



VSPERF Results

Release draft (cdba631)

OPNFV

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OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

Framework Test	Definition
phy2phy_tput	PacketLossRatio for Phy2Phy
back2back	BackToBackFrames for Phy2Phy
phy2phy_tput_mod_vlan	PacketLossRatioFrameModification for Phy2Phy
phy2phy_cont	Phy2Phy blast vswitch at x% TX rate and measure throughput
pvp_cont	PVP blast vswitch at x% TX rate and measure throughput
pvvp_cont	PVVP blast vswitch at x% TX rate and measure throughput
phy2phy_scalability	Scalability0PacketLoss for Phy2Phy
pvp_tput	PacketLossRatio for PVP
pvp_back2back	BackToBackFrames for PVP
pvvp_tput	PacketLossRatio for PVVP
pvvp_back2back	BackToBackFrames for PVVP
phy2phy_cpu_load	CPU0PacketLoss for Phy2Phy
phy2phy_mem_load	Same as CPU0PacketLoss but using a memory intensive app

Supported deployment scenarios:

- **Phy2Phy**: Physical port -> vSwitch -> Physical port.
- **PVP**: Physical port -> vSwitch -> VNF -> vSwitch -> Physical port.
- **PVVP**: Physical port -> vSwitch -> VNF -> vSwitch -> VNF -> vSwitch -> Physical port.

Loopback applications in the Guest can be:

- **DPDK testpmd**.
- **Linux Bridge**.
- **l2fwd**.

Supported traffic generators:

- **Ixia**: IxOS and IxNet.
- **Spirent**.
- **Dummy**.

OPNFV BRAHMAPUTRA RESULTS

The vsperf CI jobs that were used to obtain the results can be found at https://wiki.opnfv.org/wiki/vsperf_results.

The following table maps the results in the test dashboard to the appropriate test case in the VSPERF Framework and specifies the metric the vertical/Y axis is plotting. **Please note**, the presence of dpdk within a test name signifies that the vswitch under test was OVS with DPDK, while its absence indicates that the vswitch under test was stock OVS.

Dashboard Test	Framework Test	Metric	Guest Interface
tput_ovsdpdk	phy2phy_tput	Throughput (FPS)	N/A
tput_ovs	phy2phy_tput	Throughput (FPS)	N/A
b2b_ovsdpdk	back2back	Back-to-back value	N/A
b2b_ovs	back2back	Back-to-back value	N/A
tput_mod_vlan_ovs	phy2phy_tput_mod_vlan	Throughput (FPS)	N/A
tput_mod_vlan_ovsdpdk	phy2phy_tput_mod_vlan	Throughput (FPS)	N/A
scalability_ovs	phy2phy_scalability	Throughput (FPS)	N/A
scalability_ovsdpdk	phy2phy_scalability	Throughput (FPS)	N/A
pvp_tput_ovsdpdkuser	pvp_tput	Throughput (FPS)	vhost-user
pvp_tput_ovsvirtio	pvp_tput	Throughput (FPS)	virtio-net
pvp_b2b_ovsdpdkuser	pvp_back2back	Back-to-back value	vhost-user
pvp_b2b_ovsvirtio	pvp_back2back	Back-to-back value	virtio-net
pvvp_tput_ovsdpdkuser	pvvp_tput	Throughput (FPS)	vhost-user
pvvp_tput_ovsvirtio	pvvp_tput	Throughput (FPS)	virtio-net
pvvp_b2b_ovsdpdkuser	pvvp_back2back	Throughput (FPS)	vhost-user
pvvp_b2b_ovsvirtio	pvvp_back2back	Throughput (FPS)	virtio-net

The loopback application in the VNF used for PVP and PVVP scenarios was DPDK testpmd.

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

The objective of the OPNFV project titled “**Characterise vSwitch Performance for Telco NFV Use Cases**”, is to evaluate a virtual switch to identify its suitability for a Telco Network Function Virtualization (NFV) environment. As well as this, the project aims to identify any gaps or bottlenecks in order to drive architectural changes to improve virtual switch performance and determinism. The purpose of this document is to summarize the results of the tests carried out on the virtual switch in the Network Function Virtualization Infrastructure (NFVI) and, from these results, provide evaluations and recommendations for the virtual switch. Test results will be outlined in *details-of-LTR*, preceded by the *document-identifier* and the *scope* and *references*).

This document is currently in draft form.

3.1.1 Document identifier

The document id will be used to uniquely identify versions of the LTR. The format for the document id will be: OPNFV_vswitchperf_LTR_rel_STATUS, the status is one of: DRAFT, REVIEWED, CORRECTED or FINAL. The document id for this version of the LTR is: OPNFV_vswitchperf_LTR_Brahmaputra_DRAFT.

3.1.2 Scope

The scope of this report is to detail the results of the tests that have been performed on the virtual switch. This report will also evaluate the results of these tests and, based on these evaluations, provide recommendations on the suitability of the virtual switch for use in a Telco NFV environment.

