

Percona Toolkit

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August 24, 2012

Outline

Introduction

Utility

Unix-related

Do things

Learn things

Record things

Replication-related

Query-related

Troubleshooting

About us

- Marcos Albe, Support Engineer @ Percona
- Fernando Ipar, Senior Consultant @ Percona

About this tutorial

- We'll review all the tools in the kit
- Won't be in depth
- Some live demos if possible
- More in our talk tomorrow

pt-find

- Find tables and take actions
- Like the unix 'find' command
- Works from SHOW TABLES and if needed SHOW TABLE STATUS

```
pt-find --mtime +30 --engine Innodb \  
--exec "ALTER TABLE %D.%N ENGINE=MyISAM"
```

pt-kill

- Watch SHOW PROCESSLIST
- Select processes, or groups of processes
- Apply filters
- Take a specified action

```
pt-kill --busy-time 60 --kill --interval 30
```

pt-tcp-model

- Analyses tcpdump data
- Designed to help scalability and performance analysis

pt-fifo-split

- Reads lines from a file
- Prints them to a FIFO
- EOF every N lines
- Useful for loading large files into MySQL

pt-ioprofile

- Dangerous tool!
- Attaches strace to a process
- Captures I/O-related system calls
- Generates a profile of I/O activity

- Dangerous tool!
- Attaches gdb to a process
- Prints out stack traces
- Aggregates them
- Useful for bottleneck analysis
- Inspired by <http://poormansprofiler.org/>

pt-align

- Aligns sloppy output
- For example: vmstat, iostat

pt-archiver

- Retrieve rows from a table
- Write them to another table, or file
- Delete them from the first table
- Many safety checks and features
- Extensible via plugins

pt-log-player

- For load simulation
- Splits a query log into several
- Replays them multi-threadedly
- Probably obsoleted by Percona Playback
- pt-query-digest --execute is another alternative

pt-online-schema-change

- Perform ALTER without locking
- Creates a new table
- Copies rows to it
- Uses triggers to track updates to original table
- Swaps original/new table
- Many safety/sanity features

pt-summary

- Report on system config
- Goals: diff-able, email-able
- Easily extensible

pt-mysql-summary

- Like pt-summary, but for MySQL

pt-config-diff

- Compare two servers
- Compare a server to its my.cnf

pt-variable-advisor

- “Best practices” analysis of configuration
- Works from SHOW VARIABLES

pt-duplicate-key-checker

- Analyze indexes and foreign keys
- Find duplicate/redundant
- Print SQL that can remove them

- Format SHOW STATUS samples
- Make it easier to see what's changing

pt-deadlock-logger

- Keep track of how often deadlocks happen
- Analyze which tables and indexes are involved

pt-fk-error-logger

- Ditto, but for foreign keys instead

pt-show-grants

- Print GRANT statements for all users

pt-diskstats

- A replacement for iostat -dx

pt-heartbeat

- Measure replication delay accurately
- Place “quasi-global transaction IDs” into binlogs
- Ease recovery on large and complex topologies

pt-slave-delay

- Intentionally delay replication
- Works by starting and stopping slave SQL thread

pt-slave-find

- Automatically discover all servers in a replication relationship
- Print a summary of their status and configuration

pt-slave-restart

- Restart replication when it fails
- Please use with care!
 - Skipping errors is not good practice
 - Useful in dire circumstances

pt-table-checksum

- Determine whether replicas have logically the same data as master
- Come to our presentation tomorrow

pt-table-sync

- Repair (online!) an out-of-sync replica
- Use with care! It does change data
- Also possible to do multi-server sync with conflict detection, etc

pt-query-advisor

- Analyze a query and point out problems with the SQL
- Analyze an entire log file
- See also tools.percona.com GUI interface

pt-index-usage

- Make a catalog of tables and indexes
- Analyze a log of queries
- Report on indexes that are unused, queries that have several execution plans, etc

pt-query-digest

- Retrieve queries from some source
- Pass them through a “pipeline” of filters/transforms
- Aggregate them and generate a report
- Do lots of other nifty/crazy things

pt-visual-explain

- Analyze EXPLAIN and generate a tree-formatted view
- “Reverse engineer” the execution plan

pt-upgrade

- Execute a log of queries on two servers and compare
- Highlight resultset changes, execution time changes, errors, etc

pt-trend

- Obsolete tool, likely to be removed
- Slices a query log and reports aggregate stats from segments of it

pt-fingerprint

- Converts queries into fingerprints

pt-table-usage

- Analyze how queries use tables

- Essential tool for diagnosing things
- Many customers run it 24x7 to catch unforeseen problems
- Watches the server and collects information when there is a problem

- Important for helping analyze pt-stalk's collected data
- Not complete; just a helper script!
- Useful for analyzing a lot of collected samples
- See <https://github.com/box/RainGauge> too!