groonga storage engine

Kouhei Sutou ClearCode Inc.

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About me

🌟 The president of ClearCode Inc.
🌟 The author of Rabbit
🌟 A developer of groonga
🌟 A developer of groonga storage engine
groonga storage engine?

- A storage engine of MySQL
- Fast fulltext search
- Fast geo search
- Real-time update
Storage engine

- A storage engine of MySQL
- Fast fulltext search
- Fast geo search
- Real-time update
MySQL client

SQL ↓

SQL handler

MySQL server

↓ ↑ C++ API ↓ ↑

storage engine

MyISAM

InnoDB
groonga

An alternative of MyISAM, InnoDB and so on
Fast fulltext search

🌟 A storage engine of MySQL
🌟 Fast fulltext search
🌟 Fast geo search
🌟 Real-time update
Elapsed time for 10,000 phrase searches against 1 million tweets (Shorter bar is faster)

MySQL: 5.6.3-labs-innodb-fts
groonga: 1.2.5
groonga storage engine: 0.9

- groonga storage engine
- InnoDB
- MyISAM

Search time (sec)
Fast geo search

- A storage engine of MySQL
- Fast fulltext search
- Fast geo search
- Real-time update
Elapsed time for 1,000 MBRContains + ORDER BY searches against 11 million addresses
(Shorter bar is faster)

<table>
<thead>
<tr>
<th>Search time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
</tr>
<tr>
<td>1400</td>
</tr>
<tr>
<td>1200</td>
</tr>
<tr>
<td>1000</td>
</tr>
<tr>
<td>800</td>
</tr>
<tr>
<td>600</td>
</tr>
<tr>
<td>400</td>
</tr>
<tr>
<td>200</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

MySQL: 5.5.13
groonga: 1.2.7
groonga storage engine: 1.0.1

Data were downloaded from location reference information
download service by MLIT at 2010
http://nlftp.mlit.go.jp/ijjs/
Real-time update

- A storage engine of MySQL
- Fast fulltext search
- Fast geo search
- Real-time update
  - Fast update
  - Lock free
Fast update

- A storage engine of MySQL
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Update throughput (Longer bar is faster)

Update throughput (Added records/sec)

- groonga: 9500
- InnoDB: 1200
- MyISAM: 3200
- Sphinx: 2000

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groonga: 1.2.5
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Sphinx: 1.10-beta (r2420)
Lock free

- A storage engine of MySQL
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(Horizontal line means fast update with searching)

Update throughput (Added records/sec)

- groonga storage engine
- InnoDB
- MyISAM
- Sphinx

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Search load (queries/sec)
Caution

🌟 No transaction

🌟 ALTER TABLE is unsupported
  🌟 It will be supported in the next release

🌟 Geo supports only POINT
Transaction support

🌟 Transaction support

🌟 groonga storage engine + InnoDB

🌟 ALTER TABLE is unsupported

🌟 It will be supported in the next release

🌟 Geo supports only POINT
MySQL client

MySQL server

SQL handler

C++ API

storage engine

groonga storage engine

process only fulltext search

C++ API

MyISAM

InnoDB

Adds fast fulltext search to MyISAM, InnoDB and so on.
Fast fulltext search

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<tr>
<th>Search time (sec)</th>
<th>groonga storage engine</th>
<th>groonga storage engine + InnoDB</th>
<th>InnoDB</th>
<th>MyISAM</th>
</tr>
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Fast geo search

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groonga storage engine
groonga storage engine + InnoDB
MyISAM

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http://nlftp.mlit.go.jp/ isj/
Real-time update

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  - Fast update
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Update throughput (Longer bar is faster)

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- groonga: 1.2.5
- groonga storage engine: 0.9
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Update throughput (Added records/sec)

- groonga
- groonga + InnoDB
- InnoDB
- MyISAM
- Sphinx

ストレージエンジン
+ InnoDB
(Horizontal line means fast update with searching)

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- groonga storage engine + InnoDB
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Conclusion

A fast fulltext search for all MySQL users!

http://mroonga.github.com/