



VSPERF Results

Release draft (86bc27f)

OPNFV

March 04, 2016

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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_re1_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_TPUB

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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	23777015.083
tx_rate_mbps	Unknown
throughput_rx_mbps	12173.832
tx_rate_percent	79.891
throughput_rx_percent	79.891
frame_loss_percent	0.000
min_latency_ns	6660.000
max_latency_ns	275400.000
avg_latency_ns	11746.500
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	68395
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.17
majflt/s	0.00
VSZ	2668612
RSS	18043
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	68394
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	16108023.085
tx_rate_mbps	Unknown
throughput_rx_mbps	16494.616
tx_rate_percent	95.359
throughput_rx_percent	95.359
frame_loss_percent	0.000
min_latency_ns	8240.000
max_latency_ns	194280.000
avg_latency_ns	11312.000
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	68395
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.17
majflt/s	0.00
VSZ	2668612
RSS	18043
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	68394
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	4699182.203
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.850
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	43960.000
max_latency_ns	86300.000
avg_latency_ns	70143.000
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	68395
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.17
majflt/s	0.00
VSZ	2668612
RSS	18043
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	68394
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	2394602.408
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.583
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	49900.000
max_latency_ns	92740.000
avg_latency_ns	76396.000
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	68395
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.17
majflt/s	0.00
VSZ	2668612
RSS	18043
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	68394
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	1625465.276
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.650
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	46800.000
max_latency_ns	88500.000
avg_latency_ns	72564.000
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	68395
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.17
majflt/s	0.00
VSZ	2668612
RSS	18043
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	68394
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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.

3.2.2 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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	27247
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	70555
%usr	200.03
%system	0.04
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.61
majflt/s	0.00
VSZ	2668616
RSS	22149
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	70554
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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
b2b_frames	73941
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	70555
%usr	200.03
%system	0.04
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	11.61
majflt/s	0.00
VSZ	2668616
RSS	22149
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	70554
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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
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-vswitchd	
Statistic	Value
UID	0
PID	70555
%usr	200.03
%system	0.04
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	11.61
majflt/s	0.00
VSZ	2668616
RSS	22149
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	70554
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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
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	70555
%usr	200.03
%system	0.04
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.61
majflt/s	0.00
VSZ	2668616
RSS	22149
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	70554
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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
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	70555
%usr	200.03
%system	0.04
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	11.61
majflt/s	0.00
VSZ	2668616
RSS	22149
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	70554
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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.

3.2.3 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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	11428159.927
tx_rate_mbps	Unknown
throughput_rx_mbps	6216.919
tx_rate_percent	76.797
throughput_rx_percent	80.454
frame_loss_percent	0.000
min_latency_ns	6340.000
max_latency_ns	467500.000
avg_latency_ns	8182.000
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	73431
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	14.88
majflt/s	0.00
VSZ	2668616
RSS	34201
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	73430
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	8184666.305
tx_rate_mbps	Unknown
throughput_rx_mbps	8643.008
tx_rate_percent	96.906
throughput_rx_percent	99.526
frame_loss_percent	0.000
min_latency_ns	5240.000
max_latency_ns	266460.000
avg_latency_ns	7317.000
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	73431
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	14.88
majflt/s	0.00
VSZ	2668616
RSS	34201
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	73430
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	2331451.889
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	5720.000
max_latency_ns	30720.000
avg_latency_ns	10528.000
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	73431
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	14.88
majflt/s	0.00
VSZ	2668616
RSS	34201
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	73430
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	1188058.672
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.595
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5900.000
max_latency_ns	38380.000
avg_latency_ns	6594.000
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	73431
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	14.88
majflt/s	0.00
VSZ	2668616
RSS	34201
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	73430
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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	781313.951
tx_rate_mbps	Unknown
throughput_rx_mbps	9513.279
tx_rate_percent	96.133
throughput_rx_percent	96.383
frame_loss_percent	0.000
min_latency_ns	6080.000
max_latency_ns	34100.000
avg_latency_ns	6697.000
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	73431
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	14.88
majflt/s	0.00
VSZ	2668616
RSS	34201
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	73430
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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.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	22626032.563
tx_rate_mbps	Unknown
