



Yardstick Release Note

Release brahmaputra.2.0 (654e147)

OPNFV

April 27, 2016

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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

| <i>Date</i> | <i>Version</i> | <i>Comment</i> |
|---------------|----------------|---------------------|
| 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 |
| Purpose of the delivery | OPNFV Brahmaputra release |

Contexts

| Context | Description |
|-------------|---|
| <i>Heat</i> | Models orchestration using OpenStack Heat |
| <i>Node</i> | Models Baremetal, Controller, Compute |

Runners

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

Scenarios

| Category | Delivered |
|---------------------|--|
| <i>Availability</i> | Attacker: <ul style="list-style-type: none"> • baremetal, process HA tools: <ul style="list-style-type: none"> • check host, openstack, process, service • kill process • start/stop service Monitor: <ul style="list-style-type: none"> • command, process |
| <i>Compute</i> | <ul style="list-style-type: none"> • cpuload • cyclictest • lmbench • perf • unixbench |
| <i>Networking</i> | <ul style="list-style-type: none"> • iperf3 • netperf • ping • ping6 • pktgen • sfc • sfc with tacker • vtc instantiation validation • vtc instantiation validation with noisy neighbors • vtc throughput • vtc throughput in the presence of noisy neighbors |
| <i>Parser</i> | Tosca2Heat |
| <i>Storage</i> | fio |

API to Other Frameworks

| Frame-work | Description |
|-----------------|--|
| <i>ApexLake</i> | 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_TCO09 - 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