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

This section provides a *test-results-overview*. Also included are the *rationale* and the *conclusions*.

3.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: phy2phy_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	23316603.749
tx_rate_mbps	Unknown
throughput_rx_mbps	11938.101
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	6360.000
max_latency_ns	512100.000
avg_latency_ns	9244.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	81807
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	16.71
majflt/s	0.00
VSZ	4143372
RSS	20576
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	81806
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3328
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	16761273.580
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.544
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	4700.000
max_latency_ns	320240.000
avg_latency_ns	12330.500
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	81807
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	16.71
majflt/s	0.00
VSZ	4143372
RSS	20576
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	81806
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3328
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699184.803
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.861
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	23720.000
max_latency_ns	65280.000
avg_latency_ns	51843.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	81807
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	16.71
majflt/s	0.00
VSZ	4143372
RSS	20576
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	81806
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3328
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394606.766
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.619
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	28200.000
max_latency_ns	67780.000
avg_latency_ns	52584.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	81807
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	16.71
majflt/s	0.00
VSZ	4143372
RSS	20576
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	81806
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3328
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625465.183
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.649
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	27920.000
max_latency_ns	70620.000
avg_latency_ns	55730.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	81807
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	16.71
majflt/s	0.00
VSZ	4143372
RSS	20576
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	81806
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3328
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: back2back
- Description: LTD.Throughput.RFC2544.BackToBackFrames
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	22990
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	83869
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	3.09
majflt/s	0.00
VSZ	4143372
RSS	22600
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	83868
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	2226958
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	83869
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	3.09
majflt/s	0.00
VSZ	4143372
RSS	22600
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	83868
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	70488721
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	83869
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	3.09
majflt/s	0.00
VSZ	4143372
RSS	22600
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	83868
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	83869
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	3.09
majflt/s	0.00
VSZ	4143372
RSS	22600
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	83868
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	83869
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	3.09
majflt/s	0.00
VSZ	4143372
RSS	22600
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	83868
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: phy2phy_tput_mod_vlan
- Description: LTD.Throughput.RFC2544.PacketLossRatioFrameModification
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : False

