



VSPERF Results

Release draft (22ffe5b)

OPNFV

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1	OPNFV Brahma Putra Scenarios	1
2	OPNFV Brahma Putra Results	3
3	Performance report for Open vSwitch with DPDK support	5
3.1	Introduction	5
3.2	Details of the Level Test Report	5
3.3	Rationale for decisions	86
3.4	Conclusions and recommendations	86
3.5	General	86
4	Performance report for Open vSwitch	87
4.1	Introduction	87
4.2	Details of the Level Test Report	87
4.3	Rationale for decisions	168
4.4	Conclusions and recommendations	168
4.5	General	168

OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

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

Supported deployment scenarios:

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

Loopback applications in the Guest can be:

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

Supported traffic generators:

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

OPNFV BRAHMAPUTRA RESULTS

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

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

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

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

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

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

This document is currently in draft form.

3.1.1 Document identifier

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

3.1.2 Scope

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

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

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

3.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	23316603.656
tx_rate_mbps	Unknown
throughput_rx_mbps	11938.101
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	5860.000
max_latency_ns	434440.000
avg_latency_ns	9149.500
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	59225
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	20.11
majflt/s	0.00
VSZ	4143516
RSS	20660
%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	59224
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3332
%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	16630604.480
tx_rate_mbps	Unknown
throughput_rx_mbps	17029.739
tx_rate_percent	98.453
throughput_rx_percent	98.453
frame_loss_percent	0.000
min_latency_ns	5280.000
max_latency_ns	209500.000
avg_latency_ns	10204.500
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	59225
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	20.11
majflt/s	0.00
VSZ	4143516
RSS	20660
%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	59224
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3332
%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	4699186.197
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.867
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	18620.000
max_latency_ns	58820.000
avg_latency_ns	45706.000
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	59225
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	20.11
majflt/s	0.00
VSZ	4143516
RSS	20660
%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	59224
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3332
%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	2394603.924
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.595
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	29680.000
max_latency_ns	70240.000
avg_latency_ns	57607.500
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	59225
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	20.11
majflt/s	0.00
VSZ	4143516
RSS	20660
%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	59224
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3332
%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	1625467.578
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.678
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	25540.000
max_latency_ns	66300.000
avg_latency_ns	50185.500
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	59225
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	20.11
majflt/s	0.00
VSZ	4143516
RSS	20660
%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	59224
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3332
%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: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	19158
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	61168
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	24.47
majflt/s	0.00
VSZ	4143516
RSS	22354
%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	61167
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3216717
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	61168
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	24.47
majflt/s	0.00
VSZ	4143516
RSS	22354
%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	61167
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	61168
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	24.47
majflt/s	0.00
VSZ	4143516
RSS	22354
%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	61167
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
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	61168
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	24.47
majflt/s	0.00
VSZ	4143516
RSS	22354
%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	61167
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
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	61168
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	24.47
majflt/s	0.00
VSZ	4143516
RSS	22354
%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	61167
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.3 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: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	8320548.733
tx_rate_mbps	Unknown
throughput_rx_mbps	4526.379
tx_rate_percent	55.914
throughput_rx_percent	58.577
frame_loss_percent	0.000
min_latency_ns	4460.000
max_latency_ns	264360.000
avg_latency_ns	7088.000
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	63846
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	5.07
majflt/s	0.00
VSZ	4143516
RSS	20713
%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	63845
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	7596754.824
tx_rate_mbps	Unknown
throughput_rx_mbps	8022.173
tx_rate_percent	89.945
throughput_rx_percent	92.377
frame_loss_percent	0.000
min_latency_ns	4720.000
max_latency_ns	50660.000
avg_latency_ns	5532.000
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	63846
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	5.07
majflt/s	0.00
VSZ	4143516
RSS	20713
%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	63845
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331452.284
