Ensuring MariaDB Server’s longevity, an open build system for the community

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Why do we need continuous integration and testing?
Benefits of continuous integration and automated testing

● Regularly integrating small code changes into the MariaDB server

● Run tests after each change
  ○ Tests can be run on multiple platforms, ensuring that code changes made on one platform do not cause failures on other platforms
  ○ Lowers the risk of test failures involved with each push
Benefits of continuous integration and automated testing (2)

- Gives developers immediate feedback on their work
- Automated package management on multiple platforms

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Challenges of continuous integration and automated testing

- The process can be repeated as frequently as available computing resources allow:
  - Hardware availability - different architectures require different physical machines
  - Time limitations - developers want to see the results as soon as possible
How testing is done for the MariaDB server?
MariaDB server testing

- mysql-test-run is the standard testing toolkit for MariaDB Server
- Run queries against one or more servers and compare their output to the expected one
- This checks both behaviour and data consistency
Continuous Integration and testing for MariaDB

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Buildbot keywords

- changes/repository
  - Any change that occurs in the source code (commit)
- build master
  - The process that checks for changes and schedules builds
- worker
  - The environment used for testing which is run on a physical machine
- build
  - The actual configuration that is tested
MariaDB buildbot configurations

- Uses Docker
- Each worker is a docker container running on a host machine
- The worker process is started by the build master when a change is detected
- The build environment is defined in dockerfiles
MariaDB buildbot configurations (2)

- Benefits of using docker
  - Dockerfiles provide an easy way of re-creating a testing environment
  - No buildbot related configurations are necessary on the physical machines - only the build master needs to be configured
    - Easy to add new hardware

- Challenges
  - Docker needs to be accessed remotely - ensure TLS authentication
MariaDB buildbot customizations

- Custom templates for main dashboards

<table>
<thead>
<tr>
<th>Builder</th>
<th>Tags</th>
<th>Results</th>
<th>Details</th>
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</table>
| aarch64-centos-7   | Centos, gcc, quick, aarch64      | failed compile (failure)            | MDEV-21586: Fix a warning for converting my_bool to bool
| aarch64-debian-10  | gcc, quick, Debian, aarch64      | build successful                    |                                              |
| aarch64-rhel-7     | gcc, quick, aarch64, RHEL        | failed compile (failure)            |                                              |
| centos-7           | Centos, gcc, quick                | build successful                    |                                              |
| centos-7-rpm-autobake | bake, rpm, Centos, gcc          | build successful                    |                                              |
Platforms:

- x86_64, Power and ARM gracefully donated by:
  - Hetzner
  - IBM
  - Huawei
  - Gameserver Kings
  - Bytemark
  - Tarsnap
MariaDB buildbot - current operating systems

- Operating Systems
  - Debian, Ubuntu, CentOS, RHEL-7, Fedora, OpenSUSE, Windows

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MariaDB buildbot - GitHub integration

- Running tests for pull-requests as well. Contributors can check the correctness of their patches directly on GitHub!

Review requested
Review has been requested on this pull request. It is not required to merge. Learn more.

1 pending reviewer

Some checks were not successful
1 failing, 1 pending, and 17 successful checks

- buildbot/fedora-28-rpm-autobake — Build done.
- license/cia Pending — Contributor License Agreement is not sign...
- buildbot/centos-7-quick — Build done.
- buildbot/centos-7-rpm-autobake — Build done.
- buildbot/debian-9-quick — Build done.
- buildbot/fedora-28-quick — Build done.
MariaDB buildbot - coming soon

- More build configurations, operating systems and platforms
- Gated branches
- Automated packaging
- Cross-reference tool
  - allows searching for test failures in previous test runs
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Questions?
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- Percona
- nexedi
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- Virtuozzo

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