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	9126233.741
tx_rate_mbps	Unknown
throughput_rx_mbps	4964.671
tx_rate_percent	61.328
throughput_rx_percent	64.249
frame_loss_percent	0.000
min_latency_ns	4820.000
max_latency_ns	329320.000
avg_latency_ns	7500.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	86776
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	8.22
majflt/s	0.00
VSZ	4143372
RSS	28770
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86775
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	7858063.517
tx_rate_mbps	Unknown
throughput_rx_mbps	8298.115
tx_rate_percent	93.039
throughput_rx_percent	95.554
frame_loss_percent	0.000
min_latency_ns	4880.000
max_latency_ns	135960.000
avg_latency_ns	5955.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	86776
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	8.22
majflt/s	0.00
VSZ	4143372
RSS	28770
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	86775
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331451.877
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.233
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	6020.000
max_latency_ns	43600.000
avg_latency_ns	13390.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	86776
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	8.22
majflt/s	0.00
VSZ	4143372
RSS	28770
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86775
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.544
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.593
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5760.000
max_latency_ns	73560.000
avg_latency_ns	7235.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	86776
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	8.22
majflt/s	0.00
VSZ	4143372
RSS	28770
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86775
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.247
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.436
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	60980.000
avg_latency_ns	7380.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	86776
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	8.22
majflt/s	0.00
VSZ	4143372
RSS	28770
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86775
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: phy2phy_scalability
- Description: LTD.Scalability.Flows.RFC2544.0PacketLoss
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	18712897.779
tx_rate_mbps	Unknown
throughput_rx_mbps	9581.004
tx_rate_percent	62.875
throughput_rx_percent	62.875
frame_loss_percent	0.000
min_latency_ns	5020.000
max_latency_ns	721260.000
avg_latency_ns	10020.000
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89838
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.65
majflt/s	0.00
VSZ	4143372
RSS	20565
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	89837
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	16369332.218
tx_rate_mbps	Unknown
throughput_rx_mbps	16762.196
tx_rate_percent	96.906
throughput_rx_percent	96.906
frame_loss_percent	0.000
min_latency_ns	7940.000
max_latency_ns	625880.000
avg_latency_ns	10432.000
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89838
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.65
majflt/s	0.00
VSZ	4143372
RSS	20565
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	89837
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699148.510
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.712
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	16480.000
max_latency_ns	97160.000
avg_latency_ns	67716.000
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89838
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.65
majflt/s	0.00
VSZ	4143372
RSS	20565
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	89837
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394602.918
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.587
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14980.000
max_latency_ns	57320.000
avg_latency_ns	42629.000
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89838
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.65
majflt/s	0.00
VSZ	4143372
RSS	20565
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	89837
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625468.169
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.685
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	15440.000
max_latency_ns	52700.000
avg_latency_ns	38821.000
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89838
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.65
majflt/s	0.00
VSZ	4143372
RSS	20565
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	89837
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvp_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: pvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4901416.435
tx_rate_mbps	Unknown
throughput_rx_mbps	2509.525
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	8020.000
max_latency_ns	334900.000
avg_latency_ns	14379.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	91920
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.11
majflt/s	0.00
VSZ	20920588
RSS	24727
%MEM	0.04
kB_rd/s	0.05
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91919
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	92133
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.70
majflt/s	0.00
VSZ	4902300
RSS	59549
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	8.95
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4480318.042
tx_rate_mbps	Unknown
throughput_rx_mbps	4587.846
tx_rate_percent	26.523
throughput_rx_percent	26.523
frame_loss_percent	0.000
min_latency_ns	7340.000
max_latency_ns	353760.000
avg_latency_ns	11808.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	91920
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.11
majflt/s	0.00
VSZ	20920588
RSS	24727
%MEM	0.04
kB_rd/s	0.05
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91919
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	92133
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.70
majflt/s	0.00
VSZ	4902300
RSS	59549
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	8.95
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	3681567.081
tx_rate_mbps	Unknown
throughput_rx_mbps	15079.699
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	11720.000
max_latency_ns	132560.000
avg_latency_ns	18818.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	91920
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.11
majflt/s	0.00
VSZ	20920588
RSS	24727
%MEM	0.04
kB_rd/s	0.05
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91919
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	92133
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.70
majflt/s	0.00
VSZ	4902300
RSS	59549
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	8.95
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2005695.994
tx_rate_mbps	Unknown
throughput_rx_mbps	16430.662
tx_rate_percent	83.758
throughput_rx_percent	83.758
frame_loss_percent	0.000
min_latency_ns	7940.000
max_latency_ns	193740.000
avg_latency_ns	10152.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	91920
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.11
majflt/s	0.00
VSZ	20920588
RSS	24727
%MEM	0.04
kB_rd/s	0.05
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91919
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	92133
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.70
majflt/s	0.00
VSZ	4902300
RSS	59549
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	8.95
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1612916.538
tx_rate_mbps	Unknown
throughput_rx_mbps	19587.258
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	9940.000
max_latency_ns	94180.000
avg_latency_ns	15113.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	91920
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.11
majflt/s	0.00
VSZ	20920588
RSS	24727
%MEM	0.04
kB_rd/s	0.05
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91919
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	92133
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.70
majflt/s	0.00
VSZ	4902300
RSS	59549
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	8.95
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvp_back2back
- Description: LTD.Throughput.RFC2544.BackToBackFrames
- Deployment: pvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	8514
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	95302
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	10.36
majflt/s	0.00
VSZ	20920588
RSS	22645
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	95301
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	95508
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.03
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4752292
RSS	107144
%MEM	0.16
kB_rd/s	1.55
kB_wr/s	90.13
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	7249
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	95302
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	10.36
majflt/s	0.00
VSZ	20920588
RSS	22645
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	95301
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	95508
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.03
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4752292
RSS	107144
%MEM	0.16
kB_rd/s	1.55
kB_wr/s	90.13
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	6608317
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	95302
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	10.36
majflt/s	0.00
VSZ	20920588
RSS	22645
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	95301
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	95508
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.03
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4752292
RSS	107144
%MEM	0.16
kB_rd/s	1.55
kB_wr/s	90.13
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	95302
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	10.36
majflt/s	0.00
VSZ	20920588
RSS	22645
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	95301
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	95508
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.03
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4752292
RSS	107144
%MEM	0.16
kB_rd/s	1.55
kB_wr/s	90.13
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	95302
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	10.36
majflt/s	0.00
VSZ	20920588
RSS	22645
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	95301
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	95508
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.03
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4752292
RSS	107144
%MEM	0.16
kB_rd/s	1.55
kB_wr/s	90.13
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: pvpv
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvpv_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: pvpv
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	3059898.549
tx_rate_mbps	Unknown
throughput_rx_mbps	1566.668
tx_rate_percent	10.281
throughput_rx_percent	10.281
frame_loss_percent	0.000
min_latency_ns	10080.000
max_latency_ns	118600.000
avg_latency_ns	19800.500
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99057
%usr	199.96
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.12
majflt/s	0.00
VSZ	37697804
RSS	20612
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	99056
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99307
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4805024
RSS	42019
%MEM	0.06
kB_rd/s	0.01
kB_wr/s	9.28
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99194
%usr	0.00
%system	0.18
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4797848
RSS	78504
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.05
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2389939.217
tx_rate_mbps	Unknown
throughput_rx_mbps	2447.298
tx_rate_percent	14.148
throughput_rx_percent	14.148
frame_loss_percent	0.000
min_latency_ns	8320.000
max_latency_ns	99980.000
avg_latency_ns	13313.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99057
%usr	199.96
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.12
majflt/s	0.00
VSZ	37697804
RSS	20612
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	99056
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99307
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4805024
RSS	42019
%MEM	0.06
kB_rd/s	0.01
kB_wr/s	9.28
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99194
%usr	0.00
%system	0.18
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4797848
RSS	78504
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.05
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2518504.584
tx_rate_mbps	Unknown
throughput_rx_mbps	10315.795
tx_rate_percent	53.594
throughput_rx_percent	53.594
frame_loss_percent	0.000
min_latency_ns	12360.000
max_latency_ns	135180.000
avg_latency_ns	27060.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99057
%usr	199.96
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.12
majflt/s	0.00
VSZ	37697804
RSS	20612
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	99056
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99307
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4805024
RSS	42019
%MEM	0.06
kB_rd/s	0.01
kB_wr/s	9.28
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99194
%usr	0.00
%system	0.18
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4797848
RSS	78504
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.05
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1801960.540
tx_rate_mbps	Unknown
throughput_rx_mbps	14761.661
tx_rate_percent	75.250
throughput_rx_percent	75.250
frame_loss_percent	0.000
min_latency_ns	11740.000
max_latency_ns	91340.000
avg_latency_ns	21318.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99057
%usr	199.96
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.12
majflt/s	0.00
VSZ	37697804
RSS	20612
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	99056
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99307
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4805024
RSS	42019
%MEM	0.06
kB_rd/s	0.01
kB_wr/s	9.28
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99194
%usr	0.00
%system	0.18
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4797848
RSS	78504
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.05
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1499766.598
tx_rate_mbps	Unknown
throughput_rx_mbps	18213.166
tx_rate_percent	92.266
throughput_rx_percent	92.266
frame_loss_percent	0.000
min_latency_ns	14940.000
max_latency_ns	120260.000
avg_latency_ns	21914.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99057
%usr	199.96
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.12
majflt/s	0.00
VSZ	37697804
RSS	20612
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	99056
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99307
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4805024
RSS	42019
%MEM	0.06
kB_rd/s	0.01
kB_wr/s	9.28
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	99194
%usr	0.00
%system	0.18
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4797848
RSS	78504
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.05
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

