How we test TiKV ?

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Who is the tester ?

- Quality comes from solid engineering
- Stop talking and go build things.
- Don't hire too many testers
  - Testing is owned by the entire team. Is a culture, not a process.
- Testers are software engineers. Yes.
- Hiring good people is the base. And keeping them challenged.

Test automation

- Allow developers to get a unit test results immediately.
- Allow developer to run all unit tests in one go.
- Allow code coverage calculations
- Testers are software engineers. Yes.
- Show dashboards of testing evolution.
- Automate everything

oh… still not enough ?

- Each layer can be tested independently
- Make sure you are right
- Don't bother great people
- Write unit tests for every bug.

Code review ?

- At least two LGTM of maintainers
- Address comments
- Squash commit logs and Push -f

Who to blame in case of bug?

- The entire team has failed.

Profiling ?

- Profile everything on production
- Bench testing

Embeded testing to your design

- Design for testing
- Get tests from community
  - Lots of tests in MySQL drivers/connectors
  - Lots of ORMs
  - Lots of applications (Record---replay)

And more

- Fault injection
  - Hardware
    - disk error
    - network card
    - cpu
    - clock
  - Software
    - file system **(CharybdeFS: a new fault-injecting filesystem for software testing)**
    - network & protocol

And more

- Simulate everything

Distribute testing

- Jepsen
- EarthQuake

  - ZooKeeper:

    - Found ZOOKEEPER-2212, ZOOKEEPER-2080 (race): (blog article)

  - Etcd:

    - Found etcdctl bug #3517 (timing specification), fixed in #3530. The fix also resulted a hint of #3611

    - Reproduced flaky tests {#4006, #4039}

  - YARN:

  - Found YARN-4301 (fault tolerance), Reproduced flaky tests{1978, 4168, 4543, 4548, 4556}

Thank you