throughput_rx_mbps	11584.529
tx_rate_percent	76.023
throughput_rx_percent	76.023
frame_loss_percent	0.000
min_latency_ns	5680.000
max_latency_ns	402160.000
avg_latency_ns	8209.000
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	76099
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.90
majflt/s	0.00
VSZ	2668616
RSS	24143
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	76098
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
RSS	3352
%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	15977429.222
tx_rate_mbps	Unknown
throughput_rx_mbps	16360.888
tx_rate_percent	94.586
throughput_rx_percent	94.586
frame_loss_percent	0.000
min_latency_ns	4980.000
max_latency_ns	129420.000
avg_latency_ns	10618.000
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	76099
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.90
majflt/s	0.00
VSZ	2668616
RSS	24143
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	76098
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
RSS	3352
%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	4699174.621
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.819
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	40480.000
max_latency_ns	88580.000
avg_latency_ns	72795.000
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	76099
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.90
majflt/s	0.00
VSZ	2668616
RSS	24143
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	76098
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
RSS	3352
%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	2394599.271
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.557
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	43420.000
max_latency_ns	91100.000
avg_latency_ns	74087.500
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	76099
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.90
majflt/s	0.00
VSZ	2668616
RSS	24143
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	76098
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
RSS	3352
%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	1625462.724
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.619
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	42400.000
max_latency_ns	89440.000
avg_latency_ns	72999.500
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	76099
%usr	200.04
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.90
majflt/s	0.00
VSZ	2668616
RSS	24143
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	76098
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47632
RSS	3352
%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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	5361798.607
tx_rate_mbps	Unknown
throughput_rx_mbps	2745.241
tx_rate_percent	18.016
throughput_rx_percent	18.016
frame_loss_percent	0.000
min_latency_ns	6060.000
max_latency_ns	75300.000
avg_latency_ns	8350.000
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	78328
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.27
majflt/s	0.00
VSZ	19445832
RSS	20112
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	78327
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
RSS	3368
%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	78419
%usr	0.00
%system	0.06
%guest	199.80
%CPU	100.95
CPU	.
minflt/s	2.63
majflt/s	0.00
VSZ	4847524
RSS	224227
%MEM	0.69
kB_rd/s	0.00
kB_wr/s	7.22
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	6440064.010
tx_rate_mbps	Unknown
throughput_rx_mbps	6594.626
tx_rate_percent	38.125
throughput_rx_percent	38.125
frame_loss_percent	0.000
min_latency_ns	13520.000
max_latency_ns	110560.000
avg_latency_ns	23699.000
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	78328
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.27
majflt/s	0.00
VSZ	19445832
RSS	20112
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	78327
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
RSS	3368
%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	78419
%usr	0.00
%system	0.06
%guest	199.80
%CPU	100.95
CPU	.
minflt/s	2.63
majflt/s	0.00
VSZ	4847524
RSS	224227
%MEM	0.69
kB_rd/s	0.00
kB_wr/s	7.22
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	4408488.788
tx_rate_mbps	Unknown
throughput_rx_mbps	18057.170
tx_rate_percent	93.813
throughput_rx_percent	93.813
frame_loss_percent	0.000
min_latency_ns	20880.000
max_latency_ns	246720.000
avg_latency_ns	33265.000
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	78328
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.27
majflt/s	0.00
VSZ	19445832
RSS	20112
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	78327
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
RSS	3368
%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	78419
%usr	0.00
%system	0.06
%guest	199.80
%CPU	100.95
CPU	.
minflt/s	2.63
majflt/s	0.00
VSZ	4847524
RSS	224227
%MEM	0.69
kB_rd/s	0.00
kB_wr/s	7.22
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	2394553.934
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.186
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	46400.000
max_latency_ns	150780.000
avg_latency_ns	134359.000
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	78328
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.27
majflt/s	0.00
VSZ	19445832
RSS	20112
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	78327
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
RSS	3368
%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	78419
%usr	0.00
%system	0.06
%guest	199.80
%CPU	100.95
CPU	.
minflt/s	2.63
majflt/s	0.00
VSZ	4847524
RSS	224227
%MEM	0.69
kB_rd/s	0.00
kB_wr/s	7.22
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	1625444.091
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.393
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	52100.000
max_latency_ns	133040.000
avg_latency_ns	115688.000
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	78328
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.27
majflt/s	0.00
VSZ	19445832
RSS	20112
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	78327
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
RSS	3368
%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	78419
%usr	0.00
%system	0.06
%guest	199.80
%CPU	100.95
CPU	.
minflt/s	2.63
majflt/s	0.00
VSZ	4847524
RSS	224227
%MEM	0.69
kB_rd/s	0.00
kB_wr/s	7.22
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	80843
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.62
majflt/s	0.00
VSZ	19445832
RSS	22141
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	80842
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47732
RSS	3368
%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	80968
%usr	0.00
%system	0.14
%guest	200.01
%CPU	100.95
CPU	.
minflt/s	2.15
majflt/s	0.00
VSZ	4848636
RSS	314979
%MEM	0.96
kB_rd/s	0.41
kB_wr/s	33.68
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	8699
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	80843
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	8.62
majflt/s	0.00
VSZ	19445832
RSS	22141
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	80842
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47732
RSS	3368
%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	80968
%usr	0.00
%system	0.14
%guest	200.01
%CPU	100.95
CPU	.