3.3 Rationale for decisions

The tests conducted do not have pass/fail/conditional-pass criteria. The test is simply conducted and the results are reported.

3.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-04-19_20-26-02/vswitchperf_logs_2016-04-19_20-26-02.tar.gz.

3.5 General

3.5.1 Glossary

- NFV - Network Function Virtualization
- Mbps - 1,000,000bps

3.5.2 Document change procedures and history

Document ID	Author	Date Modified
<i>OPNFV_vswitchperf_LTR_ver_1.0_Jan_15_CN_DRAFT</i>	Christopher Nolan	23/01/2015
<i>OPNFV_vswitchperf_LTR_ver_1.1_Jan_15_CN_DRAFT</i>	Christopher Nolan	28/01/2015

PERFORMANCE REPORT FOR OPEN VSWITCH

4.1 Introduction

The objective of the OPNFV project titled “**Characterise vSwitch Performance for Telco NFV Use Cases**”, is to evaluate a virtual switch to identify its suitability for a Telco Network Function Virtualization (NFV) environment. As well as this, the project aims to identify any gaps or bottlenecks in order to drive architectural changes to improve virtual switch performance and determinism. The purpose of this document is to summarize the results of the tests carried out on the virtual switch in the Network Function Virtualization Infrastructure (NFVI) and, from these results, provide evaluations and recommendations for the virtual switch. Test results will be outlined in *details-of-LTR*, preceded by the *document-identifier* and the *scope* and *references*).

This document is currently in draft form.

4.1.1 Document identifier

The document id will be used to uniquely identify versions of the LTR. The format for the document id will be: OPNFV_vswitchperf_LTR_rel_STATUS, the status is one of: DRAFT, REVIEWED, CORRECTED or FINAL. The document id for this version of the LTR is: OPNFV_vswitchperf_LTR_Brahmaputra_DRAFT.

4.1.2 Scope

The scope of this report is to detail the results of the tests that have been performed on the virtual switch. This report will also evaluate the results of these tests and, based on these evaluations, provide recommendations on the suitability of the virtual switch for use in a Telco NFV environment.

4.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

4.2 Details of the Level Test Report

This section provides a *test-results-overview*. Also included are the *rationale* and the *conclusions*.

