LINUX FOUNDATION
COLLABORATIVE PROJECTS

Testing your infrastructure and services with the help of OPNFV testperf team

Emma Foley, Georg Kunz & the OPNFV testing community

Goals of this talk

1. Create awareness for OPNFV test tools
   - Targeting users outside of NFV domain and telcos not active in OPNFV
   - Beneficial for most cloud operators and developers
   - Leverage the extensive tooling OPNFV has built over 4 years

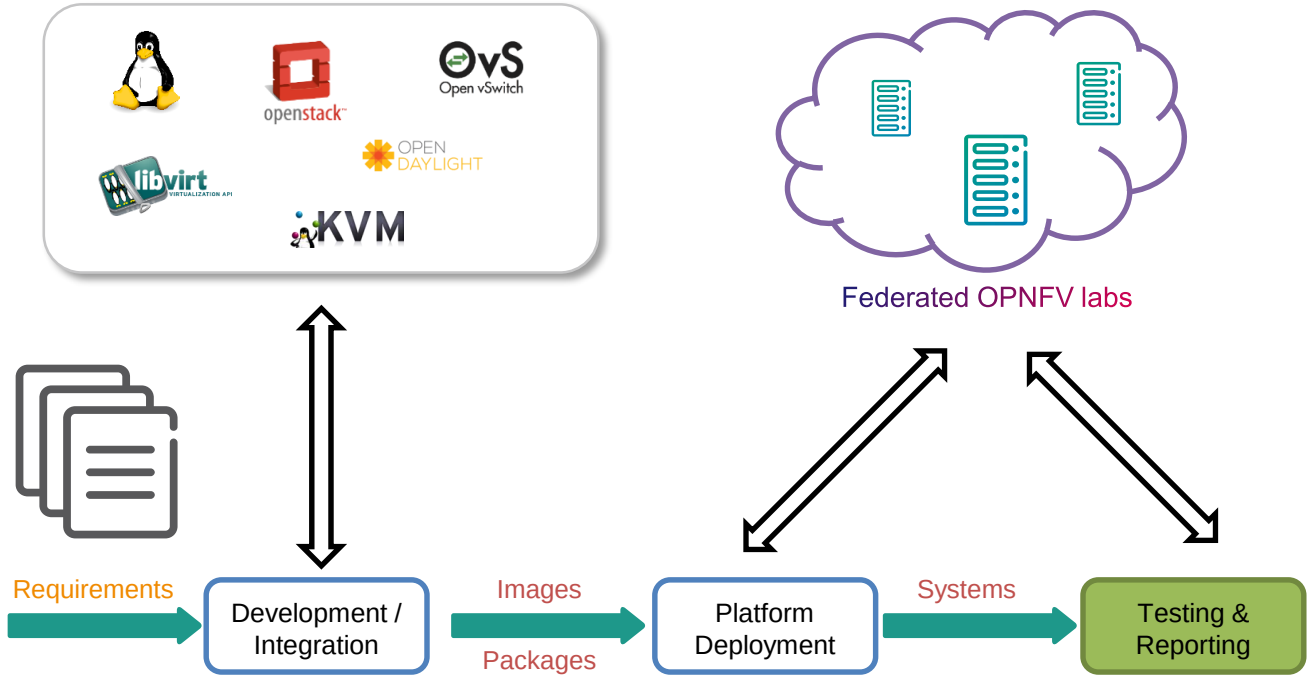
2. Trigger a discussion about the evolution of the OPNFV test tools
   - How to evolve the test tools to address emerging use cases?
   - Learn from people outside of NFV domain about their needs

OPNFV

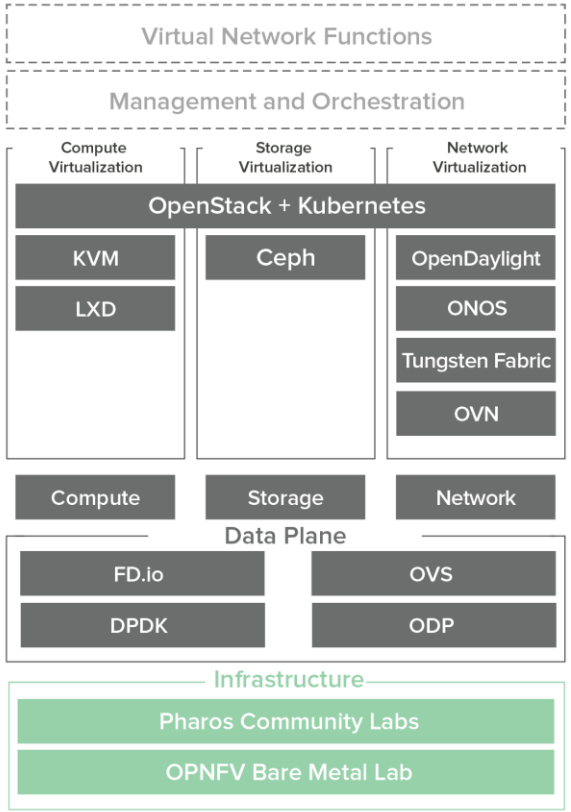
OPNFV facilitates the development and evolution of NFV components **across various open source ecosystems**. Through **system level integration, deployment and testing**, OPNFV creates a reference NFV platform to accelerate the transformation of enterprise and service provider networks. Participation is open to anyone, whether you are an employee of a member company or just passionate about network transformation.

OPNFV defines use cases, integrates & tests what other projects (OpenStack, Kubernetes, ODL, OVS, fd.io) create!

