Chatops: How GitHub Manages MySQL
what is GitHub?
GitHub.com

4m users

10m repositories
who are GitHub?
San Francisco
245 people
144 remote
build
major changes and features weekly
whenever wherever
communication
where?
150+ chat rooms
/puppet
<table>
<thead>
<tr>
<th>Service Name</th>
<th>Duration</th>
<th>Action</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCHEDULED 30 MINUTES OF DOWNTIME</td>
<td>FOR</td>
<td></td>
<td></td>
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<td>FOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[24 more lines]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Unable to configure virtual network devices

* Stopping configure virtual network devices [OK]
* Stopping save udev log and update rules [OK]
* Starting Mount network filesystems [OK]
* Starting configure network device [OK]
* Stopping Mount network filesystems [OK]
* Starting load fallback graphics devices [FAIL]
* Starting Userspace bootsplash [OK]
* Starting Send an event to indicate plymouth is up [OK]
* Stopping Send an event to indicate plymouth is up [OK]
* Stopping Userspace bootsplash [OK]
* Starting Mount network filesystems [OK]
* Starting configure network device [OK]
* Stopping Mount network filesystems [OK]
* Starting Mount network filesystems [OK]
* Stopping Mount network filesystems [OK]
* Starting configure network device [OK]
* Stopping Failsafe Boot Delay [OK]
* Starting System V initialisation compatibility [OK]
* Starting set sysctls from /etc/sysctl.conf [OK]
* Stopping set sysctls from /etc/sysctl.conf [OK]
* Skipping profile in /etc/apparmor.d/disable: usr.sbin.rsyslogd [OK]
* Starting AppArmor profiles [OK]
* Applying Ksplice Uptrack updates... [OK]
samlambert
/remote me

Hubot

Whoa, 142/243 meatbags are remote (58.4%)
/hq me
samlambert
/hq me

Hubot
4:
3:
2:
1:
where is
development flow
samlambert pushed 2 commits to shell/branch
- shell command
- define pid file
samlambert pushed 2 commits to shell/branch
- shell command
- define pid file

Build #1132212 (9cf41ef) of shell/branch failed
- 1 failure (66s)
samlambert pushed 2 commits to shell/branch
- shell command
- define pid file

Build #1132212 (9cf41ef) of shell/branch failed
- 1 failure (66s)

samlambert pushed 1 commit to shell/branch
- i done messed up
samlambert pushed 2 commits to shell/branch
  - shell command
  - define pid file

Build #1132212 (9cf41ef) of shell/branch failed
  - 1 failure (66s)

samlambert pushed 1 commit to shell/branch
  - i done messed up

Build #1132222 (818dd29) of shell/branch was successful (6s)
/deploy shell/branch to production

samlambert is deploying shell/branch (b6320b0..cc1k2d6) to production
/deploy shell to production

samlambert is deploying shell/master (b6320b0..cc1k2d6) to production
context
teamwork
Last login: Thu Mar 13 10:27:20 on ttys003

10:51 up 3 days, 1:54, 6 users, load averages: 1.79 1.60 1.74
USER    TTY           FROM          LOGIN@  IDLE   WHAT
sam     console       Mon08 3days   -
sam     s000          Wed16       -zsh
sam     s001          Wed19       -zsh
sam     s002          Wed19       -zsh
sam     s003          10:51       -w
sam     s004          Wed15       -zsh

~ mysql -h localhost -P 13306
Welcome to the MySQL monitor. Commands end with ; or \\g.
Your MySQL connection id is 19
Server version: 5.5.20 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

root@localhost 10:51:47 DEV DB:(none)>show processlist;
+----+--------+----------+-----------+-----------+-----+-------------------+
| Id | User   | Host     | DB         | Command   | Time | State  | Info               |
+----+--------+----------+-----------+-----------+-----+-------------------+
| 15 | root   | localhost| test       | Sleep     | 3   | NULL              |
| 16 | root   | localhost| NULL       | Sleep     | 51  | NULL              |
| 19 | root   | localhost| NULL       | Query     | 0   | NULL              | show processlist   |
+----+--------+----------+-----------+-----------+-----+-------------------+
3 rows in set (0.00 sec)

root@localhost 10:51:54 DEV DB:(none)>kill 16;
Query OK, 0 rows affected (0.00 sec)

root@localhost 10:52:04 DEV DB:(none)>
help people care
painless
easy
/explain SELECT * FROM users LIMIT 1