4.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

- Test ID: phy2phy_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218379.278
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	3700.000
max_latency_ns	1727500.000
avg_latency_ns	31676.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	107334
%usr	0.23
%system	1.52
%guest	0.00
%CPU	1.75
CPU	.
minflt/s	3.99
majflt/s	0.00
VSZ	2775560
RSS	13592
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	107333
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214106.896
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.245
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	3900.000
max_latency_ns	2129860.000
avg_latency_ns	37030.500
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	107334
%usr	0.23
%system	1.52
%guest	0.00
%CPU	1.75
CPU	.
minflt/s	3.99
majflt/s	0.00
VSZ	2775560
RSS	13592
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	107333
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	955636.106
tx_rate_mbps	Unknown
throughput_rx_mbps	3914.285
tx_rate_percent	20.336
throughput_rx_percent	20.336
frame_loss_percent	0.000
min_latency_ns	4920.000
max_latency_ns	2048160.000
avg_latency_ns	51564.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	107334
%usr	0.23
%system	1.52
%guest	0.00
%CPU	1.75
CPU	.
minflt/s	3.99
majflt/s	0.00
VSZ	2775560
RSS	13592
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	107333
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	968517.209
tx_rate_mbps	Unknown
throughput_rx_mbps	7934.093
tx_rate_percent	40.445
throughput_rx_percent	40.445
frame_loss_percent	0.000
min_latency_ns	5700.000
max_latency_ns	1426320.000
avg_latency_ns	45761.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	107334
%usr	0.23
%system	1.52
%guest	0.00
%CPU	1.75
CPU	.
minflt/s	3.99
majflt/s	0.00
VSZ	2775560
RSS	13592
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	107333
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	871159.498
tx_rate_mbps	Unknown
throughput_rx_mbps	10579.361
tx_rate_percent	53.594
throughput_rx_percent	53.594
frame_loss_percent	0.000
min_latency_ns	6640.000
max_latency_ns	755140.000
avg_latency_ns	51977.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	107334
%usr	0.23
%system	1.52
%guest	0.00
%CPU	1.75
CPU	.
minflt/s	3.99
majflt/s	0.00
VSZ	2775560
RSS	13592
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	107333
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

- Test ID: back2back
- Description: LTD.Throughput.RFC2544.BackToBackFrames
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	5108
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	110137
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.49
majflt/s	0.00
VSZ	2775560
RSS	13283
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	110136
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3382
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	110137
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	3.49
majflt/s	0.00
VSZ	2775560
RSS	13283
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	110136
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1613
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	110137
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	3.49
majflt/s	0.00
VSZ	2775560
RSS	13283
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	110136
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1644
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	110137
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.49
majflt/s	0.00
VSZ	2775560
RSS	13283
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	110136
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1488
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	110137
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	3.49
majflt/s	0.00
VSZ	2775560
RSS	13283
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	110136
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

- Test ID: phy2phy_tput_mod_vlan
- Description: LTD.Throughput.RFC2544.PacketLossRatioFrameModification
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : False

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	724284.153
tx_rate_mbps	Unknown
throughput_rx_mbps	394.011
tx_rate_percent	4.867
throughput_rx_percent	5.099
frame_loss_percent	0.000
min_latency_ns	3700.000
max_latency_ns	208180.000
avg_latency_ns	38834.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	114224
%usr	0.22
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	10.33
majflt/s	0.00
VSZ	2775560
RSS	15271
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	114223
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	737700.987
tx_rate_mbps	Unknown
throughput_rx_mbps	779.012
tx_rate_percent	8.734
throughput_rx_percent	8.970
frame_loss_percent	0.000
min_latency_ns	3880.000
max_latency_ns	319580.000
avg_latency_ns	41208.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	114224
%usr	0.22
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	10.33
majflt/s	0.00
VSZ	2775560
RSS	15271
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	114223
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	895770.417
tx_rate_mbps	Unknown
throughput_rx_mbps	3697.740
tx_rate_percent	38.125
throughput_rx_percent	38.411
frame_loss_percent	0.000
min_latency_ns	4720.000
max_latency_ns	318540.000
avg_latency_ns	73541.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	114224
%usr	0.22
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	10.33
majflt/s	0.00
VSZ	2775560
RSS	15271
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	114223
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	938022.696
tx_rate_mbps	Unknown
throughput_rx_mbps	7714.299
tx_rate_percent	78.344
throughput_rx_percent	78.644
frame_loss_percent	0.000
min_latency_ns	5820.000
max_latency_ns	247940.000
avg_latency_ns	65097.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	114224
%usr	0.22
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	10.33
majflt/s	0.00
VSZ	2775560
RSS	15271
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	114223
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	580158.613
tx_rate_mbps	Unknown
throughput_rx_mbps	7064.011
tx_rate_percent	71.383
throughput_rx_percent	71.568
frame_loss_percent	0.000
min_latency_ns	9560.000
max_latency_ns	184520.000
avg_latency_ns	58881.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	114224
%usr	0.22
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	10.33
majflt/s	0.00
VSZ	2775560
RSS	15271
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	114223
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