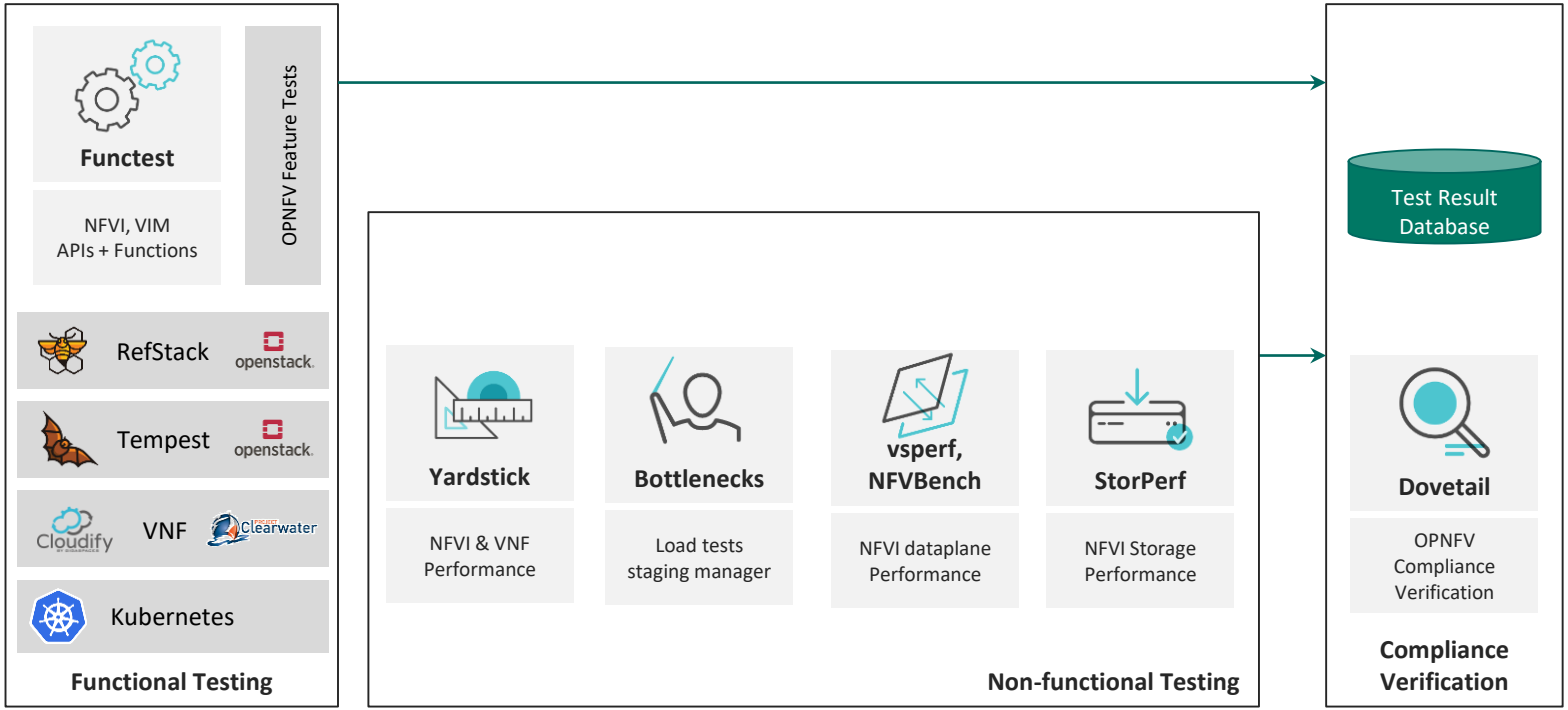
What does OPNFV do?



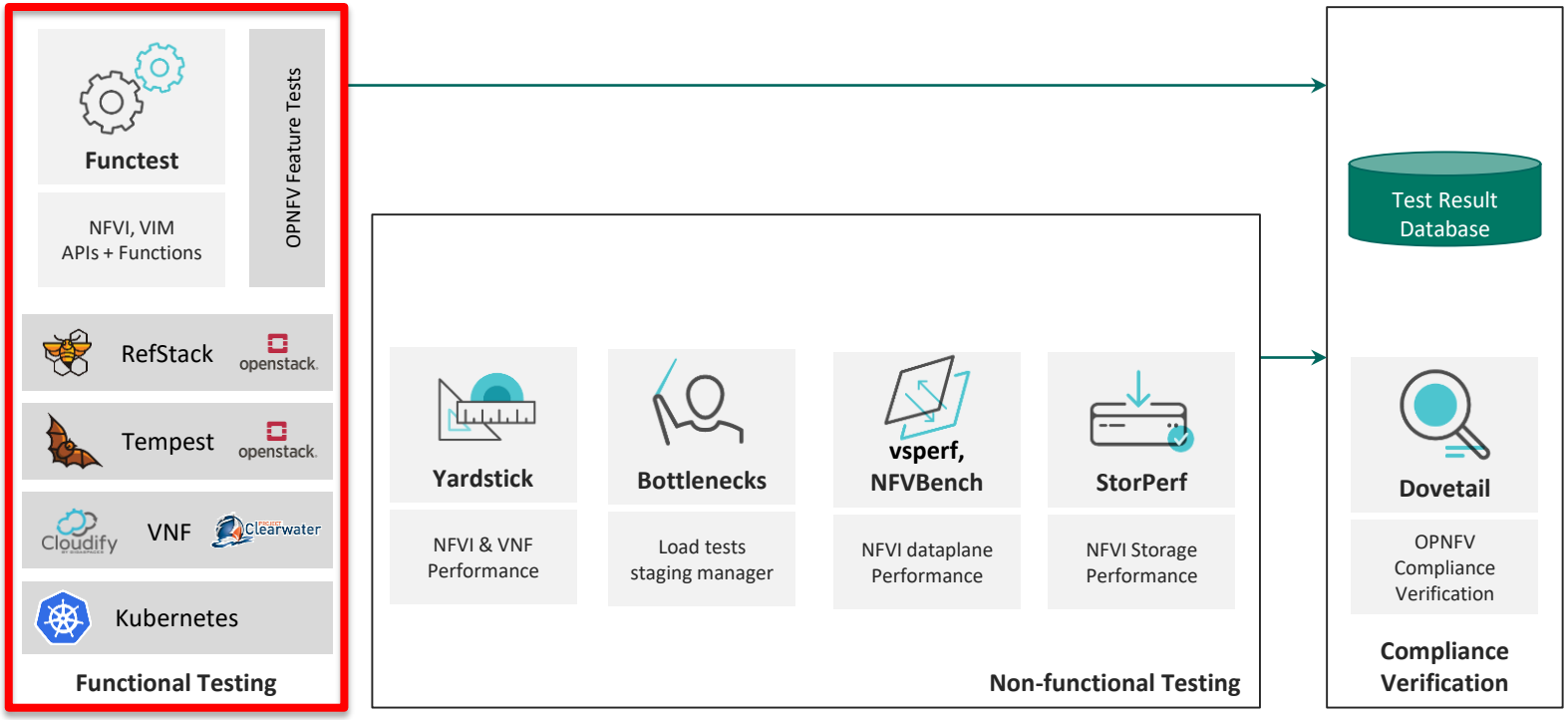
What does OPNFV test?