minflt/s	2.15
majflt/s	0.00
VSZ	4848636
RSS	314979
%MEM	0.96
kB_rd/s	0.41
kB_wr/s	33.68
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	18793202
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	80843
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.62
majflt/s	0.00
VSZ	19445832
RSS	22141
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	80842
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47732
RSS	3368
%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	80968
%usr	0.00
%system	0.14
%guest	200.01
%CPU	100.95
CPU	.
minflt/s	2.15
majflt/s	0.00
VSZ	4848636
RSS	314979
%MEM	0.96
kB_rd/s	0.41
kB_wr/s	33.68
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	80843
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.62
majflt/s	0.00
VSZ	19445832
RSS	22141
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	80842
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47732
RSS	3368
%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	80968
%usr	0.00
%system	0.14
%guest	200.01
%CPU	100.95
CPU	.
minflt/s	2.15
majflt/s	0.00
VSZ	4848636
RSS	314979
%MEM	0.96
kB_rd/s	0.41
kB_wr/s	33.68
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	80843
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	8.62
majflt/s	0.00
VSZ	19445832
RSS	22141
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	80842
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47732
RSS	3368
%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	80968
%usr	0.00
%system	0.14
%guest	200.01
%CPU	100.95
CPU	.
minflt/s	2.15
majflt/s	0.00
VSZ	4848636
RSS	314979
%MEM	0.96
kB_rd/s	0.41
kB_wr/s	33.68
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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: 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	2139137.905
tx_rate_mbps	Unknown
throughput_rx_mbps	1095.239
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	8380.000
max_latency_ns	352600.000
avg_latency_ns	19048.500
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	84007
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	5.03
majflt/s	0.00
VSZ	36223044
RSS	20170
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	84006
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3372
%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	84207
%usr	0.00
%system	0.06
%guest	200.01
%CPU	100.76
CPU	.
minflt/s	4.29
majflt/s	0.00
VSZ	4821408
RSS	44376
%MEM	0.14
kB_rd/s	0.08
kB_wr/s	83.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	84114
%usr	0.00
%system	0.06
%guest	200.00
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4939172
RSS	150635
%MEM	0.46
kB_rd/s	0.31
kB_wr/s	56.33
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	1997994.260
tx_rate_mbps	Unknown
throughput_rx_mbps	2045.946
tx_rate_percent	11.828
throughput_rx_percent	11.828
frame_loss_percent	0.000
min_latency_ns	10920.000
max_latency_ns	381780.000
avg_latency_ns	26654.000
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	84007
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	5.03
majflt/s	0.00
VSZ	36223044
RSS	20170
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84006
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3372
%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	84207
%usr	0.00
%system	0.06
%guest	200.01
%CPU	100.76
CPU	.
minflt/s	4.29
majflt/s	0.00
VSZ	4821408
RSS	44376
%MEM	0.14
kB_rd/s	0.08
kB_wr/s	83.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	84114
%usr	0.00
%system	0.06
%guest	200.00
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4939172
RSS	150635
%MEM	0.46
kB_rd/s	0.31
kB_wr/s	56.33
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	1391785.537
tx_rate_mbps	Unknown
throughput_rx_mbps	5700.754
tx_rate_percent	29.617
throughput_rx_percent	29.617
frame_loss_percent	0.000
min_latency_ns	11000.000
max_latency_ns	177200.000
avg_latency_ns	21733.000
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	84007
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	5.03
majflt/s	0.00
VSZ	36223044
RSS	20170
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	84006
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3372
%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	84207
%usr	0.00
%system	0.06
%guest	200.01
%CPU	100.76
CPU	.
minflt/s	4.29
majflt/s	0.00
VSZ	4821408
RSS	44376
%MEM	0.14
kB_rd/s	0.08
kB_wr/s	83.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	84114
%usr	0.00
%system	0.06
%guest	200.00
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4939172
RSS	150635
%MEM	0.46
kB_rd/s	0.31
kB_wr/s	56.33
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	1283375.649
tx_rate_mbps	Unknown
throughput_rx_mbps	10513.413
tx_rate_percent	53.594
throughput_rx_percent	53.594
frame_loss_percent	0.000
min_latency_ns	14900.000
max_latency_ns	196880.000
avg_latency_ns	23360.000
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	84007
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	5.03
majflt/s	0.00
VSZ	36223044
RSS	20170
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84006
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3372
%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	84207
%usr	0.00
%system	0.06
%guest	200.01
%CPU	100.76
CPU	.
