



OPEN
DAYLIGHT

Automating a functional tests suite in ODL

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(TransportPCE) feedback

JUnit Tests are well integrated in Releng

- Console Logs can be watched before the job ends.
- jdk and maven are kept up-to-date
- etc...

But :

- UT cannot be disabled from Releng (does it build w/o UT ?)
- macros are available only in master and stable/* branches
- devices simulated must use the mockito framework
- cannot check the whole controller behavior and identify functional regressions
=> « **black box approach** » or « **functional tests** »

One solution (among others) to write functional tests: python nose + tox

python proposes « unittests » inspired from Junit

https://nose.readthedocs.io/en/latest/writing_tests.html

- nose is a python framework. It can be used as a launcher for tests (and much more).
- nose can be used to test the controller from the REST API and against any simulator or equipment.

<https://tox.readthedocs.io/en/latest/>

Tox is an easy way to automate and standardize tests in python:

- provides python virtualenv
- allow to set up profiles
- allow any command line tool, not just python -> useful to launch sims
- already used by ODL docs / sphinx

Releng has a “gerrit-tox-verify” template with many options

- gerrit-tox-verify:
 - build-timeout: 120
 - build-node: centos7-builder-8c-8g

Adaptation needed:

- the build-node does not come with a maven set-up
 - > need to install it from tox -> because of virtualenv, don't follow maven official doc and use symlinks rather than env vars
- functional tests can be quite long (~1h30) => need to increase time-outs
- sims consume memory (by default only 4G RAM) => need to change the build-node image

<https://git.opendaylight.org/gerrit/#/c/79983/>

<https://git.opendaylight.org/gerrit/#/c/78544/>

Tox profiles cannot be launched separately.

Tox logs are in a separate folder and cannot be watched before the jenkins job ends.
We have to wait 90min...

Limited number of minions flavors: <https://github.com/opendaylight/releng-builder/tree/master/jenkins-config/clouds/openstack/odlvex>

- We needed around 4 cores and 6GB RAM but no such image => [centos7-builder-8c-8g.cfg](#)
- The 4GB RAM image sometimes worked but there was only 1GB swap on it...
 - => This is prone to memory (re)allocation deadlocks
- No maven installation by default

Criteria acceptance is binary: success or failure.

But not all functional tests are expected to pass.

Force to success -> still need for a manual check.

Approach inspired from OPNFV functest

The main purposes:

- customizing the test environment (Docker minions, Jenkins, etc...)
- testing the controller against real equipment (or a different sim)

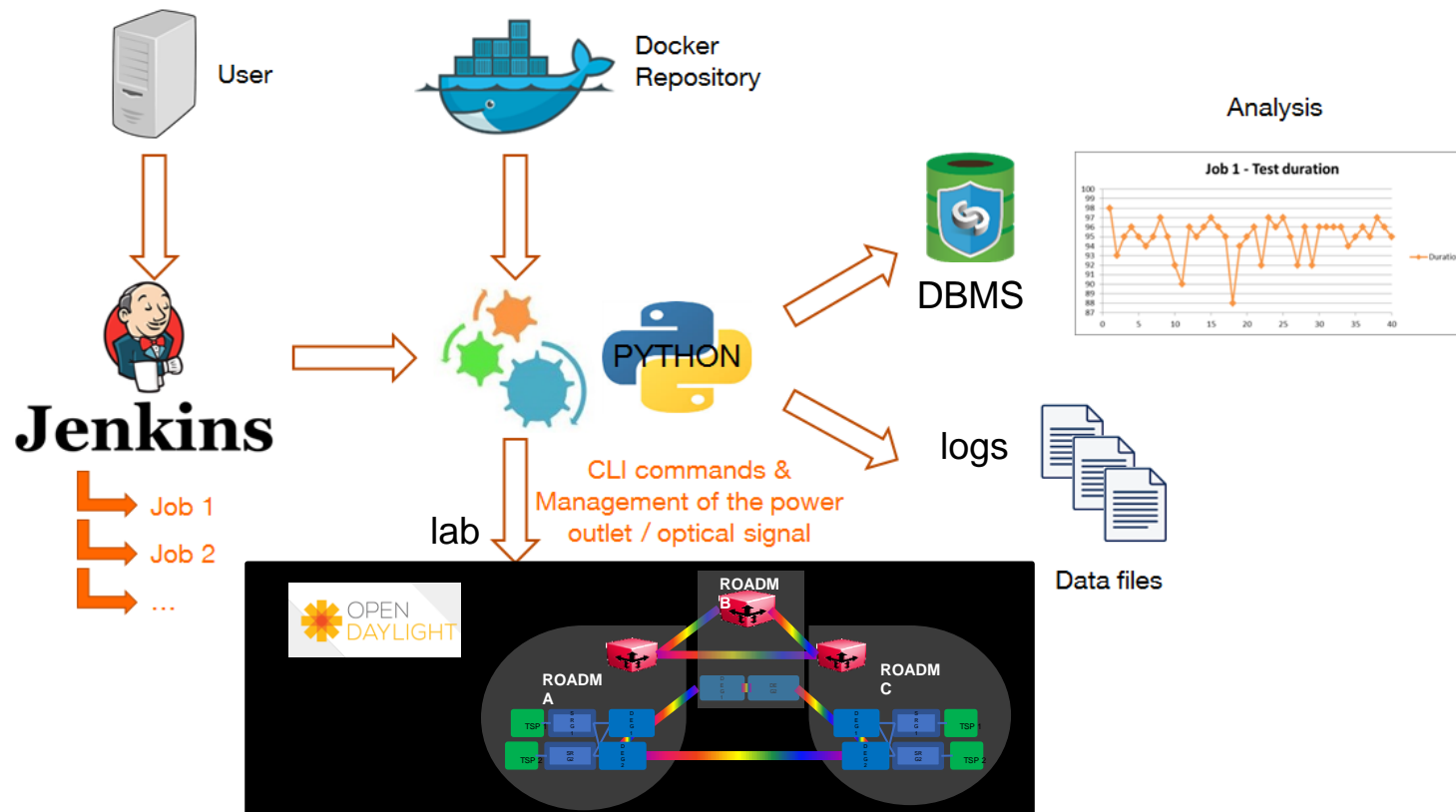
How:

Offloading functional tests outside the integration framework with:

- a bot account with -1/0/+1 verified privilege
- a gerrit stream-events connection

- allow the developer to work only on the test suites without diving into [CI/CD](#) integration
- check multiple components (see [ONAP Orange OpenLab](#)) in the same CI/CD toolchain thanks to a good design
- simplify third-party test integration in a complete [OPNFV](#)-based (e.g. de facto standard) CI/CD toolchain
- **A key helper from first tests to full end2end service testing**

typical deployment scheme





Thank you