

TokutekTM

iiBench Contest
24 Nov 2008

Challenge

**Insert 1B Rows into MySQL
Who can do it the fastest?**

Winner gets a \$100 Starbucks Card!

iiBench - Overview

Existing benchmarks don't test indexed insertions

- TPC-H: Bulk Load
- SSB: Bulk Load
- sysbench: in-memory databases

iiBench - “Indexed Insertion Benchmark”

- A simple test focused on indexed insertions
- Open Source - GPLv3

Download at:

- <http://tokutek.com/contest.php>

iiBench - Schema

```
CREATE TABLE `mypurchases` (  
  `transactionid` int(11) NOT NULL AUTO_INCREMENT,  
  `dateandtime` datetime DEFAULT NULL,  
  `cashregisterid` int(11) NOT NULL,  
  `customerid` int(11) NOT NULL,  
  `productid` int(11) NOT NULL,  
  `price` float NOT NULL,  
  PRIMARY KEY (`transactionid`),  
  KEY `marketsegment` (`price`, `customerid`),  
  KEY `registersegment`  
  (`cashregisterid`, `price`, `customerid`),  
  
  KEY `pdc` (`price`, `dateandtime`, `customerid`)  
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

iiBench - Data Characteristics

Name	Type	Range	Generated
transactionid	int(11)	1..1,000,000,00	Auto-Increment
dateandtime	datetime	start datetime to start + 10,000 sec	Pseudo time - 1 sec = 100,000 rows inserted
cashregisterid	int(11)	0 - 999	Random
customerid	int(11)	0 - 99,999	Random
productid	int(11)	0 - 9,999	Random
price	float	0 - 1,004.98	customerid/100 + Random 0-4.99*

*Limits the number of customers that bought products within a certain price range.

iiBench Algorithm

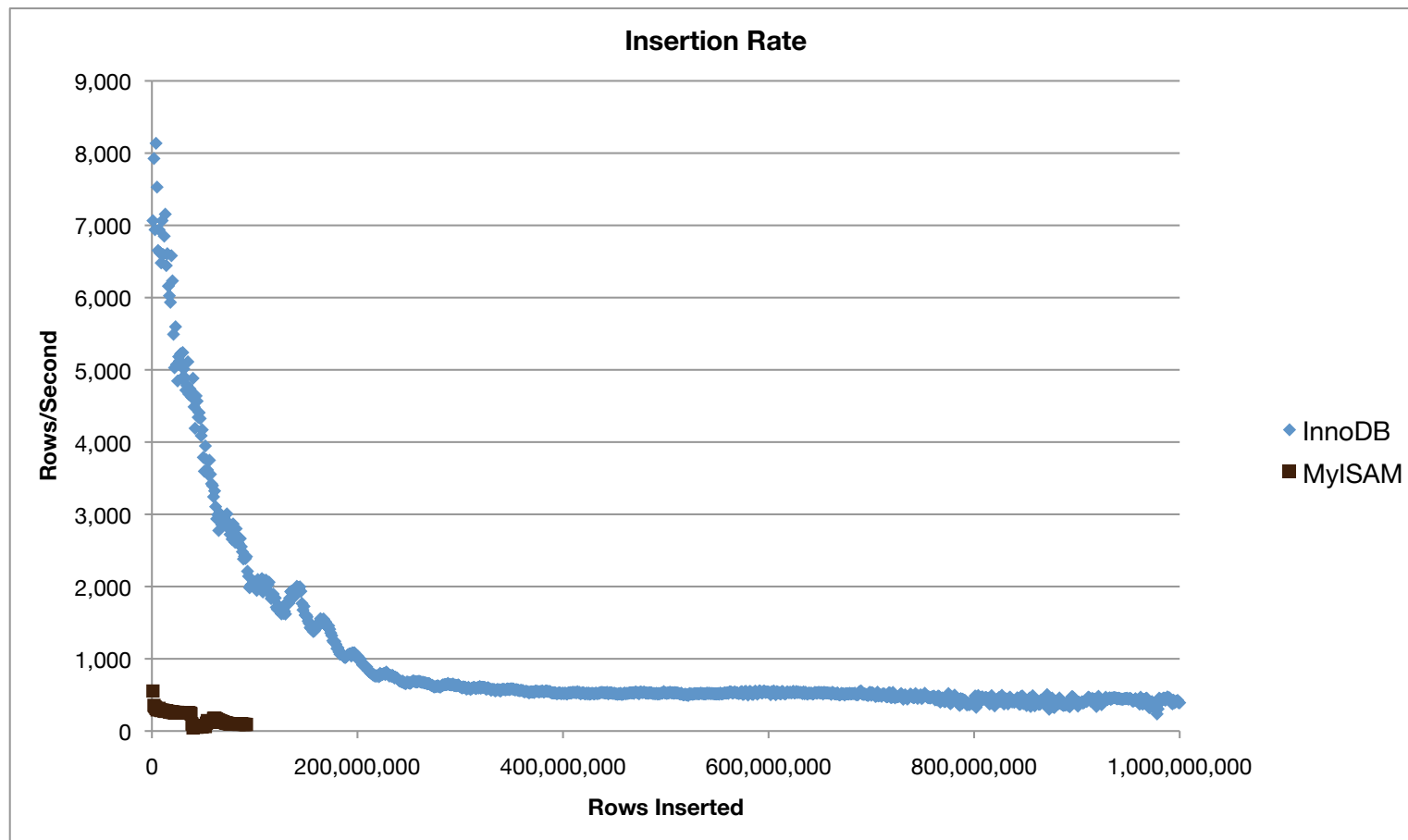
MySQL++ Interface

OpenSource C and C++, GPLv3

Pseudo code, main loop:

```
for (i=0; i<1,000,000,000; i++) {  
    generate random record  
    insert into table  
    dateandtime+= 1 sec every 100,000 rows  
    commit every 1,000 rows  
    print elapsed time every 1,000,000 rows  
}  
flush tables  
print summary
```

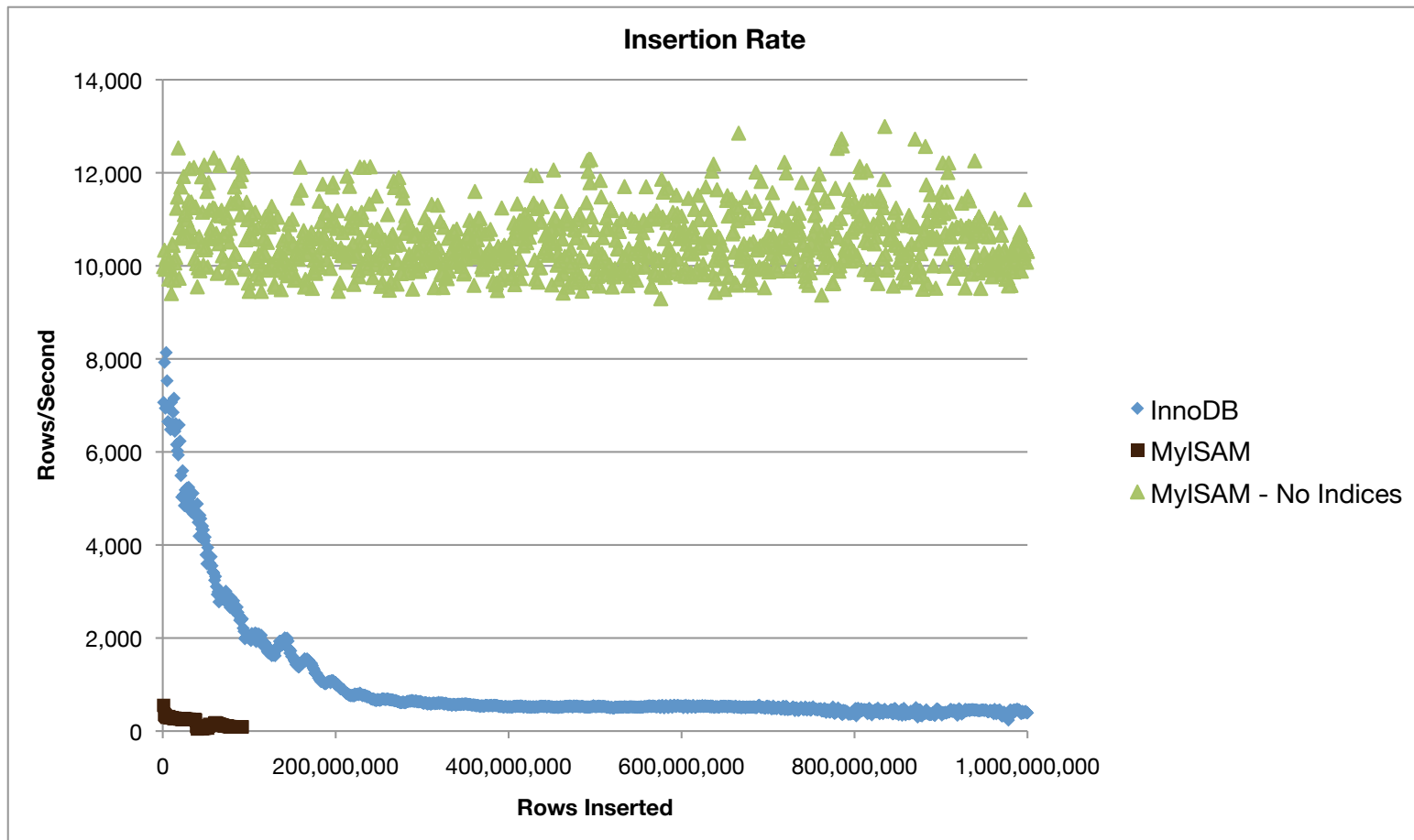
iiBench - Tokutek Results



InnoDB: Elapsed Time: 19.6 days, Terminal Rate: 404 rows/sec, 166GiB

MyISAM: Elapsed Time: 121 days (est), Current Rate: 93 rows/sec

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Tokutek Test System

Sunfire x4150

- 2 Socket, Quad Core, Xeon X5460, 3.16GHz
- 16GB Main Memory
- 8x 146GB, 10,000 RPM SAS Drives
- HW RAID 5 on 6 of the 8 Drives

Software

- Linux CentOS 5.1, x86_64
- MySQL 5.1.25-rc9
- mysqld parameters
 - ▶ See start_mysql.sh in iiBench kit



Ground Rules

Hardware

- Max: Dual Socket, Quad Core (8 cores total)
- Max: 16GB Memory
- Max: 8 drives, direct attached, RAID OK

Software

- MySQL 5.1.x
- InnoDB, MyISAM, or... Storage Engine
- Linux CentOS 5 preferred (for easy comparison)

Schema

- Must use iiBench default parameters
 - ▶ 1B Rows total, 1,000 rows/commit, report every 1M rows
 - ▶ Max: 1,000 rows/insert statement
- Must insert with indices
 - ▶ Bulk Load + Alter table not allowed

Submission

Due Date: 31 Dec 2008, Midnight Eastern Time

- Happy New Year!

E-mail to: contest@tokutek.com

Include:

- Name, e-mail address
- HW Description
- SW Versions
- Solution Description - Enough Info to Verify Result
- iiBench Output
- Opt-in/out - post your name/result on our web page

Results Posted on 07 Jan 2009

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