minflt/s	4.29
majflt/s	0.00
VSZ	4821408
RSS	44376
%MEM	0.14
kB_rd/s	0.08
kB_wr/s	83.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	84114
%usr	0.00
%system	0.06
%guest	200.00
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4939172
RSS	150635
%MEM	0.46
kB_rd/s	0.31
kB_wr/s	56.33
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	1223182.422
tx_rate_mbps	Unknown
throughput_rx_mbps	14854.327
tx_rate_percent	75.250
throughput_rx_percent	75.250
frame_loss_percent	0.000
min_latency_ns	19940.000
max_latency_ns	320980.000
avg_latency_ns	28202.000
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	84007
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	5.03
majflt/s	0.00
VSZ	36223044
RSS	20170
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	84006
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3372
%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	84207
%usr	0.00
%system	0.06
%guest	200.01
%CPU	100.76
CPU	.
minflt/s	4.29
majflt/s	0.00
VSZ	4821408
RSS	44376
%MEM	0.14
kB_rd/s	0.08
kB_wr/s	83.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	84114
%usr	0.00
%system	0.06
%guest	200.00
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4939172
RSS	150635
%MEM	0.46
kB_rd/s	0.31
kB_wr/s	56.33
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.

3.2.8 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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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: 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	6811
b2b_frame_loss_percent	0.0
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	86885
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.13
majflt/s	0.00
VSZ	36223048
RSS	20223
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86884
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
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	87073
%usr	0.00
%system	0.06
%guest	199.95
%CPU	100.57
CPU	.
minflt/s	1.81
majflt/s	0.00
VSZ	4752796
RSS	64694
%MEM	0.20
kB_rd/s	0.00
kB_wr/s	7.19
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	87038
%usr	0.00
%system	0.04
%guest	200.01
%CPU	100.17
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4685208
RSS	183675
%MEM	0.56
kB_rd/s	0.00
kB_wr/s	34.37
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	3866
b2b_frame_loss_percent	0.0
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	86885
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	13.13
majflt/s	0.00
VSZ	36223048
RSS	20223
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86884
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47736
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	87073
%usr	0.00
%system	0.06
%guest	199.95
%CPU	100.57
CPU	.
minflt/s	1.81
majflt/s	0.00
VSZ	4752796
RSS	64694
%MEM	0.20
kB_rd/s	0.00
kB_wr/s	7.19
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	87038
%usr	0.00
%system	0.04
%guest	200.01
%CPU	100.17
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4685208
RSS	183675
%MEM	0.56
kB_rd/s	0.00
kB_wr/s	34.37
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	2151
b2b_frame_loss_percent	0.0
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	86885
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	13.13
majflt/s	0.00
VSZ	36223048
RSS	20223
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86884
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47736
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	87073
%usr	0.00
%system	0.06
%guest	199.95
%CPU	100.57
CPU	.
minflt/s	1.81
majflt/s	0.00
VSZ	4752796
RSS	64694
%MEM	0.20
kB_rd/s	0.00
kB_wr/s	7.19
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	87038
%usr	0.00
%system	0.04
%guest	200.01
%CPU	100.17
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4685208
RSS	183675
%MEM	0.56
kB_rd/s	0.00
kB_wr/s	34.37
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	4384
b2b_frame_loss_percent	0.0
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	86885
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	13.13
majflt/s	0.00
VSZ	36223048
RSS	20223
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86884
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47736
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	87073
%usr	0.00
%system	0.06
%guest	199.95
%CPU	100.57
CPU	.
minflt/s	1.81
majflt/s	0.00
VSZ	4752796
RSS	64694
%MEM	0.20
kB_rd/s	0.00
kB_wr/s	7.19
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	87038
%usr	0.00
%system	0.04
%guest	200.01
%CPU	100.17
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4685208
RSS	183675
%MEM	0.56
kB_rd/s	0.00
kB_wr/s	34.37
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	5952
b2b_frame_loss_percent	0.0
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	86885
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	13.13
majflt/s	0.00
VSZ	36223048
RSS	20223
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	86884
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47736
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	87073
%usr	0.00
%system	0.06
%guest	199.95
%CPU	100.57
CPU	.
