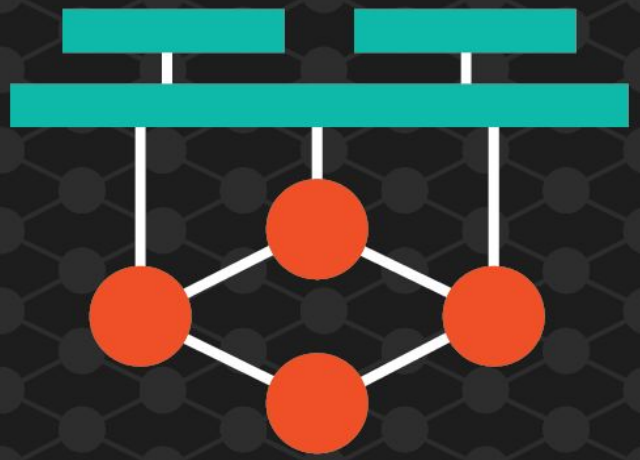
September 25 - 27, 2018
Amsterdam, The Netherlands



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Integrate, Automate, Accelerate

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LFN Xcommunities Testing

Morgan Richomme & Cedric Ollivier, Orange

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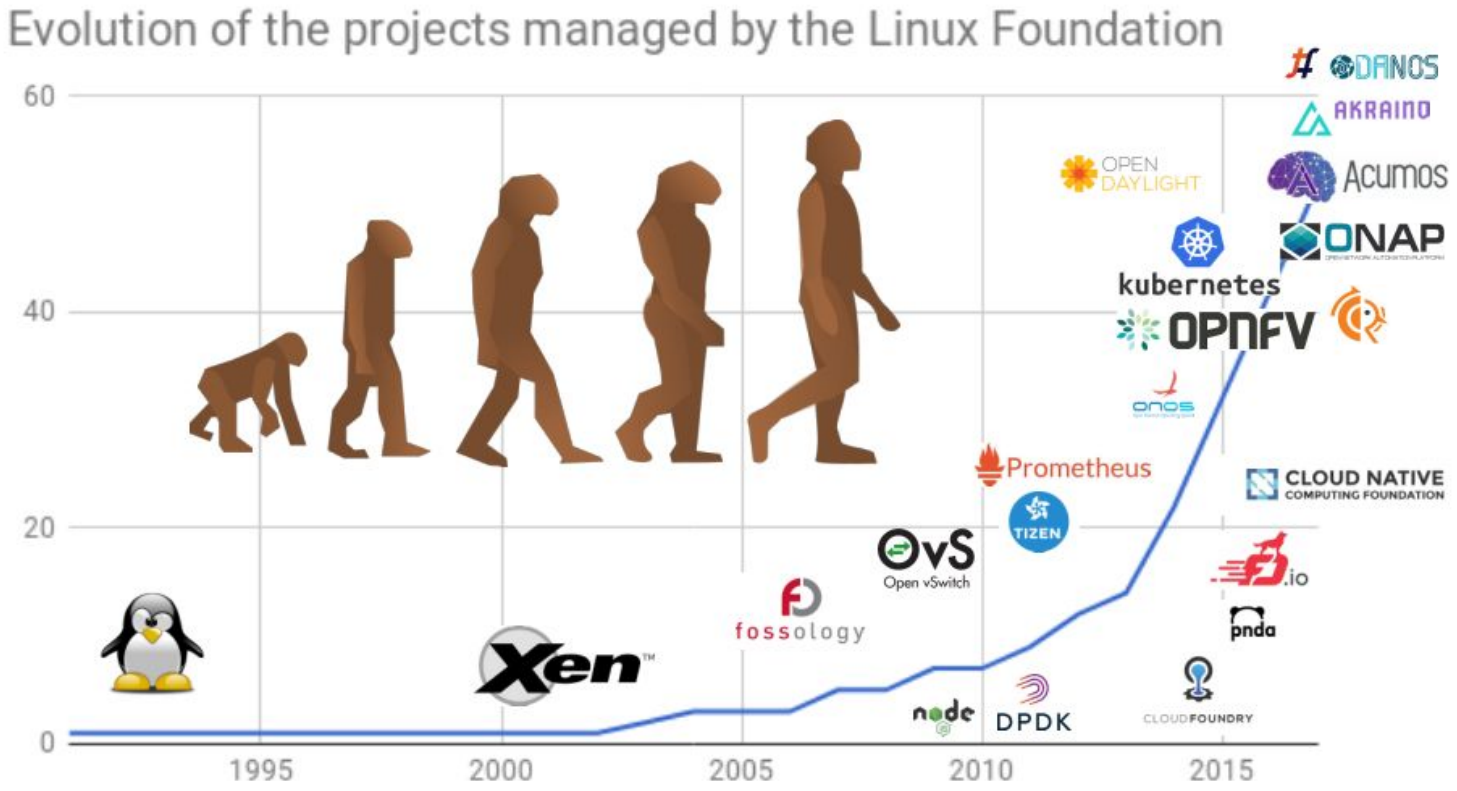
Open Networking ecosystem is complex...