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.235
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	5960.000
max_latency_ns	39740.000
avg_latency_ns	12460.000
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	63846
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	5.07
majflt/s	0.00
VSZ	4143516
RSS	20713
%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	63845
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.535
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.593
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5760.000
max_latency_ns	61120.000
avg_latency_ns	7132.000
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	63846
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	5.07
majflt/s	0.00
VSZ	4143516
RSS	20713
%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	63845
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.094
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.434
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	50740.000
avg_latency_ns	7495.000
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	63846
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	5.07
majflt/s	0.00
VSZ	4143516
RSS	20713
%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	63845
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	19633557.193
tx_rate_mbps	Unknown
throughput_rx_mbps	10052.381
tx_rate_percent	65.969
throughput_rx_percent	65.969
frame_loss_percent	0.000
min_latency_ns	5820.000
max_latency_ns	213680.000
avg_latency_ns	8078.000
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	66799
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.67
majflt/s	0.00
VSZ	4143516
RSS	20646
%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	66798
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	16761274.485
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.545
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	7320.000
max_latency_ns	64680.000
avg_latency_ns	11252.000
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	66799
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.67
majflt/s	0.00
VSZ	4143516
RSS	20646
%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	66798
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699148.260
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.711
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	19500.000
max_latency_ns	99600.000
avg_latency_ns	70873.500
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	66799
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.67
majflt/s	0.00
VSZ	4143516
RSS	20646
%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	66798
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394604.267
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.598
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22360.000
max_latency_ns	63760.000
avg_latency_ns	50226.500
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	66799
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.67
majflt/s	0.00
VSZ	4143516
RSS	20646
%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	66798
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625468.472
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.689
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22740.000
max_latency_ns	58900.000
avg_latency_ns	46358.000
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	66799
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.67
majflt/s	0.00
VSZ	4143516
RSS	20646
%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	66798
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2599514.384
tx_rate_mbps	Unknown
throughput_rx_mbps	1330.951
tx_rate_percent	8.734
throughput_rx_percent	8.734
frame_loss_percent	0.000
min_latency_ns	8620.000
max_latency_ns	1973080.000
avg_latency_ns	21818.500
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	68868
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	11.81
majflt/s	0.00
VSZ	20920732
RSS	20750
%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	68867
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
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	69004
%usr	0.00
%system	0.01
%guest	199.96
%CPU	99.99
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4855244
RSS	98836
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	7.97
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	2128642.586
tx_rate_mbps	Unknown
throughput_rx_mbps	2179.730
tx_rate_percent	12.602
throughput_rx_percent	12.602
frame_loss_percent	0.000
min_latency_ns	8200.000
max_latency_ns	1309480.000
avg_latency_ns	24141.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	68868
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	11.81
majflt/s	0.00
VSZ	20920732
RSS	20750
%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	68867
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
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	69004
%usr	0.00
%system	0.01
%guest	199.96
%CPU	99.99
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4855244
RSS	98836
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	7.97
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	1537167.965
tx_rate_mbps	Unknown
throughput_rx_mbps	6296.240
tx_rate_percent	32.711
throughput_rx_percent	32.711
frame_loss_percent	0.000
min_latency_ns	9820.000
max_latency_ns	213880.000
avg_latency_ns	18286.500
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	68868
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	11.81
majflt/s	0.00
VSZ	20920732
RSS	20750
%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	68867
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
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	69004
%usr	0.00
%system	0.01
%guest	199.96
%CPU	99.99
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4855244
RSS	98836
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	7.97
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	1839000.505
tx_rate_mbps	Unknown
throughput_rx_mbps	15065.092
tx_rate_percent	76.797
throughput_rx_percent	76.797
frame_loss_percent	0.000
min_latency_ns	11260.000
max_latency_ns	356460.000
avg_latency_ns	129785.000
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	68868
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	11.81
majflt/s	0.00
VSZ	20920732
RSS	20750
%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	68867
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
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	69004
%usr	0.00
%system	0.01
%guest	199.96
%CPU	99.99
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4855244
RSS	98836
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	7.97
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	1311167.124