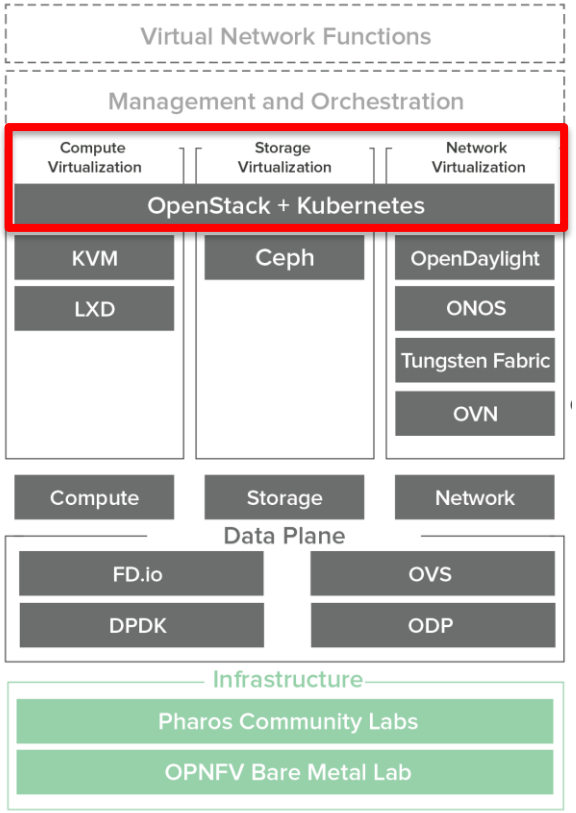
OPNFV Test Ecosystem



OPNFV Test Ecosystem



Functest



Description

Functional verification of OpenStack and K8s

Components tested

Cloud infrastructure control plane

Stage deployed

From patch set verification to release gating

Collected metrics

Pass / fail

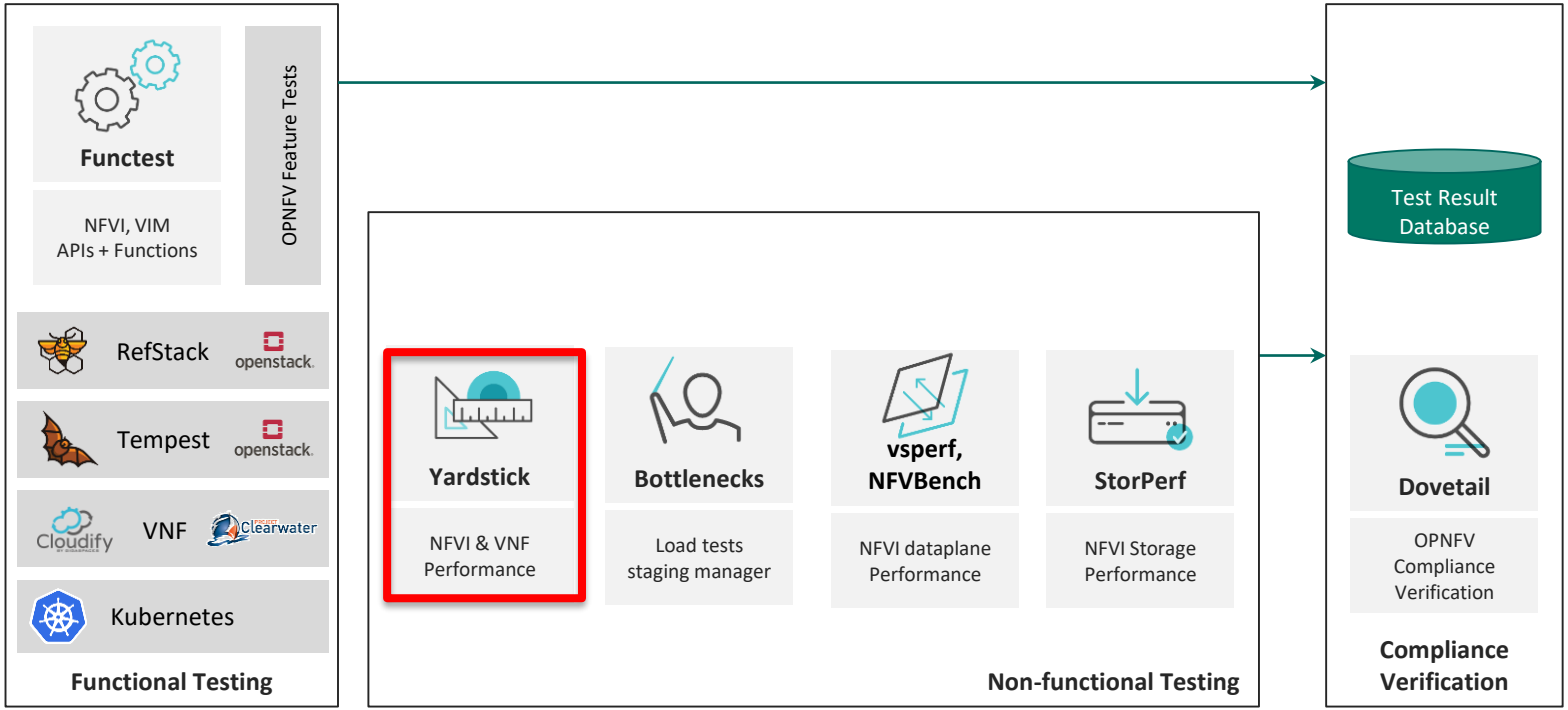
Project packaging/release

Multiple docker containers

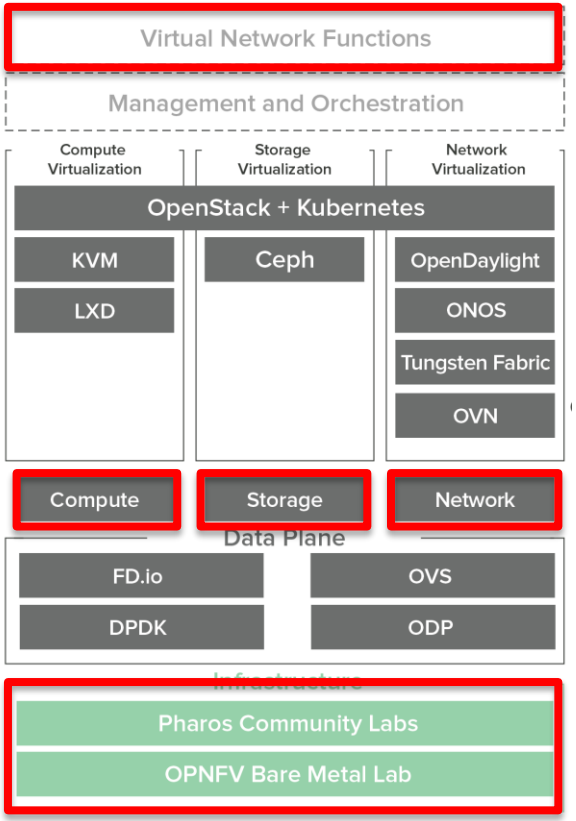
Extensibility

Build with extensibility in mind: based on Xtesting

OPNFV Test Ecosystem



Yardstick



Description

Infrastructure Verification and NFVI/VNF characterisation

Components tested

Cloud infrastructure resources

Stage deployed

CI and pre-production verification

Collected metrics

Performance metrics and pass/fail metrics (HA tests)