ETSI

tmforum

3GPP
A GLOBAL INITIATIVE

Very complex...



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(Automatic) Testing is key to

- Validate modules of any size
- Validate End to End solutions
- Prove interoperability between systems
- Ensure sustainability
- Give performance figures and elaborate KPIs
- Ensure backward compatibilities
- Provide trustability evidence

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Richness, diversity...

- Lots of testing organizations/committees/cultures
- Lots of frameworks (Robot, python, bash, …)
- Lots of options to integrate in CI (jenkins, travis, gitlab-ci...)
- ....

or chaos: as many CI/CD chains as subprojects?

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Keep it simple
Do not reinvent the wheel
Mutualize

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Keep it simple: xtesting

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Facilitate the tester life

- ease the development of third-party test cases by offering multiple drivers: Python, Bash, unittest, robot framework and VNF
- manage requirements and offer lightweight Docker images
- handle all interactions with OPNFV CI/CD components (entry points, results, publication, status codes, etc.)

Let the developer only work on the test suites without diving into CI/CD integration

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Smoothly integrate all tests together

- simplify test integration in a complete LFN-based CI/CD toolchain (e.g. Jenkins, Testing Containers, Test API and dashboard)
- allow a proper design and verify multiple components in the same CI/CD toolchain (OpenStack, Kubernetes, ONAP, etc.)

Keep Jenkins jobs and certification program simple as well!

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A user story ONAP

```
bash-4.4# run_tests -t all -r
2018-02-13 15:22:38,318 - functest.ci.run_tests - INFO - TESTS TO BE EXECUTED:

+---------------+---------------+-------------------------+-----------------------------------------+-----------------------
|     TIERS     |     ORDER     |         CI LOOP         |              DESCRIPTION                |               TESTCASE
+---------------+---------------+-------------------------+-----------------------------------------+-----------------------
|      onap     |       1       |     (daily)|(weekly)    |     Set of basic Functional tests to    |       robot_healthcheck
|               |               |                         |     validate the ONAP installation.     |     robot_multicloud rc
+---------------+---------------+-------------------------+-----------------------------------------+-----------------------

2018-02-13 15:22:38,320 - functest.ci.run_tests - INFO - Running tier 'onap'
2018-02-13 15:22:38,320 - functest.ci.run_tests - INFO - Running test case 'robot_healthcheck'...
2018-02-13 15:22:39,549 - functest.core.robotframework - INFO -
==============================================================================
Robot Healthcheck :: Testing ecomp components are available via calls.
==============================================================================
Basic SDNGC Health Check                                              | PASS |
------------------------------------------------------------------------------
Basic A&AI Health Check                                               | PASS |
------------------------------------------------------------------------------
Basic Policy Health Check                                             | PASS |
------------------------------------------------------------------------------
Basic MSO Health Check                                                | PASS |
------------------------------------------------------------------------------
Basic ASDC Health Check                                               | PASS |
------------------------------------------------------------------------------
Basic APPC Health Check                                               | PASS |
------------------------------------------------------------------------------
Basic Portal Health Check                                             | PASS |
------------------------------------------------------------------------------
Basic Message Router Health Check                                     | PASS |
------------------------------------------------------------------------------
Basic VID Health Check                                                | PASS |
------------------------------------------------------------------------------
Basic Microservice Bus Health Check                                   | PASS |
------------------------------------------------------------------------------
Basic CLAMP Health Check                                              | PASS |
------------------------------------------------------------------------------
catalog API Health Check                                              | PASS |
```

```
2018-02-13 15:22:41,1

+-------------------
|         ENV VAR
+-------------------------+-------------------------------------------------------------+
|      INSTALLER_TYPE     |                            heat                             |
|     DEPLOY_SCENARIO     |                   os-nosdn-nofeature-ha                     |
|        BUILD_TAG        |     jenkins-functest-kolla-baremetal-daily-amsterdam-666     |
|         CI_LOOP         |                                                             |
+-------------------------+-------------------------------------------------------------+

2018-02-13 15:22:41,123 - functest.ci.run_tests - INFO - FUNCTEST REPORT:

+---------------------------+------------------+--------------+------------------+----------------+
|         TEST CASE         |     PROJECT      |     TIER     |     DURATION     |     RESULT     |
+---------------------------+------------------+--------------+------------------+----------------+
|     robot_healthcheck     |     functest     |     onap     |      00:01       |      PASS      |
|         robot_dcae        |     functest     |     onap     |      00:01       |      FAIL      |
|      robot_multicloud     |     functest     |     onap     |      00:00       |      PASS      |
|       robot_3rdparty      |     functest     |     onap     |      00:00       |      FAIL      |
+---------------------------+------------------+--------------+------------------+----------------+

2018-02-13 15:22:41,126 - functest.ci.run_tests - INFO - Execution exit value: Result.EX_ERROR
bash-4.4#
```

```
JSON   Raw Data   Headers
Save  Copy
results:
  0:
    project_name:        "functest"
    scenario:            "onap-nofeature-noha"
    stop_date:           "2018-09-12 15:57:53"
    case_name:           "robot_3rdparty"
    build_tag:           "gitlab_ci-functest-rancher-baremetal-daily-2.0.0-ONAP-96500446"
    version:             "2.0.0"
    pod_name:            "pod4-orange-oom"
    criteria:            "PASS"
    installer:           "oom"
    _id:                 "5b993781b13c180010f5da02"
    start_date:          "2018-09-12 15:57:52"
    details:
      tests:
        0:
          status:        "PASS"
          name:          "Basic VFC emsdriver API Health Check"
          parent:        "Health-Check"
          text:          ""
          elapsedtime:   25
          critical:      true
          starttime:     "20180912 15:57:52.346"
          endtime:       "20180912 15:57:52.371"
        1:
          status:        "PASS"
          name:          "Basic VFC gvnfmdriver API Health Check"
```