tx_rate_mbps	Unknown
throughput_rx_mbps	15922.814
tx_rate_percent	80.664
throughput_rx_percent	80.664
frame_loss_percent	0.000
min_latency_ns	16460.000
max_latency_ns	2175060.000
avg_latency_ns	296933.000
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	68868
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	11.81
majflt/s	0.00
VSZ	20920732
RSS	20750
%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	68867
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
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	69004
%usr	0.00
%system	0.01
%guest	199.96
%CPU	99.99
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4855244
RSS	98836
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	7.97
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: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	8940
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	71999
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.28
majflt/s	0.00
VSZ	20920732
RSS	20740
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	71998
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47720
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	72215
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.00
CPU	.
minflt/s	0.36
majflt/s	0.00
VSZ	4748744
RSS	67683
%MEM	0.10
kB_rd/s	0.98
kB_wr/s	63.73
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	6765
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	71999
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	15.28
majflt/s	0.00
VSZ	20920732
RSS	20740
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	71998
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47720
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	72215
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.00
CPU	.
minflt/s	0.36
majflt/s	0.00
VSZ	4748744
RSS	67683
%MEM	0.10
kB_rd/s	0.98
kB_wr/s	63.73
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
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	71999
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.28
majflt/s	0.00
VSZ	20920732
RSS	20740
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	71998
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47720
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	72215
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.00
CPU	.
minflt/s	0.36
majflt/s	0.00
VSZ	4748744
RSS	67683
%MEM	0.10
kB_rd/s	0.98
kB_wr/s	63.73
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	71999
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.28
majflt/s	0.00
VSZ	20920732
RSS	20740
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	71998
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47720
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	72215
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.00
CPU	.
minflt/s	0.36
majflt/s	0.00
VSZ	4748744
RSS	67683
%MEM	0.10
kB_rd/s	0.98
kB_wr/s	63.73
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	71999
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	15.28
majflt/s	0.00
VSZ	20920732
RSS	20740
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	71998
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47720
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	72215
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.00
CPU	.
minflt/s	0.36
majflt/s	0.00
VSZ	4748744
RSS	67683
%MEM	0.10
kB_rd/s	0.98
kB_wr/s	63.73
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: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: pvpv
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	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	75511
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	15.63
majflt/s	0.00
VSZ	37697948
RSS	22792
%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	75510
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75832
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4766144
RSS	43570
%MEM	0.07
kB_rd/s	0.29
kB_wr/s	9.74
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75677
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4775892
RSS	50542
%MEM	0.08
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	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	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	75511
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	15.63
majflt/s	0.00
VSZ	37697948
RSS	22792
%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	75510
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75832
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4766144
RSS	43570
%MEM	0.07
kB_rd/s	0.29
kB_wr/s	9.74
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75677
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4775892
RSS	50542
%MEM	0.08
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	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	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	75511
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	15.63
majflt/s	0.00
VSZ	37697948
RSS	22792
%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	75510
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75832
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4766144
RSS	43570
%MEM	0.07
kB_rd/s	0.29
kB_wr/s	9.74
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75677
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4775892
RSS	50542
%MEM	0.08
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	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	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	75511
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	15.63
majflt/s	0.00
VSZ	37697948
RSS	22792
%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	75510
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75832
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4766144
RSS	43570
%MEM	0.07
kB_rd/s	0.29
kB_wr/s	9.74
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75677
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4775892
RSS	50542
%MEM	0.08
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	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	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	75511
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	15.63
majflt/s	0.00
VSZ	37697948
RSS	22792
%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	75510
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3360
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75832
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.48
majflt/s	0.00
VSZ	4766144
RSS	43570
%MEM	0.07
kB_rd/s	0.29
kB_wr/s	9.74
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	75677
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4775892
RSS	50542
%MEM	0.08
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.