minflt/s	1.81
majflt/s	0.00
VSZ	4752796
RSS	64694
%MEM	0.20
kB_rd/s	0.00
kB_wr/s	7.19
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	87038
%usr	0.00
%system	0.04
%guest	200.01
%CPU	100.17
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4685208
RSS	183675
%MEM	0.56
kB_rd/s	0.00
kB_wr/s	34.37
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-pod3/2016-03-04_12-28-28/vswitchperf_logs_2016-03-04_12-28-28.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	1218380.301
tx_rate_mbps	Unknown
throughput_rx_mbps	623.811
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	3920.000
max_latency_ns	4002920.000
avg_latency_ns	93037.000
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	90377
%usr	0.20
%system	0.41
%guest	0.00
%CPU	0.61
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	1300916
RSS	19054
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	90376
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1083458.682
tx_rate_mbps	Unknown
throughput_rx_mbps	1109.462
tx_rate_percent	6.414
throughput_rx_percent	6.414
frame_loss_percent	0.000
min_latency_ns	4060.000
max_latency_ns	1720140.000
avg_latency_ns	46905.500
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	90377
%usr	0.20
%system	0.41
%guest	0.00
%CPU	0.61
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	1300916
RSS	19054
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	90376
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1101020.435
tx_rate_mbps	Unknown
throughput_rx_mbps	4509.780
tx_rate_percent	23.430
throughput_rx_percent	23.430
frame_loss_percent	0.000
min_latency_ns	4960.000
max_latency_ns	1946640.000
avg_latency_ns	73557.000
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	90377
%usr	0.20
%system	0.41
%guest	0.00
%CPU	0.61
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	1300916
RSS	19054
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	90376
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	912973.541
tx_rate_mbps	Unknown
throughput_rx_mbps	7479.079
tx_rate_percent	38.125
throughput_rx_percent	38.125
frame_loss_percent	0.000
min_latency_ns	6380.000
max_latency_ns	627080.000
avg_latency_ns	31300.500
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	90377
%usr	0.20
%system	0.41
%guest	0.00
%CPU	0.61
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	1300916
RSS	19054
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	90376
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1047170.907
tx_rate_mbps	Unknown
throughput_rx_mbps	12716.843
tx_rate_percent	64.422
throughput_rx_percent	64.422
frame_loss_percent	0.000
min_latency_ns	6900.000
max_latency_ns	1163560.000
avg_latency_ns	55308.000
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	90377
%usr	0.20
%system	0.41
%guest	0.00
%CPU	0.61
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	1300916
RSS	19054
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	90376
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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.

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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	92771
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.57
CPU	.
minflt/s	1.29
majflt/s	0.00
VSZ	1300916
RSS	25036
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	92770
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	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	92771
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.57
CPU	•
minflt/s	1.29
majflt/s	0.00
VSZ	1300916
RSS	25036
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	92770
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	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	92771
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.57
CPU	•
minflt/s	1.29
majflt/s	0.00
VSZ	1300916
RSS	25036
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	92770
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	1370
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	92771
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.57
CPU	.
minflt/s	1.29
majflt/s	0.00
VSZ	1300916
RSS	25036
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	92770
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	6095578
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	92771
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.57
CPU	•
minflt/s	1.29
majflt/s	0.00
VSZ	1300916
RSS	25036
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	92770
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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.

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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	609189.898
tx_rate_mbps	Unknown
throughput_rx_mbps	331.399
tx_rate_percent	4.094
throughput_rx_percent	4.289
frame_loss_percent	0.000
min_latency_ns	4460.000
max_latency_ns	2539600.000
avg_latency_ns	99214.000
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	95911
%usr	0.18
%system	0.39
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.62
majflt/s	0.00
VSZ	1300912
RSS	8876
%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	95910
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	607053.176
tx_rate_mbps	Unknown
throughput_rx_mbps	641.048
tx_rate_percent	7.188
throughput_rx_percent	7.382
frame_loss_percent	0.000
min_latency_ns	4060.000
max_latency_ns	2828380.000
avg_latency_ns	134602.000
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	95911
%usr	0.18
%system	0.39
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.62
majflt/s	0.00
VSZ	1300912
RSS	8876
%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	95910
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	550509.966
tx_rate_mbps	Unknown
throughput_rx_mbps	2272.505
tx_rate_percent	23.430
throughput_rx_percent	23.606
frame_loss_percent	0.000
min_latency_ns	4900.000
max_latency_ns	2197480.000
avg_latency_ns	94312.000
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	95911
%usr	0.18
%system	0.39
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.62
majflt/s	0.00
VSZ	1300912
RSS	8876
%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	95910
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	530561.293
tx_rate_mbps	Unknown
throughput_rx_mbps	4363.336
tx_rate_percent	44.313
throughput_rx_percent	44.482
frame_loss_percent	0.000
min_latency_ns	5580.000
max_latency_ns	1684880.000
avg_latency_ns	60361.000
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	95911
%usr	0.18
%system	0.39
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.62
majflt/s	0.00
VSZ	1300912
RSS	8876
%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	95910
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	511017.481
tx_rate_mbps	Unknown
throughput_rx_mbps	6222.149
tx_rate_percent	62.875
throughput_rx_percent	63.039
frame_loss_percent	0.000
min_latency_ns	6880.000
max_latency_ns	992760.000
avg_latency_ns	59833.000
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	95911
%usr	0.18
%system	0.39
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.62
majflt/s	0.00
VSZ	1300912
RSS	8876
%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	95910
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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.