- Test ID: phy2phy_scalability
- Description: LTD.Scalability.Flows.RFC2544.0PacketLoss
- Deployment: p2p
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218378.901
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	3740.000
max_latency_ns	1799160.000
avg_latency_ns	32029.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	117047
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.45
majflt/s	0.00
VSZ	2775556
RSS	15600
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	117046
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214106.059
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.245
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	3900.000
max_latency_ns	3829500.000
avg_latency_ns	38501.500
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	117047
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.45
majflt/s	0.00
VSZ	2775556
RSS	15600
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	117046
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1137365.967
tx_rate_mbps	Unknown
throughput_rx_mbps	4658.651
tx_rate_percent	24.203
throughput_rx_percent	24.203
frame_loss_percent	0.000
min_latency_ns	4880.000
max_latency_ns	1827660.000
avg_latency_ns	37325.000
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	117047
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.45
majflt/s	0.00
VSZ	2775556
RSS	15600
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	117046
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1061122.417
tx_rate_mbps	Unknown
throughput_rx_mbps	8692.715
tx_rate_percent	44.313
throughput_rx_percent	44.313
frame_loss_percent	0.000
min_latency_ns	5600.000
max_latency_ns	452760.000
avg_latency_ns	38797.000
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	117047
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.45
majflt/s	0.00
VSZ	2775556
RSS	15600
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	117046
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1223184.489
tx_rate_mbps	Unknown
throughput_rx_mbps	14854.352
tx_rate_percent	75.250
throughput_rx_percent	75.250
frame_loss_percent	0.000
min_latency_ns	6820.000
max_latency_ns	837780.000
avg_latency_ns	54461.500
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	117047
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.45
majflt/s	0.00
VSZ	2775556
RSS	15600
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	117046
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvp_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: pvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	526485.972
tx_rate_mbps	Unknown
throughput_rx_mbps	269.561
tx_rate_percent	1.773
throughput_rx_percent	1.769
frame_loss_percent	0.251
min_latency_ns	7380.000
max_latency_ns	19992800.000
avg_latency_ns	67286.500
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119867
%usr	0.23
%system	1.38
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	3.01
majflt/s	0.00
VSZ	2775560
RSS	17112
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119866
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	120031
%usr	0.00
%system	0.95
%guest	199.04
%CPU	100.00
CPU	.
minflt/s	1.36
majflt/s	0.00
VSZ	4799524
RSS	103977
%MEM	0.16
kB_rd/s	0.25
kB_wr/s	9.12
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299567.572
tx_rate_mbps	Unknown
throughput_rx_mbps	306.757
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.000
min_latency_ns	9820.000
max_latency_ns	539260.000
avg_latency_ns	50915.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119867
%usr	0.23
%system	1.38
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	3.01
majflt/s	0.00
VSZ	2775560
RSS	17112
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119866
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	120031
%usr	0.00
%system	0.95
%guest	199.04
%CPU	100.00
CPU	.
minflt/s	1.36
majflt/s	0.00
VSZ	4799524
RSS	103977
%MEM	0.16
kB_rd/s	0.25
kB_wr/s	9.12
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	83338.296
tx_rate_mbps	Unknown
throughput_rx_mbps	341.354
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.000
min_latency_ns	15460.000
max_latency_ns	518860.000
avg_latency_ns	59209.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119867
%usr	0.23
%system	1.38
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	3.01
majflt/s	0.00
VSZ	2775560
RSS	17112
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119866
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	120031
%usr	0.00
%system	0.95
%guest	199.04
%CPU	100.00
CPU	.
minflt/s	1.36
majflt/s	0.00
VSZ	4799524
RSS	103977
%MEM	0.16
kB_rd/s	0.25
kB_wr/s	9.12
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	246198.507
tx_rate_mbps	Unknown
throughput_rx_mbps	2016.858
tx_rate_percent	10.281
throughput_rx_percent	10.281
frame_loss_percent	0.000
min_latency_ns	26120.000
max_latency_ns	1412640.000
avg_latency_ns	131668.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119867
%usr	0.23
%system	1.38
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	3.01
majflt/s	0.00
VSZ	2775560
RSS	17112
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119866
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	120031
%usr	0.00
%system	0.95
%guest	199.04
%CPU	100.00
CPU	.
minflt/s	1.36
majflt/s	0.00
VSZ	4799524
RSS	103977
%MEM	0.16
kB_rd/s	0.25
kB_wr/s	9.12
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	267697.253
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.915
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	25760.000
max_latency_ns	969220.000
avg_latency_ns	122190.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119867
%usr	0.23
%system	1.38
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	3.01
majflt/s	0.00
VSZ	2775560
RSS	17112
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119866
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	120031
%usr	0.00
%system	0.95
%guest	199.04
%CPU	100.00
CPU	.
minflt/s	1.36
majflt/s	0.00
VSZ	4799524
RSS	103977
%MEM	0.16
kB_rd/s	0.25
kB_wr/s	9.12
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvp_back2back
