Yardstick Release Note

Release draft (a3644c3)

OPNFV

July 29, 2016

OPNFV BRAHMAPUTRA RELEASE NOTE FOR YARDSTICK

1.1 Abstract

This document compiles the release notes for the OPNFV Brahmaputra release for Yardstick framework as well as Yardstick Project deliverables.

1.2 License

The *Yardstick framework*, the *Yardstick test cases* and the *ApexLake* experimental framework are opensource software, licensed under the terms of the Apache License, Version 2.0.

1.3 Version History

Date	Version	Comment
Apr 27th,2016	3.0	Brahmaputra release
Mar 30th,2016	2.0	Brahmaputra release
Feb 25th,2016	1.0	Brahmaputra release

1.4 Important Notes

The software delivered in the OPNFV Yardstick Project, comprising the *Yardstick framework*, the *Yardstick test cases* and the experimental framework *Apex Lake* is a realization of the methodology in ETSI-ISG NFV-TST001.

The *Yardstick* framework is *installer*, *infrastructure* and *application* independent.

1.5 Summary

This Brahmaputra release provides *Yardstick* as a framework for NFVI testing and OPNFV feature testing, automated in the OPNFV CI pipeline, including:

- Documentation generated with Sphinx
    - User Guide
    - Code Documentation
    - Release notes (this document)

- Results
- Automated Yardstick test suite (daily, weekly)
    - Jenkins Jobs for OPNFV community labs
- Automated Yardstick test results visualization
    - Dashboard using Grafana (user:opnfv/password: opnfv), influxDB used as backend
- Yardstick framework source code
- Yardstick test cases yaml files

For Brahmaputra release, the *Yardstick framework* is used for the following testing:

- OPNFV platform testing - generic test cases to measure the categories:
    - Compute
    - Network
    - Storage
- Test cases for the following OPNFV Projects:
    - High Availability
    - IPv6
    - KVM
    - Parser
- Test cases added in Brahmaputra2.0:
    - virtual Traffic Classifier

The *Yardstick framework* is developed in the OPNFV community, by the Yardstick team. The *virtual Traffic Classifier* is a part of the Yardstick Project.

Note: The test case description template used for the Yardstick test cases is based on the document ETSI-ISG NFV-TST001; the results report template used for the Yardstick results is based on the IEEE Std 829-2008.

1.6 Release Data

Project	Yardstick
Repo/tag	yardstick/brahmaputra.3.0
Yardstick Docker image tag	brahmaputra.3.0
Release designation	Brahmaputra
Release date	Apr 27th, 2016
Purpose of the delivery	OPNFV Brahmaputra release

1.6.1 Version Change

Module Version Changes

This is the third tracked release of Yardstick. It is based on following upstream versions:

- OpenStack Liberty

• OpenDaylight Beryllium

Document Version Changes

This is the third tracked version of the Yardstick framework in OPNFV. It includes the following documentation updates:

• Yardstick User Guide: corrected faulty links

• Yardstick Code Documentation: no changes

• Yardstick Release Notes for Yardstick: this document

• Test Results report for Brahmaputra testing with Yardstick: updated listed of

verified scenarios and limitations

Documentation updates on the second tracked version:

• Yardstick User Guide: added software architecture chapter

• Yardstick Code Documentation: no changes

• Yardstick Release Notes for Yardstick: this document

• Test Results report for Brahmaputra testing with Yardstick: added test cases

and results for virtual Traffic Classifier

1.6.2 Reason for Version

Feature additions

No new features.

Brahmaputra.2.0:

JIRA REFERENCE	SLOGAN
JIRA: YARDSTICK-227	Heat HTTPS SSL support.

Corrected Faults

No corrected faults.

Brahmaputra.2.0:

JIRA REFERENCE	SLOGAN
JIRA: -	Change copyrights for base scenario, runners, dispatchers, cover.
JIRA: -	Update setup.py and dependencies
JIRA: -	Add missing dependencies to docker file
JIRA: -	Fix Heat template for noisy neighbors deploy

Known Faults

JIRA REFERENCE	SLOGAN
JIRA: YARDSTICK-175	Running test suite, if a test cases running failed, the test is stopped.
JIRA: YARDSTICK-176	Fix plotter bug since Output format has been changed.
JIRA: YARDSTICK-216	ArgsAlreadyParsedError: arguments already parsed: cannot register CLI option.
JIRA: YARDSTICK-231	Installation instructions on Wiki not accurate

Note: The faults not related to *Yardstick* framework, addressing scenarios which were not fully verified, are listed in the OPNFV installer's release notes.

