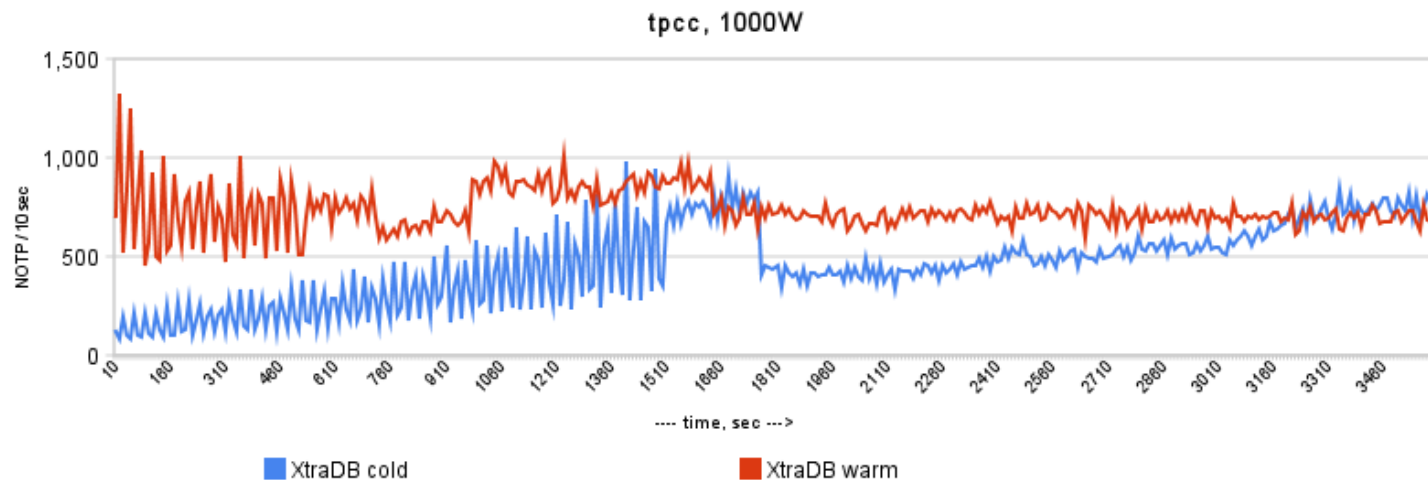
Changing the Structure

- Adding column on large database
 - ALTER TABLE execution time
 - Red – **expand_fast_index_creation=1**



Fast Warmup

- **innodb_buffer_pool_restore_at_startup**
 - Set to 300 or so (time in seconds)
- **innodb_blocking_buffer_pool_restore**
 - Do not accept connections until warmup



TABLE_STATISTICS

See most actively used tables

```
mysql> select * from table_statistics order by rows_read desc limit 10;
```

TABLE_SCHEMA	TABLE_NAME	ROWS_READ	ROWS_CHANGED	ROWS_CHANGED_X_INDEXES
sbtest	sbtest	41669929	497197	1988788
ctacti	poller_time	3192	8	8
ctacti	poller_item	1128	376	2256
ctacti	data_template_rrd	743	0	0
ctacti	data_input_fields	743	0	0
ctacti	poller_output	380	376	376
ctacti	host	40	8	16
ctacti	settings	36	20	20
ctacti	poller_reindex	24	12	24
mysql	user	7	0	0

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

Slow Query Log Details

- Percona Server Level of Details

```
# Time: 111229 3:11:26
# User@Host: msandbox[msandbox] @ localhost []
# Thread_id: 1 Schema: test Last_errno: 0 Killed: 0
# Query_time: 0.117904 Lock_time: 0.002886 Rows_sent: 1 Rows_examined: 655360
Rows_affected: 0 Rows_read: 655361
# Bytes_sent: 68 Tmp_tables: 0 Tmp_disk_tables: 0 Tmp_table_sizes: 0
# InnoDB_trx_id: F00
# QC_Hit: No Full_scan: Yes Full_join: No Tmp_table: No Tmp_table_on_disk: No
# Filesort: No Filesort_on_disk: No Merge_passes: 0
# InnoDB_IO_r_ops: 984 InnoDB_IO_r_bytes: 16121856 InnoDB_IO_r_wait: 0.001414
# InnoDB_rec_lock_wait: 0.000000 InnoDB_queue_wait: 0.000000
# InnoDB_pages_distinct: 973
SET timestamp=1325146286;
select count(*) from auto_inc;
```

Profile with pt-query-digest

```
# Profile
# Rank Query ID           Response time Calls R/Call  Apdx V/M    Item
# =====
# 1 0x92F3B1B361FB0E5B    4.0522 50.0%    312 0.0130 1.00 0.00 SELECT wp_options
# 2 0xE71D28F50D128F0F    0.8312 10.3%    6412 0.0001 1.00 0.00 SELECT poller_output poller
# 3 0x211901BF2E1C351E    0.6811 8.4%     6416 0.0001 1.00 0.00 SELECT poller_time
# 4 0xA766EE8F7AB39063    0.2805 3.5%     149 0.0019 1.00 0.00 SELECT wp_terms wp_term_taxo
# 5 0xA3EEB63EFBA42E9B    0.1999 2.5%     51 0.0039 1.00 0.00 SELECT UNION wp_pp_daily_sum
# 6 0x94350EA2AB8AAC34    0.1956 2.4%     89 0.0022 1.00 0.01 UPDATE wp_options
# 7 0x7AEDF19FDD3A33F1    0.1381 1.7%    909 0.0002 1.00 0.00 SELECT wp_options
# 8 0x4C16888631FD8EDB    0.1160 1.4%     5 0.0232 1.00 0.00 SELECT film
# 9 0xCFC0642B5BBD9AC7    0.0987 1.2%     50 0.0020 1.00 0.01 SELECT UNION wp_pp_daily_su
# 10 0x88BA308B9C0EB583   0.0905 1.1%     4 0.0226 1.00 0.01 SELECT poller_item
```

Percona Xtrabackup

- Backup and Restore for your database
 - InnoDB tables are focus
 - Physical Level backup
 - Minimal impact possible
 - Backup from Master or Slave
 - Support for large databases
 - Incremental Backup, Parallel, Compression
 - No special storage configuration required

High Availability

- Increased importance as MySQL is used for high value Enterprise Applications
- Impact of the Cloud
 - More MySQL Instances
 - More Failures
 - High Demands for Automation and Ease of Use

MySQL Replication

- Mature and proven technology
- Comes with number of limitations
 - Serialized execution
 - Limited filtering and modification features
 - Hard to use Slaves Effectively
 - Hard to Manage Failover
- Continuent Tungsten resolves these problems and more