try it!

S	W	Job
		opnfv-xtesting-latest-daily
		pull container
		opnfv-xtesting-latest-pull
		samples
		opnfv-xtesting-first-latest-run
		opnfv-xtesting-second-latest-run
		opnfv-xtesting-third-latest-run
		opnfv-xtesting-fourth-latest-run
		opnfv-xtesting-fifth-latest-run

Icon: S M L

run xtesting container:
$ sudo docker run opnfv/xtesting

python

run xtesting via package (python3):
$ virtualenv xtesting-py3 -p python3
$. xtesting-py3/bin/activate
$ pip install xtesting
$ sudo xtesting-py3/bin/run_tests -t all
$ deactivate

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Coming soon

- deploy the full CI/CD toolchain via docker-compose (Jenkins, Testing Containers, Test API and dashboard)
- offer GNU/Linux packages

All contributions coming from LFN projects are more than welcome!

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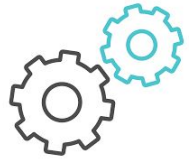
Do not reinvent the wheel

ONAP
OPEN NETWORK AUTOMATION PLATFORM

testsuite, vnfsdk

OPNFV



Functest

Yardstick

tungstenfabric

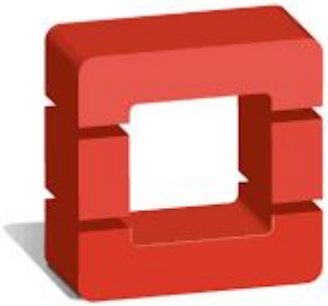
??

OPEN DAYLIGHT

csit

.io

fds

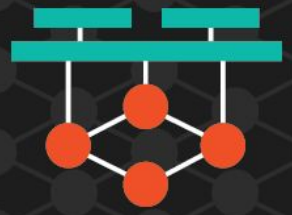


openstack™

tempest, rally, Shaker, Patrole

kubernetes

End to End tests (conformance)



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Upstream first

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Do not reinvent the wheel

- Verify OpenStack and Kubernetes deployments via all OPNFV Functest suites (healthcheck, smoke, benchmarching, components, vnf)
- Complete the verification by homemade xtesting containers integrating healthcheck suites and vnf deployments
- Reuse most of OPNFV CI/CD toolchain components (Testing Containers, Test API and dashboard)

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Pushing the limits

- Continuously verify OpenStack and Kubernetes deployment
- Run all testcases in parallel once basic tests pass
- Check the possible remaining resources after runs

The current OPNFV gates are fine for checking installers but not for verifying a production environment