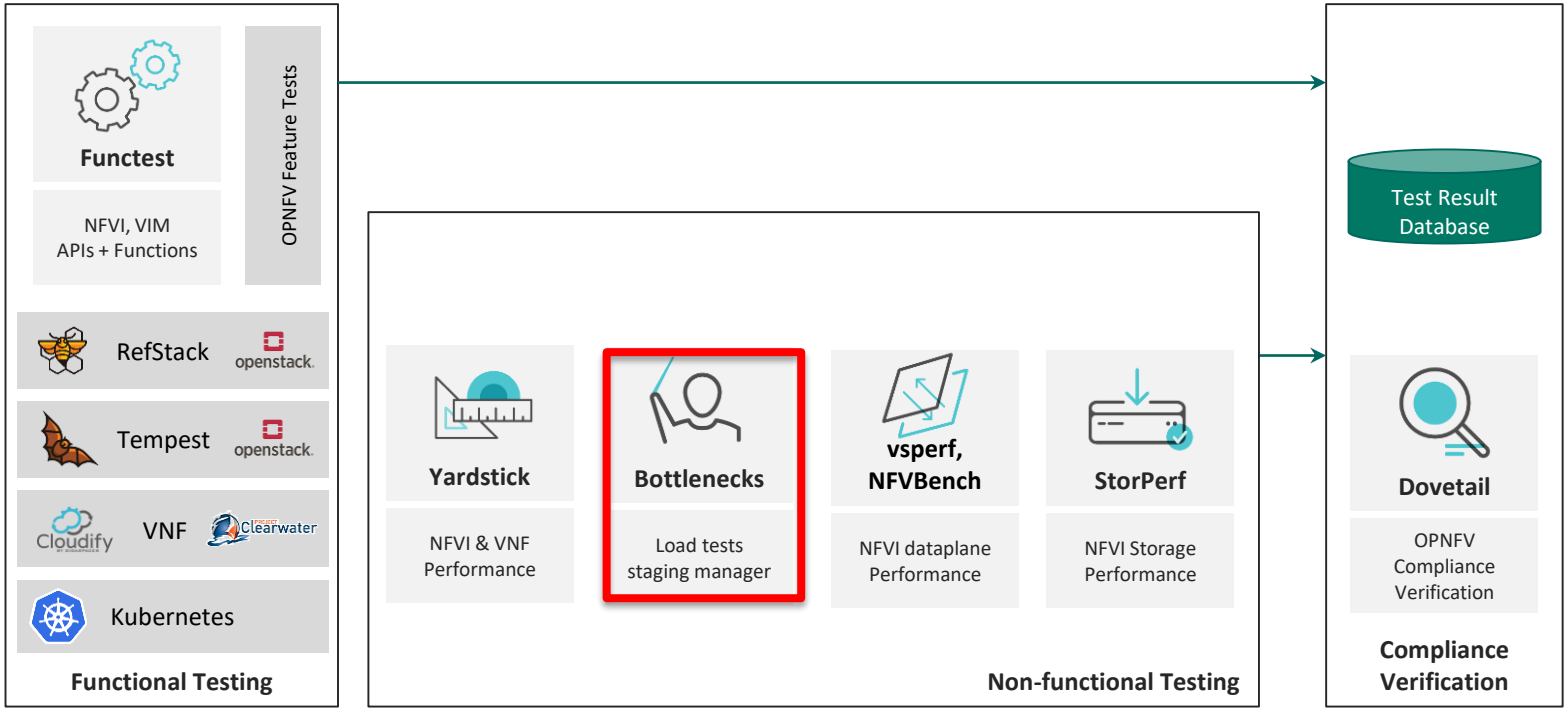
Project packaging/release

Docker container

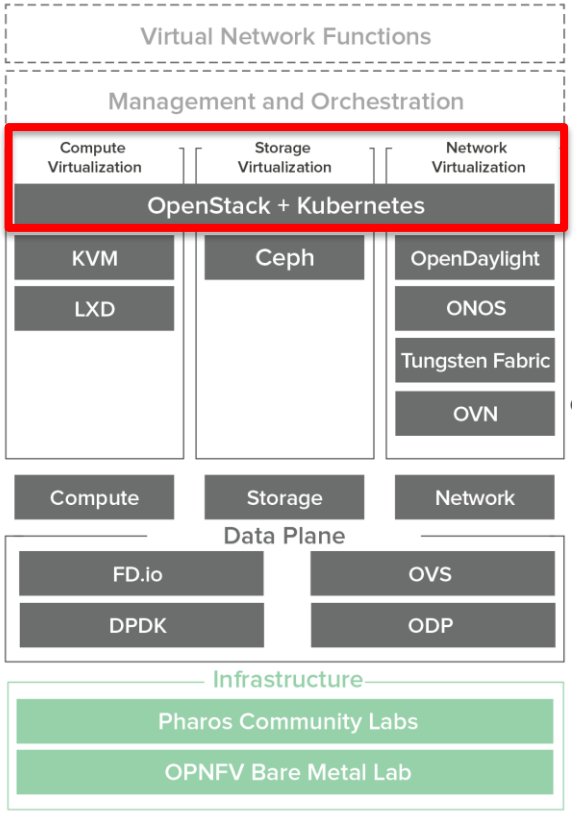
Extensibility

Test cases integrated as scenarios

OPNFV Test Ecosystem



Bottlenecks



Description

Simulates extreme or long term product usage

Components tested

Cloud infrastructure control plane

Stage deployed

CI and performance tuning of infrastructure

Collected metrics

pass/fail metrics

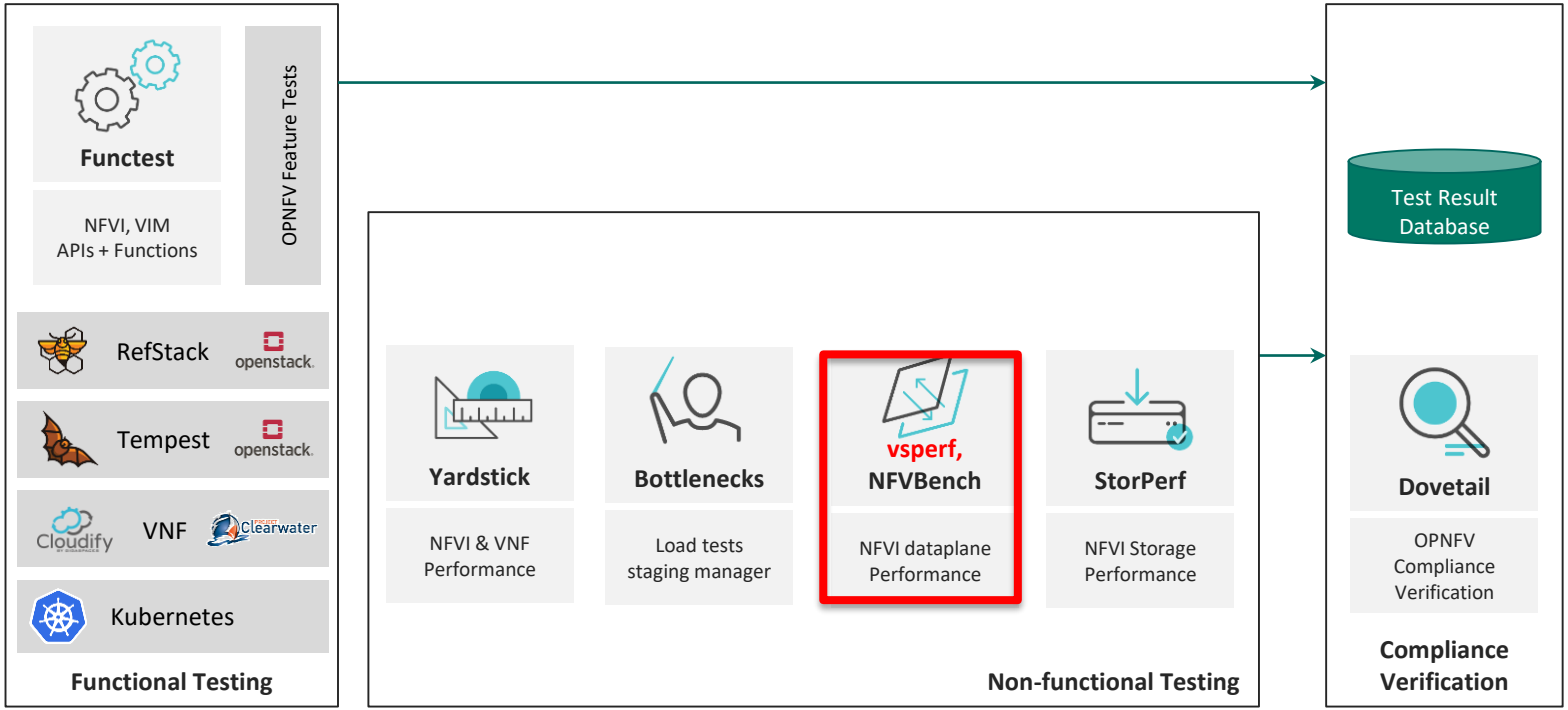
Project packaging/release

Docker container

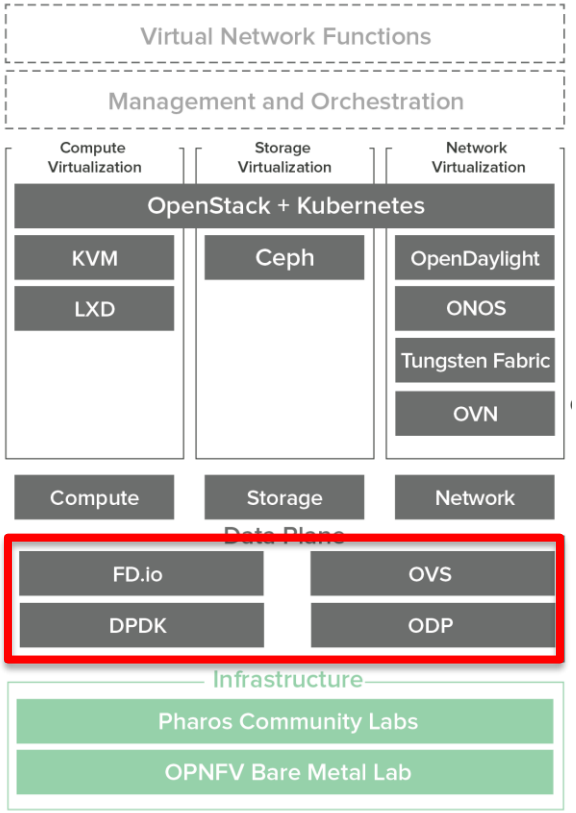
Extensibility

Test scheduler for other OPNFV tools, e.g. Yardstick, StorPerf

OPNFV Test Ecosystem



vsperf



Description

Optimizing switching technologies and NFVI data path components