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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

- Test ID: phy2phy_scalability
- Description: LTD.Scalability.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	1218380.255
tx_rate_mbps	Unknown
throughput_rx_mbps	623.811
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4060.000
max_latency_ns	4255980.000
avg_latency_ns	107616.000
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	98375
%usr	0.19
%system	0.40
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	3.88
majflt/s	0.00
VSZ	1300916
RSS	8433
%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	98374
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	1214106.874
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	4220.000
max_latency_ns	3682340.000
avg_latency_ns	83916.500
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	98375
%usr	0.19
%system	0.40
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	3.88
majflt/s	0.00
VSZ	1300916
RSS	8433
%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	98374
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	1101020.931
tx_rate_mbps	Unknown
throughput_rx_mbps	4509.782
tx_rate_percent	23.430
throughput_rx_percent	23.430
frame_loss_percent	0.000
min_latency_ns	5380.000
max_latency_ns	2377300.000
avg_latency_ns	51613.000
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	98375
%usr	0.19
%system	0.40
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	3.88
majflt/s	0.00
VSZ	1300916
RSS	8433
%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	98374
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	1209286.741
tx_rate_mbps	Unknown
throughput_rx_mbps	9906.477
tx_rate_percent	50.500
throughput_rx_percent	50.500
frame_loss_percent	0.000
min_latency_ns	5880.000
max_latency_ns	404000.000
avg_latency_ns	74131.000
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	98375
%usr	0.19
%system	0.40
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	3.88
majflt/s	0.00
VSZ	1300916
RSS	8433
%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	98374
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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	1022031.521
tx_rate_mbps	Unknown
throughput_rx_mbps	12411.551
tx_rate_percent	62.875
throughput_rx_percent	62.875
frame_loss_percent	0.000
min_latency_ns	7040.000
max_latency_ns	985580.000
avg_latency_ns	44797.500
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	98375
%usr	0.19
%system	0.40
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	3.88
majflt/s	0.00
VSZ	1300916
RSS	8433
%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	98374
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	2996
%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.

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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	527785.296
tx_rate_mbps	Unknown
throughput_rx_mbps	270.226
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.004
min_latency_ns	16480.000
max_latency_ns	1527860.000
avg_latency_ns	94769.000
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	100899
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	2.61
majflt/s	0.00
VSZ	1300916
RSS	8884
%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	100898
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%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	101014
%usr	0.00
%system	0.83
%guest	199.57
%CPU	100.85
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	4845612
RSS	338529
%MEM	1.03
kB_rd/s	0.00
kB_wr/s	8.47
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	430214.898
tx_rate_mbps	Unknown
throughput_rx_mbps	440.540
tx_rate_percent	2.547
throughput_rx_percent	2.547
frame_loss_percent	0.000
min_latency_ns	34200.000
max_latency_ns	499640.000
avg_latency_ns	106691.000
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	100899
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	2.61
majflt/s	0.00
VSZ	1300916
RSS	8884
%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	100898
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%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	101014
%usr	0.00
%system	0.83
%guest	199.57
%CPU	100.85
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	4845612
RSS	338529
%MEM	1.03
kB_rd/s	0.00
kB_wr/s	8.47
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	374103.684
tx_rate_mbps	Unknown
throughput_rx_mbps	1532.329
tx_rate_percent	7.961
throughput_rx_percent	7.961
frame_loss_percent	0.000
min_latency_ns	13160.000
max_latency_ns	1104620.000
avg_latency_ns	123468.000
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	100899
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	2.61
majflt/s	0.00
VSZ	1300916
RSS	8884
%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	100898
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%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	101014
%usr	0.00
%system	0.83
%guest	199.57
%CPU	100.85
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	4845612
RSS	338529
%MEM	1.03
kB_rd/s	0.00
kB_wr/s	8.47
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	505492.049
tx_rate_mbps	Unknown
throughput_rx_mbps	4140.991
tx_rate_percent	21.109
throughput_rx_percent	21.109
frame_loss_percent	0.000
min_latency_ns	39640.000
max_latency_ns	977500.000
avg_latency_ns	150777.000
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	100899
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	2.61
majflt/s	0.00
VSZ	1300916
RSS	8884
%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	100898
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%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	101014
%usr	0.00
%system	0.83
%guest	199.57
%CPU	100.85
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	4845612
RSS	338529
%MEM	1.03
kB_rd/s	0.00
kB_wr/s	8.47
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	506567.475
tx_rate_mbps	Unknown
throughput_rx_mbps	6151.755
tx_rate_percent	31.164
throughput_rx_percent	31.164
frame_loss_percent	0.000
min_latency_ns	47880.000
max_latency_ns	946160.000
avg_latency_ns	155126.500
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	100899
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	2.61
majflt/s	0.00
VSZ	1300916
RSS	8884
%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	100898
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%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	101014
%usr	0.00
%system	0.83
%guest	199.57
%CPU	100.85
CPU	.
