Stay ahead of operational problems with Percona Toolkit

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What is Percona Toolkit

- Collection of command-line tools for a wide range of MySQL dba tasks
- Works with MySQL 5.0+, MariaDB, Percona Server, Percona XtraDB Cluster
- 7 years mature, thousands of tests, 20 testing environments, 1 full-time developer
- Free, Open source

Installation of Percona Toolkit

- Rpm and deb packages are available:
  http://www.percona.com/downloads/percona-toolkit/
- Or you can use a tarball
  wget percona.com/get/percona-toolkit.tar.gz
  Extract, then make, make install
- Or, if you only need a specific tool
  wget percona.com/get/TOOL

Percona Nagios Plugins

- Group of scripts created by MySQL experts
- With good documentation,
- Support for the newest versions of MySQL and InnoDB
- Great integration with other Percona software, such as Percona Server and Percona Toolkit.

Installation of PMP

- Rpm and deb packages are available: http://www.percona.com/downloads/percona-monitoring-plugins/
- Or install the package from Percona Software Repositories:

  yum install percona-nagios-plugins

  or:

  apt-get install percona-nagios-plugins

Percona Toolkit

PT-STALK

PT-STALK

Collect vital data for postmortem analysis

Also super useful if you get to execute it while the problem is ongoing !

Benefits:

- Never sleeps, so you can
- Collects a LOT of data
- Could be pretty helpful if you want to monitor and be alerted without nagios/zabbix/etc in the middle.

PT-STALK

```
$ sudo pt-stalk --no-stalk --iterations=2 --sleep=30 --dest=/var/lib/ptstalk/
\--user=root --pass=XXXX
```

```
$ ls /var/lib/ptstalk/
2014_12_23_10_34_08-df                2014_12_23_10_34_08-meminfo          2014_12_23_10_34_08-procstat
2014_12_23_10_34_08-disk-space        2014_12_23_10_34_08-mpstat           2014_12_23_10_34_08-procvmstat
2014_12_23_10_34_08-diskstats         2014_12_23_10_34_08-mpstat-overall   2014_12_23_10_34_08-ps
2014_12_23_10_34_08-innodbstatus1     2014_12_23_10_34_08-mutex-status1    2014_12_23_10_34_08-slabinfo
2014_12_23_10_34_08-innodbstatus2     2014_12_23_10_34_08-mysqladmin       2014_12_23_10_34_08-sysctl
2014_12_23_10_34_08-interrupts        2014_12_23_10_34_08-netstat          2014_12_23_10_34_08-top
2014_12_23_10_34_08-iostat            2014_12_23_10_34_08-netstat_s        2014_12_23_10_34_08-transactions
2014_12_23_10_34_08-iostat-overall    2014_12_23_10_34_08-opentables1      2014_12_23_10_34_08-trigger
2014_12_23_10_34_08-lock-waits        2014_12_23_10_34_08-output           2014_12_23_10_34_08-variables
2014_12_23_10_34_08-log_error         2014_12_23_10_34_08-pmap             2014_12_23_10_34_08-vmstat
2014_12_23_10_34_08-lsof              2014_12_23_10_34_08-processlist      2014_12_23_10_34_08-vmstat-overall
```

Percona Toolkit

PT-QUERY-DIGEST

pt-query-digest

“Analyze MySQL queries from logs, processlist, and tcpdump”

Benefits:

- #1 performance optimization task: find and fix slow queries
- Track and review queries
- Quick way to collect info

pt-query-digest

```
$ pt-query-digest /tmp/sloq-query.log
```

```
# Profile
# Rank Query ID           Response time  Calls  R/Call V/M   Item
# ==== ================== ============== ====== ====== ===== ==============
#    1 0xFF43C6790931BA81 104.2937 15.0%    685 0.1523  0.31 SELECT XXX XXX XXX
#    2 0xFF5BF320FC6CA143  93.5010 13.4%   1920 0.0487  0.37 SELECT XXX XXX XXX
#    3 0xBFBE225E0E18958F  43.0439  6.2%    175 0.2460  0.66 SELECT XXX XXX XXX
#    4 0x83ED89FBC749C577  24.5820  3.5%    530 0.0464  0.49 SELECT XXX XXX XXX
#    5 0xE45D53D3526B4A6A  22.6697  3.3%    532 0.0426  0.13 SELECT XXX XXX XXX
#    6 0x2E6DA6A488025AAB  20.6517  3.0%  61130 0.0003  0.02 SELECT XXX XXX XXX
#    7 0x16219655761820A2  16.4795  2.4% 631446 0.0000  0.00 SELECT XXX XXX XXX
#    8 0x2E34F4E378FF2DF3  16.0392  2.3%    529 0.0303  0.19 SELECT XXX XXX XXX
#    9 0x86265663E8B8027C  14.3748  2.1%     15 0.9583  0.34 SELECT XXX XXX XXX
#   10 0xD4C2013CD524CD5B  13.8846  2.0%    259 0.0536  0.29 SELECT XXX XXX XXX

(...)

# Query_time distribution
#   1us
#  10us  ######
# 100us  ##################################
#   1ms  ####################
#  10ms  ##################################################
# 100ms  ###################################################################
#    1s  #
#  10s+
```

Percona Toolkit

PT-TABLE-CHECKSUM

pt-table-checksum

“Verify MySQL replication integrity”

In plain words: Find slaves with incorrect data

Benefits:

- Important knowledge for very little effort
- Knowing a problem exists is the first step towards fixing it

pt-table-checksum

Replication does not check data consistency!

On slaves, it tries to run queries registered in the binlogs of the master

If the queries are successful, SHOW SLAVE STATUS will tell you everything is ok

pt-table-checksum

What can go wrong?

- Writing on a slave instead of the master
- Skipping replication events
- Replication filters
- Writing to the master skipping binlog
- Nondeterministic writes

pt-table-checksum

Current Network Status
Last Updated: Wed Feb 4 19:25:41 CET 2015
Updated every 90 seconds
Nagios® Core™ 4.0.8 - www.nagios.org
Logged in as *nagiosadmin*

View History For This Host
View Notifications For This Host
View Service Status Detail For All Hosts

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0

All Problems	All Types
0	1

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
4	0	0	1	0

All Problems	All Types
1	5

Service Status Details For Host 'localhost'

Limit Results: 100

Host	Service	Status	Last Check	Duration	Attempt	Status Information
localhost	Checksum tables	CRITICAL	02-04-2015 19:25:40	0d 0h 0m 20s	4/4	CRIT pt-table-checksum found 1 chunks differ in 1 tables, including sakila.actor
	Current Load	OK	02-04-2015 19:25:39	1d 23h 47m 40s	1/4	OK - load average: 0.04, 0.08, 0.08
	Deadlocks	OK	02-04-2015 19:25:40	0d 0h 5m 42s	1/4	OK 0 deadlocks in last 2 minutes
	Slave Delay	OK	02-04-2015 19:25:40	0d 0h 11m 26s	1/4	OK 0 seconds of replication delay
	Slave Running	OK	02-04-2015 19:25:40	0d 0h 11m 26s	1/4	OK Slave_IO_Running: Yes Slave_SQL_Running: Yes Last_Error:

Questions?

- ???
- *If there's no time, we can answer questions via email*

Percona Toolkit

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"*Advanced database operations simplified with Percona Toolkit*"

- Matt Griffin & Vinoth Kanna, April 16 @ 3PM (50min)