1.6.3 Deliverables

Software Deliverables

Yardstick framework source code <brahmaputra.3.0>

Project	Yardstick
Repo/tag	yardstick/brahmaputra.3.0
Yardstick Docker image tag	brahmaputra.3.0
Release designation	Brahmaputra
Release date	Apr 27th, 2016
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Contexts

Context	Description
Heat	Models orchestration using OpenStack Heat
Node	Models Baremetal, Controller, Compute

Runners

Runner	Description
Arithmetic	Steps every run arithmetically according to specified input value
Duration	Runs for a specified period of time
Iteration	Runs for a specified number of iterations
Sequence	Selects input value to a scenario from an input file and runs all entries sequentially

Scenarios

Category	Delivered

Availability	Attacker:
	  • baremetal, process
	HA tools:
	  • check host, openstack, process, service
	  • kill process
	  • start/stop service
	Monitor:
	  • command, process

Compute	• cpuload
	  • cyclictest
	  • lmbench
	  • perf
	  • unixbench

Networking	• iperf3
	  • netperf
	  • ping
	  • ping6
	  • pktgen
	  • sfc
	  • sfc with tacker
	  • vtc instantion validation
	  • vtc instantion validation with noisy neighbors
	  • vtc throughput
	  • vtc throughput in the presence of noisy neighbors

Parser	Tosca2Heat
Storage	fio

API to Other Frameworks

Frame-work	Description
ApexLake	Experimental framework that enables the user to validate NFVI from the perspective of a VNF. A virtual Traffic Classifier is utilized as VNF. Enables experiments with SR-IOV on Compute Node.

Test Results Output

Dispatcher	Description
file	Log to a file.
http	Post data to html.
influxdb	Post data to influxdB.

Delivered Test cases

- Generic NFVI test cases

  - OPNFV_YARDSTICK_TCOO1 - NW Performance

  - OPNFV_YARDSTICK_TCOO2 - NW Latency

  - OPNFV_YARDSTICK_TCOO5 - Storage Performance

  - OPNFV_YARDSTICK_TCOO8 - Packet Loss Extended Test

- **–** OPNFV_YARDSTICK_TCOO9 - Packet Loss
- **–** OPNFV_YARDSTICK_TCO10 - Memory Latency
- **–** OPNFV_YARDSTICK_TCO11 - Packet Delay Variation Between VMs
- **–** OPNFV_YARDSTICK_TCO12 - Memory Bandwidth
- **–** OPNFV_YARDSTICK_TCO14 - Processing Speed
- **–** OPNFV_YARDSTICK_TCO24 - CPU Load
- **–** OPNFV_YARDSTICK_TCO37 - Latency, CPU Load, Throughput, Packet Loss
- **–** OPNFV_YARDSTICK_TCO38 - Latency, CPU Load, Throughput, Packet Loss Extended Test
- Test Cases for OPNFV HA Project:
    - **–** OPNFV_YARDSTICK_TCO19 - HA: Control node Openstack service down
    - **–** OPNFV_YARDSTICK_TC025 - HA: OpenStacK Controller Node abnormally down
- Test Case for OPNFV IPv6 Project:
    - **–** OPNFV_YARDSTICK_TCO27 - IPv6 connectivity
- Test Case for OPNFV KVM Project:
    - **–** OPNFV_YARDSTICK_TCO28 - KVM Latency measurements
- Test Case for OPNFV Parser Project:
    - **–** OPNFV_YARDSTICK_TCO40 - Verify Parser Yang-to-Tosca
- Test Cases for Virtual Traffic Classifier:
    - **–** OPNFV_YARDSTICK_TC006 - Virtual Traffic Classifier Data Plane Throughput

Benchmarking Test

- OPNFV_YARDSTICK_TC007 - Virtual Traffic Classifier Data Plane Throughput

Benchmarking in presence of noisy neighbors Test

- OPNFV_YARDSTICK_TC020 - Virtual Traffic Classifier Instantiation Test
- OPNFV_YARDSTICK_TC021 - Virtual Traffic Classifier Instantiation in

presence of noisy neighbors Test