minflt/s	3.38
majflt/s	0.00
VSZ	4845612
RSS	338529
%MEM	1.03
kB_rd/s	0.00
kB_wr/s	8.47
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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-vswitchd	
Statistic	Value
UID	0
PID	103598
%usr	0.19
%system	0.36
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	1300912
RSS	8858
%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	103597
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	103724
%usr	0.00
%system	0.20
%guest	199.91
%CPU	100.77
CPU	.
minflt/s	2.24
majflt/s	0.00
VSZ	4779576
RSS	271507
%MEM	0.83
kB_rd/s	0.09
kB_wr/s	72.83
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	103598
%usr	0.19
%system	0.36
%guest	0.00
%CPU	0.55
CPU	•
minflt/s	0.47
majflt/s	0.00
VSZ	1300912
RSS	8858
%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	103597
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	103724
%usr	0.00
%system	0.20
%guest	199.91
%CPU	100.77
CPU	.
minflt/s	2.24
majflt/s	0.00
VSZ	4779576
RSS	271507
%MEM	0.83
kB_rd/s	0.09
kB_wr/s	72.83
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	268
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	103598
%usr	0.19
%system	0.36
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	1300912
RSS	8858
%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	103597
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	103724
%usr	0.00
%system	0.20
%guest	199.91
%CPU	100.77
CPU	.
minflt/s	2.24
majflt/s	0.00
VSZ	4779576
RSS	271507
%MEM	0.83
kB_rd/s	0.09
kB_wr/s	72.83
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	274
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	103598
%usr	0.19
%system	0.36
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	1300912
RSS	8858
%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	103597
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	103724
%usr	0.00
%system	0.20
%guest	199.91
%CPU	100.77
CPU	.
minflt/s	2.24
majflt/s	0.00
VSZ	4779576
RSS	271507
%MEM	0.83
kB_rd/s	0.09
kB_wr/s	72.83
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	372
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	103598
%usr	0.19
%system	0.36
%guest	0.00
%CPU	0.55
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	1300912
RSS	8858
%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	103597
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	103724
%usr	0.00
%system	0.20
%guest	199.91
%CPU	100.77
CPU	.
minflt/s	2.24
majflt/s	0.00
VSZ	4779576
RSS	271507
%MEM	0.83
kB_rd/s	0.09
kB_wr/s	72.83
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	396502.020
tx_rate_mbps	Unknown
throughput_rx_mbps	203.009
tx_rate_percent	1.773
throughput_rx_percent	1.332
frame_loss_percent	24.876
min_latency_ns	34540.000
max_latency_ns	3201280.000
avg_latency_ns	1150166.500
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	106899
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.43
majflt/s	0.00
VSZ	1300912
RSS	10369
%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	106898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	107104
%usr	0.00
%system	0.49
%guest	199.61
%CPU	101.04
CPU	.
minflt/s	3.30
majflt/s	0.00
VSZ	4762156
RSS	48247
%MEM	0.15
kB_rd/s	0.02
kB_wr/s	50.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	107081
%usr	0.00
%system	1.00
%guest	199.02
%CPU	100.20
CPU	.
minflt/s	2.74
majflt/s	0.00
VSZ	4775460
RSS	198972
%MEM	0.61
kB_rd/s	0.08
kB_wr/s	41.87
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	299568.271
tx_rate_mbps	Unknown
throughput_rx_mbps	306.758
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.000
min_latency_ns	28220.000
max_latency_ns	536600.000
avg_latency_ns	72556.000
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	106899
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.43
majflt/s	0.00
VSZ	1300912
RSS	10369
%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	106898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	107104
%usr	0.00
%system	0.49
%guest	199.61
%CPU	101.04
CPU	.
minflt/s	3.30
majflt/s	0.00
VSZ	4762156
RSS	48247
%MEM	0.15
kB_rd/s	0.02
kB_wr/s	50.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	107081
%usr	0.00
%system	1.00
%guest	199.02
%CPU	100.20
CPU	.
minflt/s	2.74
majflt/s	0.00
VSZ	4775460
RSS	198972
%MEM	0.61
kB_rd/s	0.08
kB_wr/s	41.87
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	337759.306
tx_rate_mbps	Unknown
throughput_rx_mbps	1383.462
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	58880.000
max_latency_ns	737900.000
avg_latency_ns	168909.000
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	106899
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.43
majflt/s	0.00
VSZ	1300912
RSS	10369
%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	106898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	107104
%usr	0.00
%system	0.49
%guest	199.61
%CPU	101.04
CPU	•
minflt/s	3.30
majflt/s	0.00
VSZ	4762156
RSS	48247
%MEM	0.15
kB_rd/s	0.02
kB_wr/s	50.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	107081
%usr	0.00
%system	1.00
%guest	199.02
%CPU	100.20
CPU	•
minflt/s	2.74
majflt/s	0.00
VSZ	4775460
RSS	198972
%MEM	0.61
kB_rd/s	0.08
kB_wr/s	41.87
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	320284.986
tx_rate_mbps	Unknown
throughput_rx_mbps	2623.775
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	61020.000
max_latency_ns	681980.000
avg_latency_ns	204081.500
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	106899
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.43
majflt/s	0.00
VSZ	1300912
RSS	10369
%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	106898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	107104
%usr	0.00
%system	0.49
%guest	199.61
%CPU	101.04
CPU	.