Components tested

Virtual switch and packet processing components

Stage deployed

Pre-deployment evaluation

Collected metrics

Performance metrics as reported by traffic generators

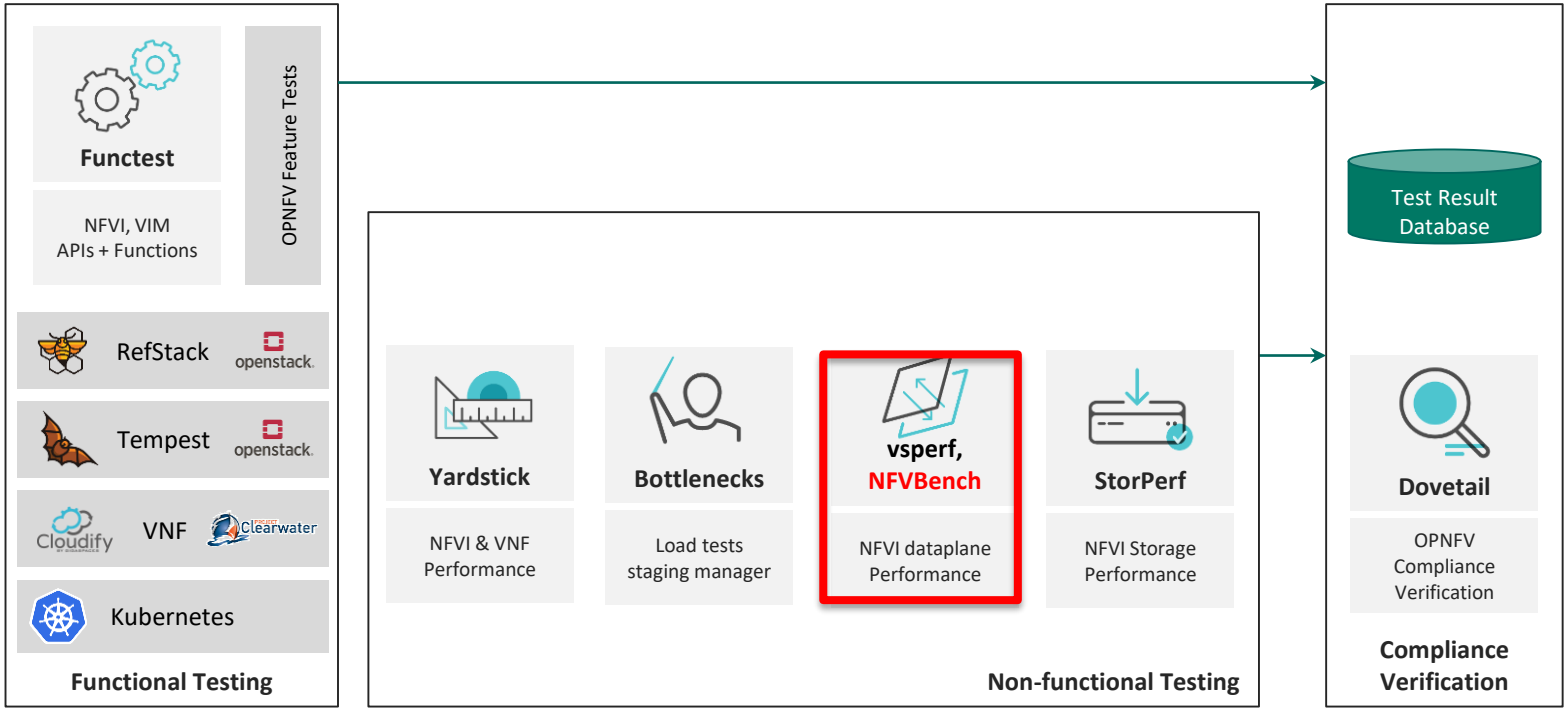
Project packaging/release

Source code package

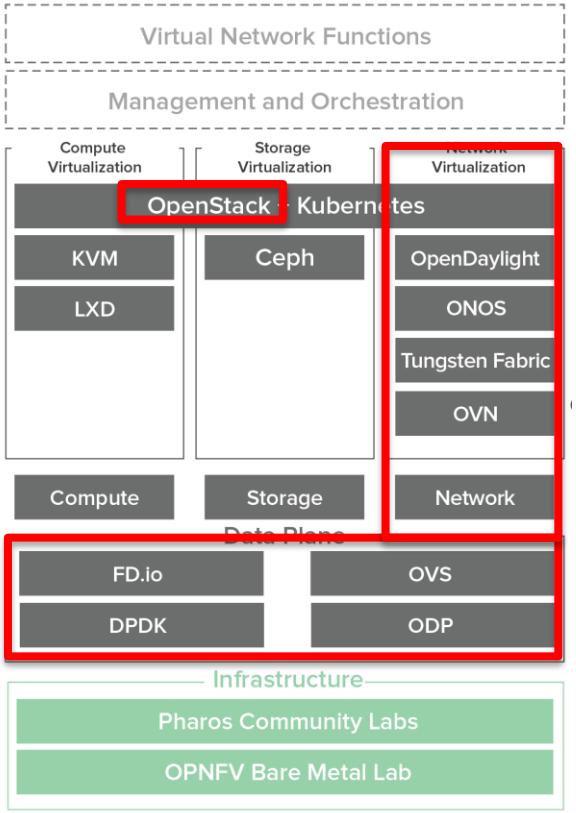
Extensibility

Integration of custom tests possible

OPNFV Test Ecosystem



NFVBench



Description

Full stack data plane performance measurements

Components tested

Full data plane stack: packet forwarding and virtualization components

Stage deployed

Pre-production, performance tuning and monitoring

Collected metrics

Metrics reported by T-Rex

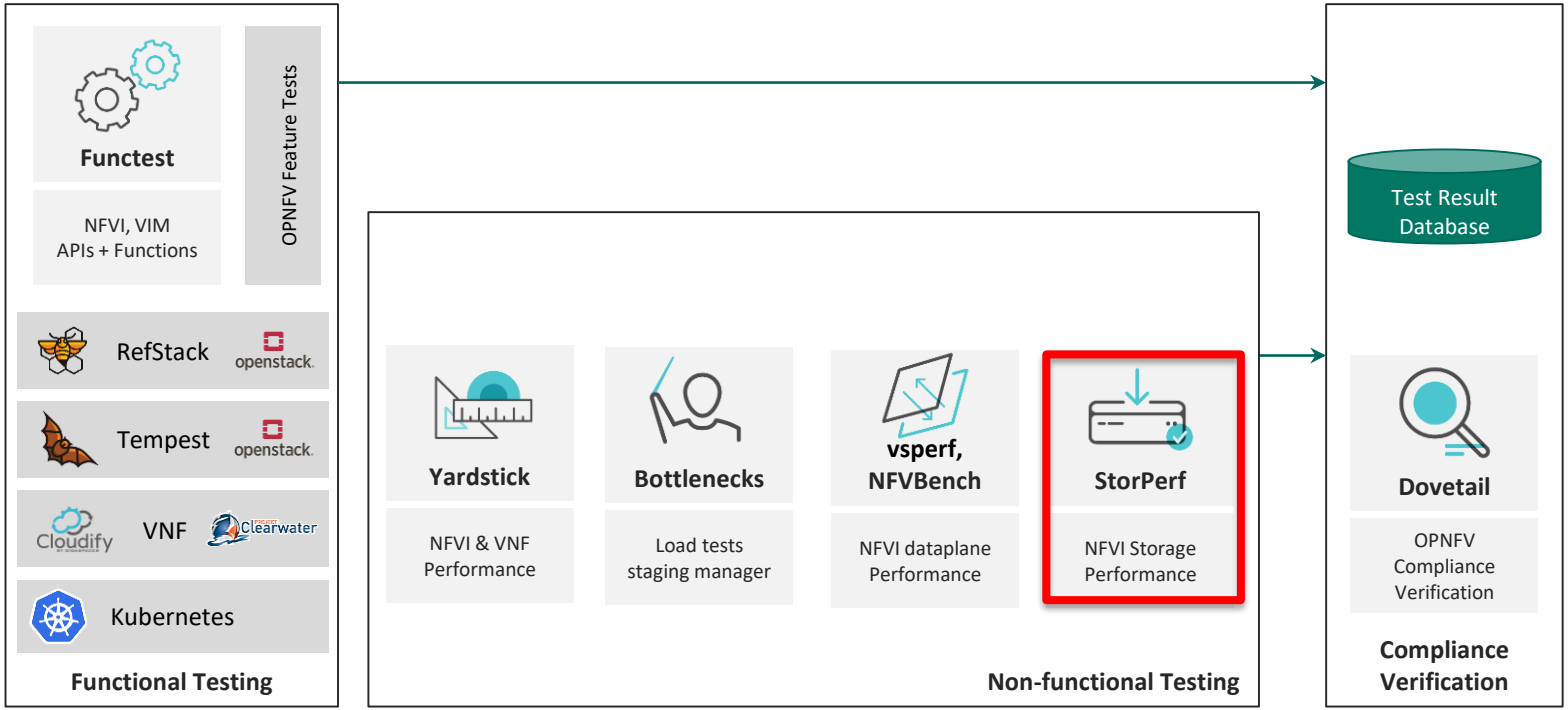