- Description: LTD.Throughput.RFC2544.BackToBackFrames
- Deployment: pvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhd	
Statistic	Value
UID	0
PID	122907
%usr	0.22
%system	1.31
%guest	0.00
%CPU	1.53
CPU	.
minflt/s	4.83
majflt/s	0.00
VSZ	2775560
RSS	16166
%MEM	0.02
kB_rd/s	0.10
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	122906
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	123066
%usr	0.00
%system	0.03
%guest	199.94
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4775472
RSS	124687
%MEM	0.19
kB_rd/s	0.93
kB_wr/s	70.28
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	122907
%usr	0.22
%system	1.31
%guest	0.00
%CPU	1.53
CPU	•
minflt/s	4.83
majflt/s	0.00
VSZ	2775560
RSS	16166
%MEM	0.02
kB_rd/s	0.10
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	122906
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	123066
%usr	0.00
%system	0.03
%guest	199.94
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4775472
RSS	124687
%MEM	0.19
kB_rd/s	0.93
kB_wr/s	70.28
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	122907
%usr	0.22
%system	1.31
%guest	0.00
%CPU	1.53
CPU	.
minflt/s	4.83
majflt/s	0.00
VSZ	2775560
RSS	16166
%MEM	0.02
kB_rd/s	0.10
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	122906
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	123066
%usr	0.00
%system	0.03
%guest	199.94
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4775472
RSS	124687
%MEM	0.19
kB_rd/s	0.93
kB_wr/s	70.28
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	122907
%usr	0.22
%system	1.31
%guest	0.00
%CPU	1.53
CPU	.
minflt/s	4.83
majflt/s	0.00
VSZ	2775560
RSS	16166
%MEM	0.02
kB_rd/s	0.10
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	122906
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	123066
%usr	0.00
%system	0.03
%guest	199.94
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4775472
RSS	124687
%MEM	0.19
kB_rd/s	0.93
kB_wr/s	70.28
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	122907
%usr	0.22
%system	1.31
%guest	0.00
%CPU	1.53
CPU	.
minflt/s	4.83
majflt/s	0.00
VSZ	2775560
RSS	16166
%MEM	0.02
kB_rd/s	0.10
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	122906
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	123066
%usr	0.00
%system	0.03
%guest	199.94
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4775472
RSS	124687
%MEM	0.19
kB_rd/s	0.93
kB_wr/s	70.28
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvvvp_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: pvvvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	526596.224
tx_rate_mbps	Unknown
throughput_rx_mbps	269.617
tx_rate_percent	1.773
throughput_rx_percent	1.769
frame_loss_percent	0.230
min_latency_ns	25100.000
max_latency_ns	24014300.000
avg_latency_ns	105038.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	127338
%usr	0.22
%system	1.27
%guest	0.00
%CPU	1.49
CPU	.
minflt/s	3.79
majflt/s	0.00
VSZ	2775556
RSS	14578
%MEM	0.02
kB_rd/s	0.12
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	127335
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2328
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127699
%usr	0.00
%system	1.30
%guest	198.64
%CPU	99.99
CPU	.
minflt/s	0.50
majflt/s	0.00
VSZ	4769328
RSS	44298
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	9.48
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127557
%usr	0.00
%system	1.33
%guest	198.61
%CPU	99.99
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	4789300
RSS	60847
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299561.659
tx_rate_mbps	Unknown
throughput_rx_mbps	306.751
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.002
min_latency_ns	23660.000
max_latency_ns	1816020.000
avg_latency_ns	71548.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	127338
%usr	0.22
%system	1.27
%guest	0.00
%CPU	1.49
CPU	.
minflt/s	3.79
majflt/s	0.00
VSZ	2775556
RSS	14578
%MEM	0.02
kB_rd/s	0.12
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	127335
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2328
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127699
%usr	0.00
%system	1.30
%guest	198.64
%CPU	99.99
CPU	.
minflt/s	0.50
majflt/s	0.00
VSZ	4769328
RSS	44298
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	9.48
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127557
%usr	0.00
%system	1.33
%guest	198.61
%CPU	99.99
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	4789300
RSS	60847
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	228721.815
tx_rate_mbps	Unknown
throughput_rx_mbps	936.845
tx_rate_percent	4.867
throughput_rx_percent	4.867
frame_loss_percent	0.000
min_latency_ns	48900.000
max_latency_ns	1257500.000
avg_latency_ns	134958.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	127338
%usr	0.22
%system	1.27
%guest	0.00
%CPU	1.49
CPU	.
minflt/s	3.79
majflt/s	0.00
VSZ	2775556
RSS	14578
%MEM	0.02
kB_rd/s	0.12
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	127335
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2328
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127699
%usr	0.00
%system	1.30
%guest	198.64
%CPU	99.99
CPU	.
minflt/s	0.50
majflt/s	0.00
VSZ	4769328
RSS	44298
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	9.48
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127557
%usr	0.00
%system	1.33
%guest	198.61
%CPU	99.99
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	4789300
RSS	60847
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	283241.491
tx_rate_mbps	Unknown
throughput_rx_mbps	2320.314
tx_rate_percent	11.828
throughput_rx_percent	11.828
frame_loss_percent	0.000
min_latency_ns	62760.000
max_latency_ns	1668960.000
avg_latency_ns	184166.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	127338
%usr	0.22
%system	1.27
%guest	0.00
%CPU	1.49
CPU	.
minflt/s	3.79
majflt/s	0.00
VSZ	2775556
RSS	14578
%MEM	0.02
kB_rd/s	0.12
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	127335
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2328
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127699