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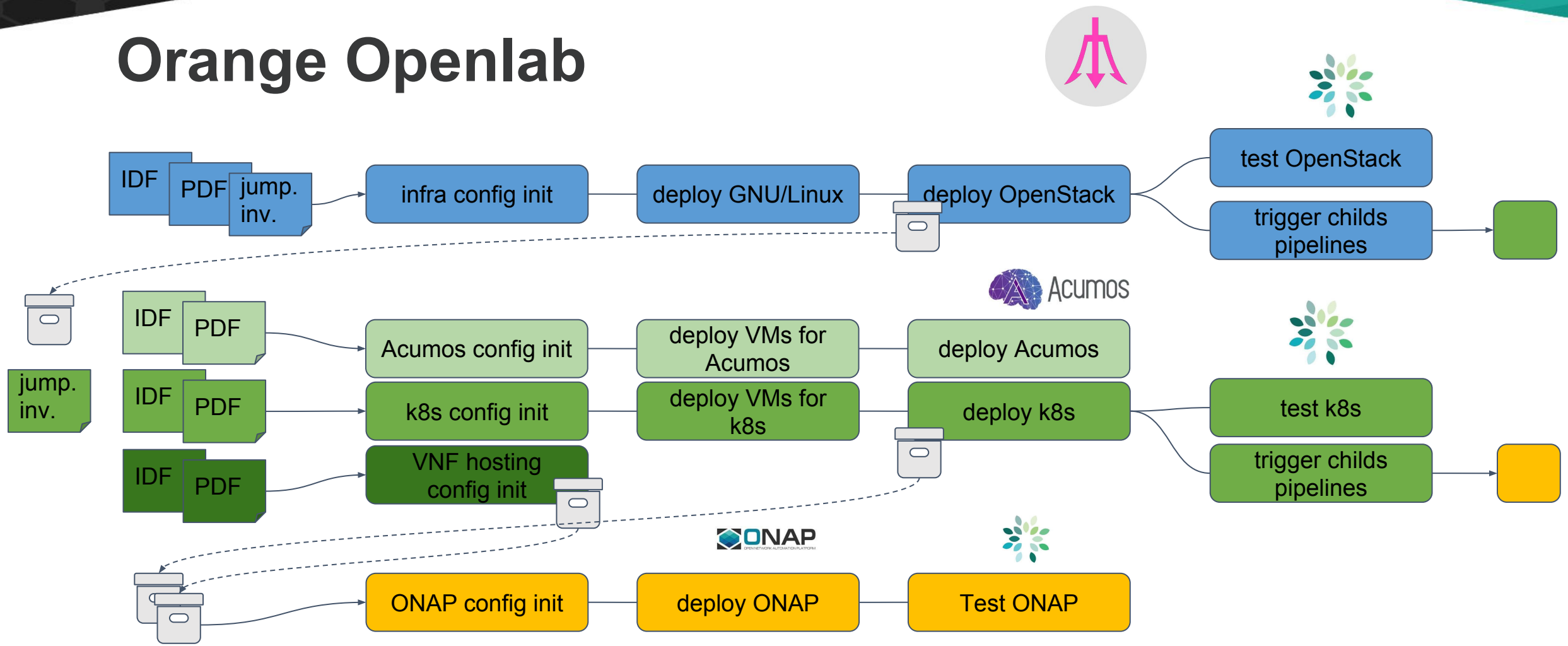
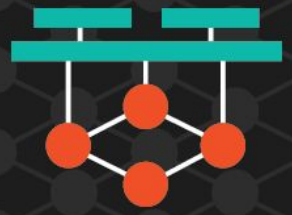
Mutualize

Orange Openlab





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Mutualize

- Mix & Match LFN project CI/CDs into 1 consistent CI/CD chain
- 1 resource : N LFN deployments
-

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Conclusions

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Conclusions

We believe xtesting is valuable for the communities:

- a simple, light and unifying framework without changing community cultures/good or bad habits/design patterns
- the test developers focus only on their tests
- a first step for useful post processing and machine learning as CI/CDs of the different communities generate lots of results

Upstream first & Keep it simple!

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Thank you

Visit our booths during ONS

- OpenLab on LFN booth
- NBI/TMF API for ONAP on Orange booth

orange™ OpenLab

Other presentations during ONS

26/9 13:50: Lightning Talk: Artificial Intelligence the Next Digital Wave for Telcos - Jamil Chawki, Orange
26/9 14:30 Accelerate the VNF Integration - Jehanne SAVI, Orange
27/9: 11h15 LFN Xcommunities Testing - Morgan Richomme & Cedric Ollivier, Orange
27/9 14:30: Be Active in Networking Open Source when you are a Service Provider - Eric Debeau & Morgan Richomme, Orange
27/9 16:05: SDO + Open Source: When TMF APIs Meet ONAP - René Robert & Matthieu Geerebaert