Project packaging/release

Single self-contained Docker container

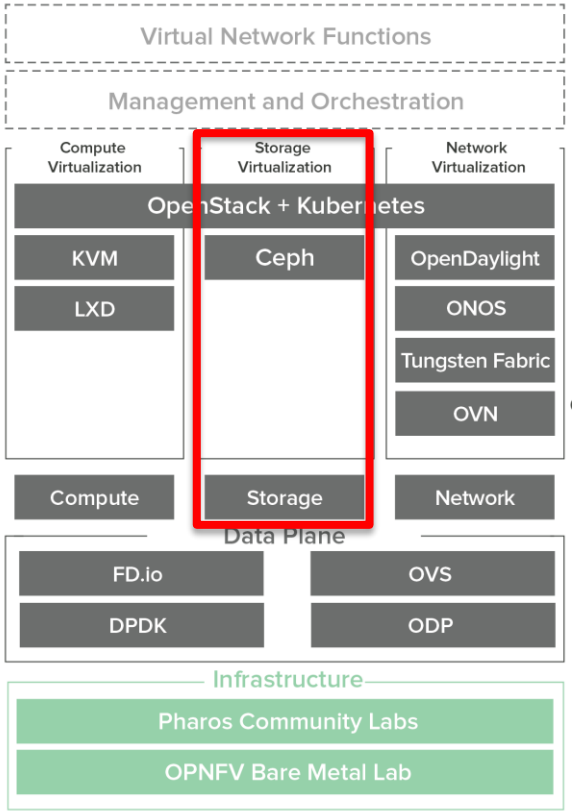
Extensibility

Wide range of parameters in PVP, PVVP, SR-IOV etc. scenarios

OPNFV Test Ecosystem



StorPerf



Description

Performance measurements of block & ephemeral storage at the VM level

Components tested

Storage subsystem

Stage deployed

Pre-production and lab environment

Collected metrics

Performance metrics in steady state, test failed if no stabilization

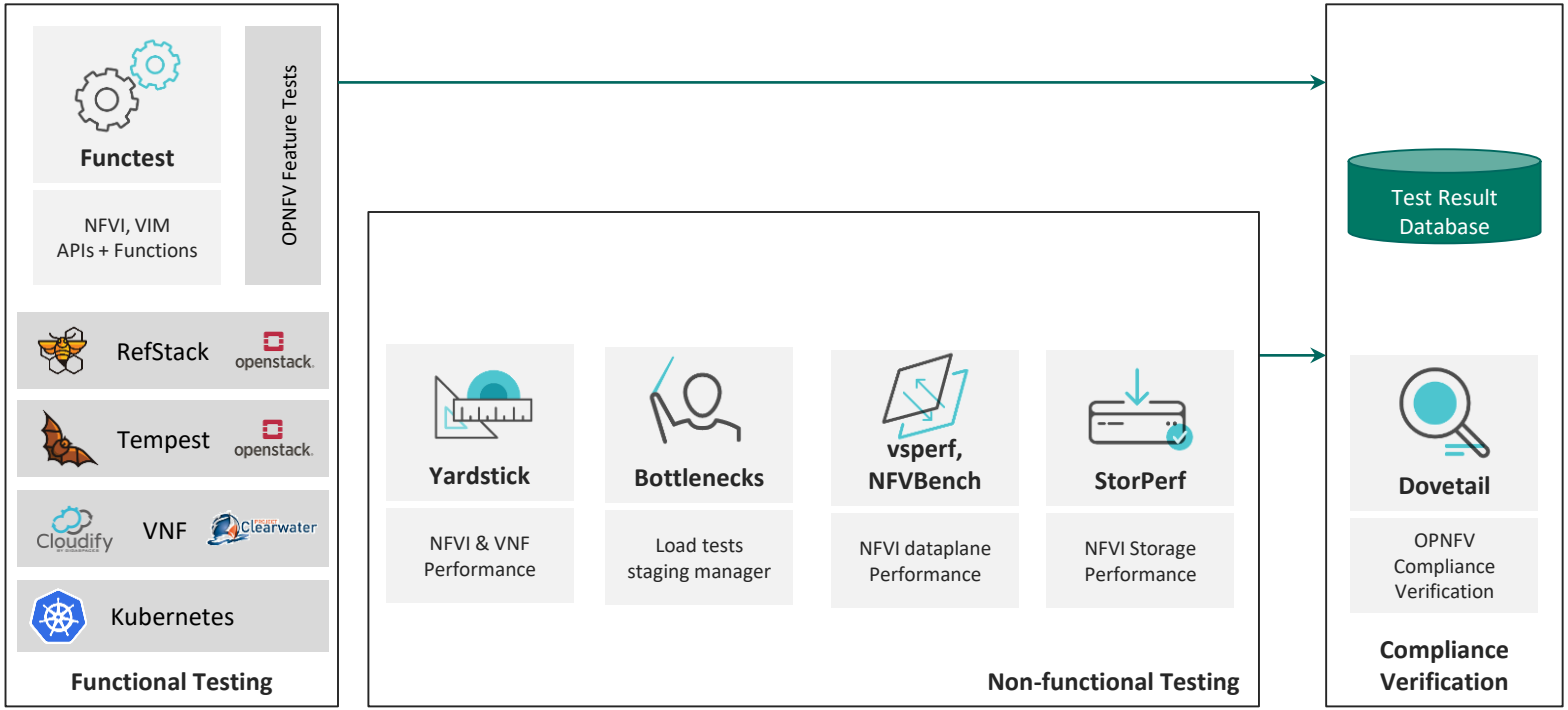
Project packaging/release

Docker container

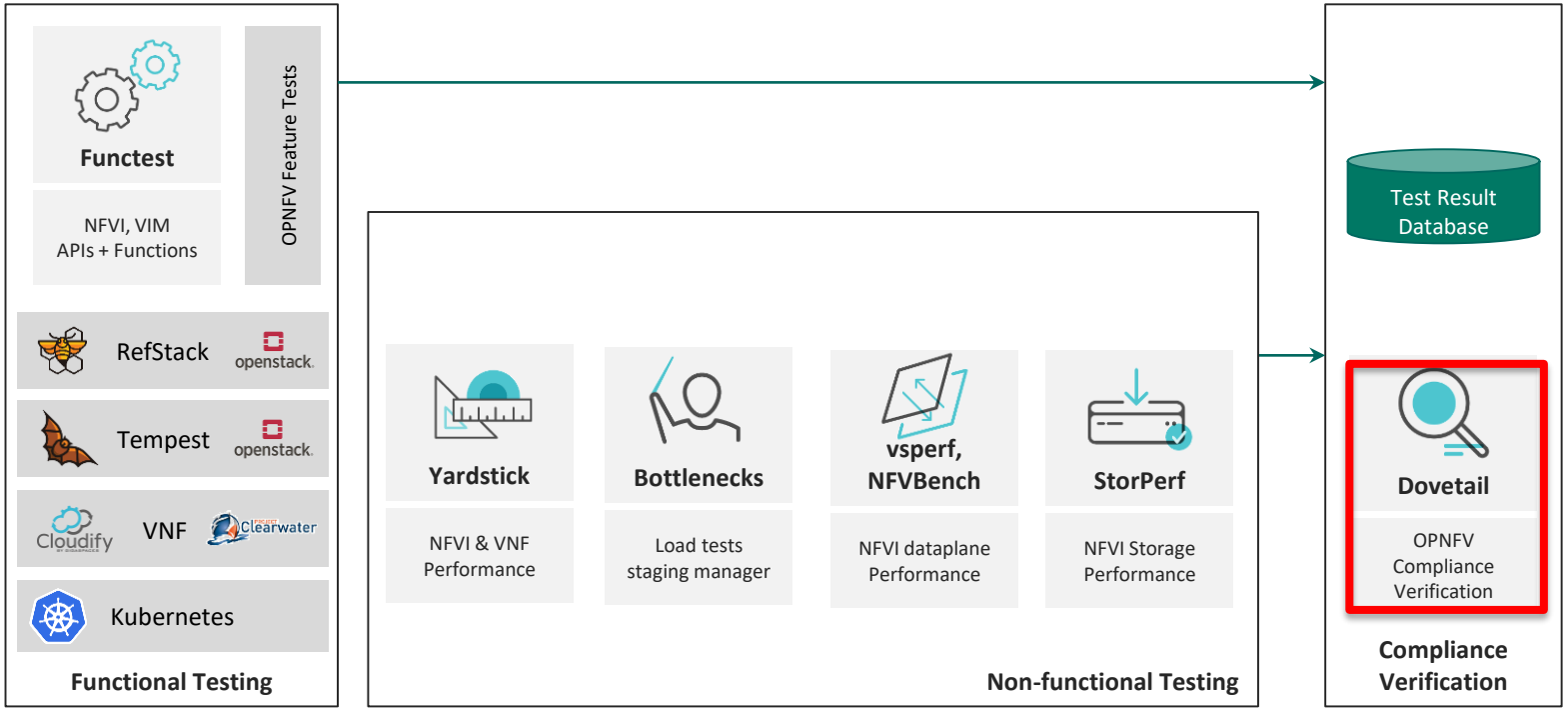
Extensibility

Wide array of parameters: e.g. nr of VMs, queue depth, I/O access pattern

OPNFV Test Ecosystem