<table>
<thead>
<tr>
<th>Select Type</th>
<th>Table</th>
<th>Type</th>
<th>Possible</th>
<th>Key</th>
<th>Key Len</th>
<th>Ref</th>
<th>Rows</th>
<th>Ext...</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMPLE</td>
<td>users</td>
<td>ALL</td>
<td>null</td>
<td>null</td>
<td>null</td>
<td>null</td>
<td>null</td>
<td></td>
</tr>
</tbody>
</table>
```
Hubot
samlambert:

<table>
<thead>
<tr>
<th>Status</th>
<th>Duration (secs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>starting</td>
<td>0.000012</td>
</tr>
<tr>
<td>checking permissions</td>
<td>0.000003</td>
</tr>
<tr>
<td>Opening tables</td>
<td>0.000022</td>
</tr>
<tr>
<td>System lock</td>
<td>0.000012</td>
</tr>
<tr>
<td>init</td>
<td>0.000017</td>
</tr>
<tr>
<td>optimizing</td>
<td>0.000001</td>
</tr>
</tbody>
</table>

[20 more lines]
```
/mysql truncate
"CREATE TABLE _new_users LIKE users"
"ALTER TABLE _new_users AUTO_INCREMENT = 1"
"RENAME TABLE users TO _users_old<date>, _new_user TO users"
"CREATE TABLE _new_users LIKE users"
"ALTER TABLE _new_users AUTO_INCREMENT = 1"
"RENAME TABLE users TO _users_old<date>, _new_user TO users"
backups
safehold
/mysql backup users

Hubot
A backup job has been created for the users table. You will be notified in the Ops room when the backup is complete.
<table>
<thead>
<tr>
<th>Backup ID</th>
<th>TableName</th>
<th>Donor Host</th>
</tr>
</thead>
<tbody>
<tr>
<td>178602</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>178432</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>178263</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>178096</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177926</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177758</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177589</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177419</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177251</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>177083</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>176913</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>176744</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td>176576</td>
<td>users</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[324 more lines]
A restore job has been created for the backup job 178602. You will be notified in the Ops room when the restore is complete.
/mysql clone
<table>
<thead>
<tr>
<th>Category</th>
<th>Route</th>
<th>Duration</th>
<th>Query</th>
</tr>
</thead>
<tbody>
<tr>
<td>worker</td>
<td></td>
<td>0</td>
<td><code>SELECT ... FROM ... WHERE ...</code></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td>0</td>
<td><code>SELECT ... FROM ... WHERE ...</code></td>
</tr>
<tr>
<td>browser_full</td>
<td></td>
<td>0</td>
<td><code>SELECT ... FROM ... WHERE ...</code></td>
</tr>
<tr>
<td>browser_full</td>
<td></td>
<td>0</td>
<td><code>SELECT ... FROM ... WHERE ...</code></td>
</tr>
</tbody>
</table>

