Sysbench

Concurrent Programming

Introduction

- What is the Sysbench?
- Installing Sysbench
- How to use? (OLTP benchmark)

What is Sysbench?

- Modular, cross-platform and multi-threaded **benchmark tool** for evaluating OS parameters that are important for a system running a database under intensive load

- Quickly get an impression about system performance without setting up complex database benchmarks or even without installing a database at all.

What is Sysbench?

- Testable system parameters
  - file I/O performance
  - scheduler performance
  - memory allocation and transfer speed
  - POSIX threads implementation performance
  - **database server performance**

Installing Sysbench

```
$ sudo apt-get install sysbench
$ sysbench
```

How to use? (OLTP benchmark)

```
Usage:
  sysbench [general-options]... --test=<test-name> [test-options]... command

General options:
  --num-threads=N             number of threads to use [1]
  --max-requests=N            limit for total number of requests [10000]
  --max-time=N                limit for total execution time in seconds [0]
  --forced-shutdown=STRING    amount of time to wait after --max-time before forcing shutdown [off]
  --thread-stack-size=SIZE    size of stack per thread [32K]
  --init-rng=[on|off]         initialize random number generator [off]
  --test=STRING               test to run
  --debug=[on|off]            print more debugging info [off]
  --validate=[on|off]         perform validation checks where possible [off]
  --help=[on|off]             print help and exit
  --version=[on|off]          print version and exit

Compiled-in tests:
  fileio - File I/O test
  cpu - CPU performance test
  memory - Memory functions speed test
  threads - Threads subsystem performance test
  mutex - Mutex performance test
  oltp - OLTP test

Commands: prepare run cleanup help version

See 'sysbench --test=<name> help' for a list of options for each test.
```

How to use? (OLTP benchmark)

```
$ sysbench --test=oltp help
```

```
sysbench 0.4.12:  multi-threaded system evaluation benchmark

oltp options:
  --oltp-test-mode=STRING         test type to use {simple,complex,nontrx,sp} [c
omplex]
  --oltp-reconnect-mode=STRING    reconnect mode {session,transaction,query,rand
om} [session]
  --oltp-sp-name=STRING           name of store procedure to call in SP test mod
e []
  --oltp-read-only=[on|off]       generate only 'read' queries (do not modify da
tabase) [off]
  --oltp-skip-trx=[on|off]        skip BEGIN/COMMIT statements [off]
  --oltp-range-size=N             range size for range queries [100]
```

…

```
mysql options:
  --mysql-host=[LIST,...]       MySQL server host [localhost]
  --mysql-port=N                MySQL server port [3306]
  --mysql-socket=STRING         MySQL socket
  --mysql-user=STRING           MySQL user [sbtest]
  --mysql-password=STRING       MySQL password []
  --mysql-db=STRING             MySQL database name [sbtest]
```

…

How to use? (OLTP benchmark)

- Before running OLTP test, you should create a test database
  - default: “sbtest”
- MariaDB server should be running

```
$ cd project3/mariadb/run/bin
$ ./mysqladmin -uroot create sbtest
```

How to use? (OLTP benchmark)

- Prepare a database table on which queries will be executed on
- MariaDB server should be running

```
$ sysbench --num-threads=10 --test=oltp --oltp-table-size=100000 --mysql-
host=localhost --mysql-user=root --mysql-
socket=/your_project4_path/mariadb/run/mariadb.sock prepare
```

How to use? (OLTP benchmark)

- Execute queries to get profiling data

```
$ sysbench --num-threads=10 --test=oltp --oltp-table-size=100000 --mysql-
host=localhost --mysql-user=root --mysql-
socket=/your_project4_path/mariadb/run/mariadb.sock run
```

How to use? (OLTP benchmark)

```
OLTP test statistics:
    queries performed:
        read:                            140014
        write:                           50005
        other:                           20002
        total:                           210021
    transactions:                        10001  (1169.56 per sec.)
    deadlocks:                           0      (0.00 per sec.)
    read/write requests:                 190019 (22221.57 per sec.)
    other operations:                    20002  (2339.11 per sec.)

Test execution summary:
    total time:                          8.5511s
    total number of events:              10001
    total time taken by event execution: 85.4132
    per-request statistics:
         min:                                  4.19ms
         avg:                                  8.54ms
         max:                                 33.12ms
         approx.  95 percentile:              12.25ms

Threads fairness:
    events (avg/stddev):           1000.1000/3.65
    execution time (avg/stddev):   8.5413/0.00
```

How to use? (OLTP benchmark)

- Drop and recreate a test database(sbtest) before changing sysbench parameters associated with test data

```
$ ./mysqladmin -uroot drop sbtest
$ ./mysqladmin -uroot create sbtest
$ sysbench --num-threads=10 --test=oltp --oltp-table-size=250000 --mysql-
host=localhost --mysql-user=root --mysql-
socket=/your_project4_path/mariadb/run/mariadb.sock prepare
```

Thank You