%usr	0.00
%system	1.30
%guest	198.64
%CPU	99.99
CPU	.
minflt/s	0.50
majflt/s	0.00
VSZ	4769328
RSS	44298
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	9.48
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127557
%usr	0.00
%system	1.33
%guest	198.61
%CPU	99.99
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	4789300
RSS	60847
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	242553.586
tx_rate_mbps	Unknown
throughput_rx_mbps	2945.571
tx_rate_percent	14.922
throughput_rx_percent	14.922
frame_loss_percent	0.000
min_latency_ns	56420.000
max_latency_ns	1370500.000
avg_latency_ns	173455.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	127338
%usr	0.22
%system	1.27
%guest	0.00
%CPU	1.49
CPU	.
minflt/s	3.79
majflt/s	0.00
VSZ	2775556
RSS	14578
%MEM	0.02
kB_rd/s	0.12
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	127335
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2328
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127699
%usr	0.00
%system	1.30
%guest	198.64
%CPU	99.99
CPU	.
minflt/s	0.50
majflt/s	0.00
VSZ	4769328
RSS	44298
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	9.48
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	127557
%usr	0.00
%system	1.33
%guest	198.61
%CPU	99.99
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	4789300
RSS	60847
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65698364 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: cdba631d32461d5f5916b369a9007a63891c55a6
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: pvvp_back2back
- Description: LTD.Throughput.RFC2544.BackToBackFrames
- Deployment: pvvp
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhdchd	
Statistic	Value
UID	0
PID	130732
%usr	0.21
%system	1.30
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	2775560
RSS	16364
%MEM	0.02
kB_rd/s	0.07
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	130729
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131062
%usr	0.00
%system	0.03
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.79
majflt/s	0.00
VSZ	4862436
RSS	41059
%MEM	0.06
kB_rd/s	0.15
kB_wr/s	6.18
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	130948
%usr	0.00
%system	0.05
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4808232
RSS	77650
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130732
%usr	0.21
%system	1.30
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	2775560
RSS	16364
%MEM	0.02
kB_rd/s	0.07
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	130729
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131062
%usr	0.00
%system	0.03
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.79
majflt/s	0.00
VSZ	4862436
RSS	41059
%MEM	0.06
kB_rd/s	0.15
kB_wr/s	6.18
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	130948
%usr	0.00
%system	0.05
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4808232
RSS	77650
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130732
%usr	0.21
%system	1.30
%guest	0.00
%CPU	1.51
CPU	•
minflt/s	3.38
majflt/s	0.00
VSZ	2775560
RSS	16364
%MEM	0.02
kB_rd/s	0.07
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	130729
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131062
%usr	0.00
%system	0.03
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.79
majflt/s	0.00
VSZ	4862436
RSS	41059
%MEM	0.06
kB_rd/s	0.15
kB_wr/s	6.18
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	130948
%usr	0.00
%system	0.05
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4808232
RSS	77650
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130732
%usr	0.21
%system	1.30
%guest	0.00
%CPU	1.51
CPU	•
minflt/s	3.38
majflt/s	0.00
VSZ	2775560
RSS	16364
%MEM	0.02
kB_rd/s	0.07
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	130729
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131062
%usr	0.00
%system	0.03
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.79
majflt/s	0.00
VSZ	4862436
RSS	41059
%MEM	0.06
kB_rd/s	0.15
kB_wr/s	6.18
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	130948
%usr	0.00
%system	0.05
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4808232
RSS	77650
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130732
%usr	0.21
%system	1.30
%guest	0.00
%CPU	1.51
CPU	•
minflt/s	3.38
majflt/s	0.00
VSZ	2775560
RSS	16364
%MEM	0.02
kB_rd/s	0.07
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	130729
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131062
%usr	0.00
%system	0.03
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.79
majflt/s	0.00
VSZ	4862436
RSS	41059
%MEM	0.06
kB_rd/s	0.15
kB_wr/s	6.18
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	130948
%usr	0.00
%system	0.05
%guest	199.95
%CPU	99.99
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4808232
RSS	77650
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

pidstat is used to collect the process statistics, as such some values such as %CPU and %USER maybe > 100% as the values are summed across multiple cores. For more info on pidstat please see: <http://linux.die.net/man/1/pidstat>.

Known issues: Some reported metrics have the value “unkown”. These values are marked unknown as they are not values retrieved from the external tester (traffic generator). They were incorrectly derived in a way that made assumptions about packet sizes, as such they have been deprecated from vsperf and marked as unknown. They will be resolved in the next release.

4.3 Rationale for decisions

The tests conducted do not have pass/fail/conditional-pass criteria. The test is simply conducted and the results are reported.

4.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-04-19_20-26-02/vswitchperf_logs_2016-04-19_20-26-02.tar.gz.

4.5 General

4.5.1 Glossary

- NFV - Network Function Virtualization
- Mbps - 1,000,000bps

4.5.2 Document change procedures and history

Document ID	Author	Date Modified
<i>OPNFV_vswitchperf_LTR_ver_1.0_Jan_15_CN_DRAFT</i>	Christopher Nolan	23/01/2015
<i>OPNFV_vswitchperf_LTR_ver_1.1_Jan_15_CN_DRAFT</i>	Christopher Nolan	28/01/2015