The query executed by the `worker` category is shown in red and highlighted for emphasis. It appears to be a SELECT statement with various conditions and ordering. Other similar queries are listed for the `other` and `browser_full` categories.
```
mysql> show tables;

+---------------------+
| Tables_in_test       |
+---------------------+
| test                |
| test_new            |
+---------------------+
2 rows in set (0.00 sec)
```
mysql> BEGIN;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT * FROM test;
Empty set (0.00 sec)
mysql> RENAME TABLE test TO test_old, test_new TO test;
Query OK, 0 rows affected (2 min 48.57 sec)
<table>
<thead>
<tr>
<th>Id</th>
<th>User</th>
<th>Host</th>
<th>db</th>
<th>Command</th>
<th>Time</th>
<th>State</th>
<th>Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>samlambert</td>
<td>localhost:56703</td>
<td>test</td>
<td>Sleep</td>
<td>195</td>
<td>NULL</td>
<td>RENAME TABLE test TO test_old, test_new TO test</td>
</tr>
<tr>
<td>19</td>
<td>samlambert</td>
<td>localhost:56715</td>
<td>test</td>
<td>Query</td>
<td>33</td>
<td>Waiting for table metadata lock</td>
<td>RENAME TABLE test TO test_old, test_new TO test</td>
</tr>
<tr>
<td>21</td>
<td>root</td>
<td>localhost:56727</td>
<td>test</td>
<td>Sleep</td>
<td>23</td>
<td>NULL</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>root</td>
<td>localhost:56728</td>
<td>NULL</td>
<td>Sleep</td>
<td>23</td>
<td>NULL</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>root</td>
<td>localhost:56750</td>
<td>NULL</td>
<td>Query</td>
<td>0</td>
<td>NULL</td>
<td>show processlist</td>
</tr>
</tbody>
</table>

5 rows in set (0.01 sec)
<table>
<thead>
<tr>
<th>Id</th>
<th>User</th>
<th>Host</th>
<th>db</th>
<th>Command</th>
<th>Time</th>
<th>State</th>
<th>Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>samlambert</td>
<td>localhost:56703</td>
<td>test</td>
<td>Sleep</td>
<td>233</td>
<td></td>
<td>NULL</td>
</tr>
<tr>
<td>19</td>
<td>samlambert</td>
<td>localhost:56715</td>
<td>test</td>
<td>Query</td>
<td>71</td>
<td>Waiting for table metadata lock</td>
<td>RENAME TABLE test TO test_old, test_new TO test</td>
</tr>
<tr>
<td>21</td>
<td>root</td>
<td>localhost:56727</td>
<td>test</td>
<td>Sleep</td>
<td>2</td>
<td></td>
<td>NULL</td>
</tr>
<tr>
<td>22</td>
<td>root</td>
<td>localhost:56728</td>
<td>NULL</td>
<td>Sleep</td>
<td>61</td>
<td></td>
<td>NULL</td>
</tr>
<tr>
<td>24</td>
<td>root</td>
<td>localhost:56750</td>
<td>NULL</td>
<td>Query</td>
<td>0</td>
<td></td>
<td>show processlist</td>
</tr>
<tr>
<td>25</td>
<td>samlambert</td>
<td>localhost:56761</td>
<td>test</td>
<td>Query</td>
<td>4</td>
<td>Waiting for table metadata lock</td>
<td>SELECT * FROM test</td>
</tr>
</tbody>
</table>

6 rows in set (0.00 sec)
mysql> COMMIT;
Query OK, 0 rows affected (0.00 sec)
mysql>
mysql> RENAME TABLE test TO test_old, test_new TO test;
Query OK, 0 rows affected (2 min 48.57 sec)

mysql> SELECT * FROM test;
Empty set (1 min 41.70 sec)
github.com/samlambert/pt-online-schema-change-analyze
/mysqlproxy status
/mysqlproxy disable
/mysqlproxy enable
why?
things go wrong
/status yellow We are experiencing problems
ops on the move
mitigate
how?
Campfire
Hipchat
IRC
Twitter
Twilio
iMessage
Gtalk
Skype
Slack
XMPP
+ more
hosting
scripts
robot.respond /do something\((\.*))/i, (msg) =>
msg.reply "I am doing something"
return
wrapper
community scripts
janky
heaven
github.com/github/hubot-scripts
github.com/samlambert/hubot-mysql-chatops
What’s next?
Questions?