OPNFV Test Ecosystem



OPNFV Compliance Program

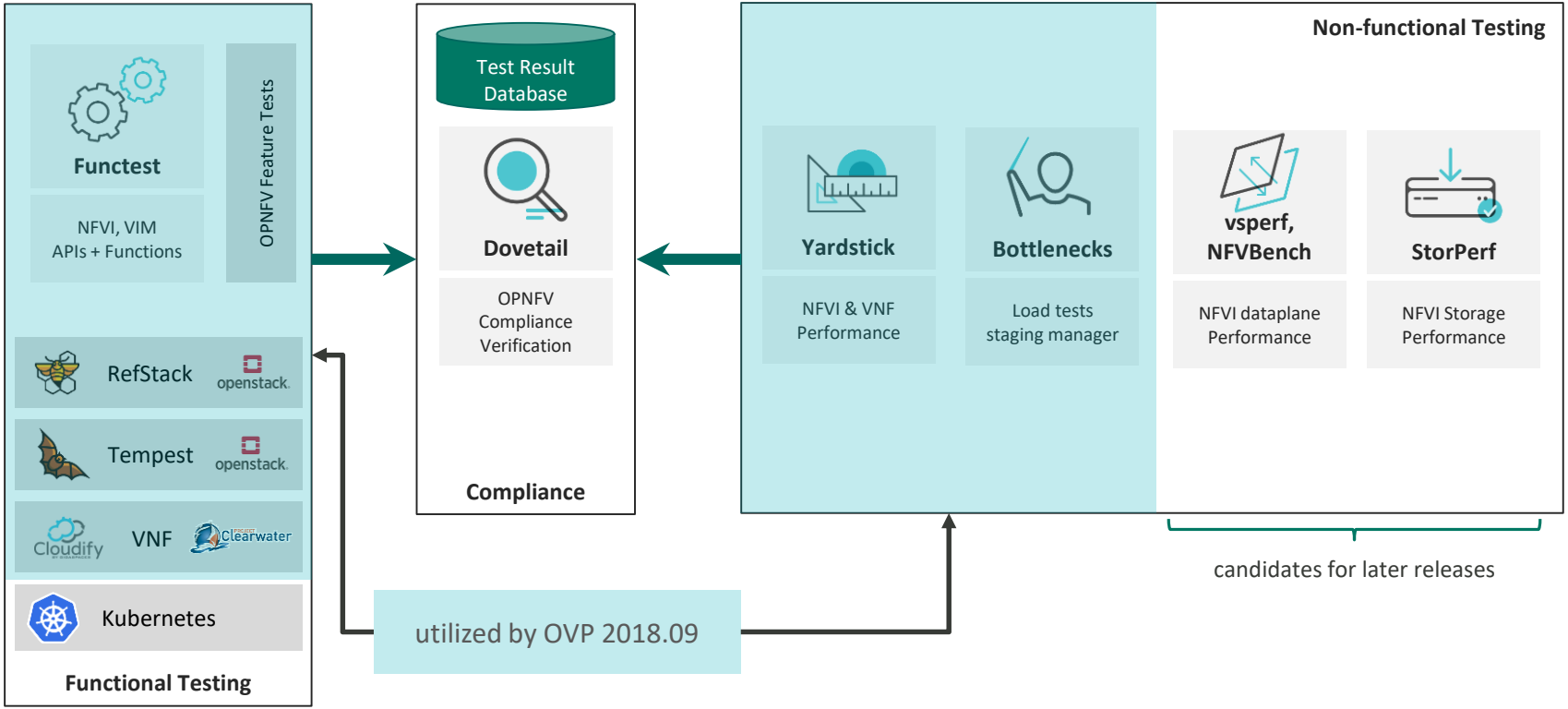
- OPNFV Verified Program (OVP) verifies that a commercial cloud platform exposes the same
  - key APIs,
  - behaviors, and
  - characteristics

  as a reference platform **defined through a specific selection of test cases**

- Main objective: Reduce vendor selection and application onboarding cost
  - Establish industry-accepted technical baseline
  - Simplify RFIs and RFPs

- Main components of OVP
  1. OPNFV test frameworks providing the actual OPNFV and upstream test cases
  2. Dovetail: Wrapper for OPNFV test tools and reporting tool

OPNFV Compliance Program



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Addressing emerging use cases

Addressing emerging use cases

- OPNFV traditionally focused on NFVi data center scenarios
  - Medium to large scale deployments in centralized data centers
  - VNFs = legacy Network Functions in VMs

- Emerging use cases impose new requirements on test tools
  - Edge computing
  - Cloud native computing

⇨ How to address those requirements?

Summary

- Join us!
  - OPNFV test working group
    - https://wiki.opnfv.org/display/testing/TestPerf
  - OPNFV
    - https://wiki.opnfv.org/, https://www.opnfv.org/
  - OPNFV Verified
    - https://www.opnfv.org/
- Provide feedback and input!

Questions

opnfv-users@lists.opnfv.org

#functest

#yardstick #nsb

#bottlenecks

#nfvbench #vsperf

#dovetail