minflt/s	3.30
majflt/s	0.00
VSZ	4762156
RSS	48247
%MEM	0.15
kB_rd/s	0.02
kB_wr/s	50.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	107081
%usr	0.00
%system	1.00
%guest	199.02
%CPU	100.20
CPU	.
minflt/s	2.74
majflt/s	0.00
VSZ	4775460
RSS	198972
%MEM	0.61
kB_rd/s	0.08
kB_wr/s	41.87
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	330557.657
tx_rate_mbps	Unknown
throughput_rx_mbps	4014.292
tx_rate_percent	20.336
throughput_rx_percent	20.336
frame_loss_percent	0.000
min_latency_ns	54100.000
max_latency_ns	1136540.000
avg_latency_ns	159538.500
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	106899
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.43
majflt/s	0.00
VSZ	1300912
RSS	10369
%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	106898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	107104
%usr	0.00
%system	0.49
%guest	199.61
%CPU	101.04
CPU	.
minflt/s	3.30
majflt/s	0.00
VSZ	4762156
RSS	48247
%MEM	0.15
kB_rd/s	0.02
kB_wr/s	50.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	107081
%usr	0.00
%system	1.00
%guest	199.02
%CPU	100.20
CPU	.
minflt/s	2.74
majflt/s	0.00
VSZ	4775460
RSS	198972
%MEM	0.61
kB_rd/s	0.08
kB_wr/s	41.87
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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 86bc27fe76137a777979f17556fa999a74027428
- Traffic Generator: IxNet, Version: 7.50.1009.20, 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	109731
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.81
majflt/s	0.00
VSZ	1300912
RSS	23295
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	109730
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	109995
%usr	0.00
%system	0.08
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	2.29
majflt/s	0.00
VSZ	4723240
RSS	80611
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	37.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	109905
%usr	0.00
%system	0.12
%guest	199.91
%CPU	100.08
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4785712
RSS	274804
%MEM	0.84
kB_rd/s	0.28
kB_wr/s	48.27
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	109731
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	.
minflt/s	2.81
majflt/s	0.00
VSZ	1300912
RSS	23295
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	109730
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	109995
%usr	0.00
%system	0.08
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	2.29
majflt/s	0.00
VSZ	4723240
RSS	80611
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	37.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	109905
%usr	0.00
%system	0.12
%guest	199.91
%CPU	100.08
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4785712
RSS	274804
%MEM	0.84
kB_rd/s	0.28
kB_wr/s	48.27
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	268
b2b_frame_loss_percent	0.0
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-vswhitcd	
Statistic	Value
UID	0
PID	109731
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	•
minflt/s	2.81
majflt/s	0.00
VSZ	1300912
RSS	23295
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	109730
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	109995
%usr	0.00
%system	0.08
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	2.29
majflt/s	0.00
VSZ	4723240
RSS	80611
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	37.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	109905
%usr	0.00
%system	0.12
%guest	199.91
%CPU	100.08
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4785712
RSS	274804
%MEM	0.84
kB_rd/s	0.28
kB_wr/s	48.27
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	274
b2b_frame_loss_percent	0.0
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	109731
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	•
minflt/s	2.81
majflt/s	0.00
VSZ	1300912
RSS	23295
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	109730
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	109995
%usr	0.00
%system	0.08
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	2.29
majflt/s	0.00
VSZ	4723240
RSS	80611
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	37.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	109905
%usr	0.00
%system	0.12
%guest	199.91
%CPU	100.08
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4785712
RSS	274804
%MEM	0.84
kB_rd/s	0.28
kB_wr/s	48.27
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	372
b2b_frame_loss_percent	0.0
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	109731
%usr	0.09
%system	0.19
%guest	0.00
%CPU	0.28
CPU	•
minflt/s	2.81
majflt/s	0.00
VSZ	1300912
RSS	23295
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	109730
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3220
%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	109995
%usr	0.00
%system	0.08
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	2.29
majflt/s	0.00
VSZ	4723240
RSS	80611
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	37.09
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	109905
%usr	0.00
%system	0.12
%guest	199.91
%CPU	100.08
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4785712
RSS	274804
%MEM	0.84
kB_rd/s	0.28
kB_wr/s	48.27
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-pod3/2016-03-04_12-28-28/vswitchperf_logs_2016-03-04_12-28-28.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