3.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

- Test ID: 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-vswhchd	
Statistic	Value
UID	0
PID	79729
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.89
majflt/s	0.00
VSZ	37697948
RSS	20261
%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	79728
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	2516
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79972
%usr	0.00
%system	0.14
%guest	200.08
%CPU	100.00
CPU	.
minflt/s	1.22
majflt/s	0.00
VSZ	5264872
RSS	46316
%MEM	0.07
kB_rd/s	0.26
kB_wr/s	46.55
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79948
%usr	0.00
%system	0.03
%guest	200.00
%CPU	99.99
CPU	.
minflt/s	3.35
majflt/s	0.00
VSZ	4774344
RSS	95550
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	0.41
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	79729
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	9.89
majflt/s	0.00
VSZ	37697948
RSS	20261
%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	79728
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	2516
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79972
%usr	0.00
%system	0.14
%guest	200.08
%CPU	100.00
CPU	.
minflt/s	1.22
majflt/s	0.00
VSZ	5264872
RSS	46316
%MEM	0.07
kB_rd/s	0.26
kB_wr/s	46.55
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79948
%usr	0.00
%system	0.03
%guest	200.00
%CPU	99.99
CPU	.
minflt/s	3.35
majflt/s	0.00
VSZ	4774344
RSS	95550
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	0.41
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	79729
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	9.89
majflt/s	0.00
VSZ	37697948
RSS	20261
%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	79728
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	2516
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79972
%usr	0.00
%system	0.14
%guest	200.08
%CPU	100.00
CPU	.
minflt/s	1.22
majflt/s	0.00
VSZ	5264872
RSS	46316
%MEM	0.07
kB_rd/s	0.26
kB_wr/s	46.55
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79948
%usr	0.00
%system	0.03
%guest	200.00
%CPU	99.99
CPU	.
minflt/s	3.35
majflt/s	0.00
VSZ	4774344
RSS	95550
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	0.41
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	79729
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	9.89
majflt/s	0.00
VSZ	37697948
RSS	20261
%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	79728
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	2516
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79972
%usr	0.00
%system	0.14
%guest	200.08
%CPU	100.00
CPU	.
minflt/s	1.22
majflt/s	0.00
VSZ	5264872
RSS	46316
%MEM	0.07
kB_rd/s	0.26
kB_wr/s	46.55
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79948
%usr	0.00
%system	0.03
%guest	200.00
%CPU	99.99
CPU	.
minflt/s	3.35
majflt/s	0.00
VSZ	4774344
RSS	95550
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	0.41
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	79729
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	9.89
majflt/s	0.00
VSZ	37697948
RSS	20261
%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	79728
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	2516
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79972
%usr	0.00
%system	0.14
%guest	200.08
%CPU	100.00
CPU	.
minflt/s	1.22
majflt/s	0.00
VSZ	5264872
RSS	46316
%MEM	0.07
kB_rd/s	0.26
kB_wr/s	46.55
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	79948
%usr	0.00
%system	0.03
%guest	200.00
%CPU	99.99
CPU	.
minflt/s	3.35
majflt/s	0.00
VSZ	4774344
RSS	95550
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	0.41
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-pod3/2016-05-06_07-36-14/vswitchperf_logs_2016-05-06_07-36-14.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: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218379.499
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4420.000
max_latency_ns	2005000.000
avg_latency_ns	51163.000
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	84996
%usr	0.24
%system	1.60
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.95
majflt/s	0.00
VSZ	2775644
RSS	13723
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84995
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1083457.592
tx_rate_mbps	Unknown
throughput_rx_mbps	1109.461
tx_rate_percent	6.414
throughput_rx_percent	6.414
frame_loss_percent	0.000
min_latency_ns	4780.000
max_latency_ns	534740.000
avg_latency_ns	25586.000
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	84996
%usr	0.24
%system	1.60
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.95
majflt/s	0.00
VSZ	2775644
RSS	13723
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	84995
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1137366.651
tx_rate_mbps	Unknown
throughput_rx_mbps	4658.654
tx_rate_percent	24.203
throughput_rx_percent	24.203
frame_loss_percent	0.000
min_latency_ns	5460.000
max_latency_ns	2243300.000
avg_latency_ns	85701.500
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	84996
%usr	0.24
%system	1.60
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.95
majflt/s	0.00
VSZ	2775644
RSS	13723
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84995
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1061124.032
tx_rate_mbps	Unknown
throughput_rx_mbps	8692.728
tx_rate_percent	44.313
throughput_rx_percent	44.313
frame_loss_percent	0.000
min_latency_ns	6260.000
max_latency_ns	778660.000
avg_latency_ns	29938.000
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	84996
%usr	0.24
%system	1.60
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.95
majflt/s	0.00
VSZ	2775644
RSS	13723
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84995
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1022025.208
tx_rate_mbps	Unknown
throughput_rx_mbps	12411.474
tx_rate_percent	62.875
throughput_rx_percent	62.875
frame_loss_percent	0.000
min_latency_ns	6820.000
max_latency_ns	1419260.000
avg_latency_ns	72948.000
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	84996
%usr	0.24
%system	1.60
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.95
majflt/s	0.00
VSZ	2775644
RSS	13723
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	84995
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	87861
%usr	0.22
%system	1.36
%guest	0.00
%CPU	1.57
CPU	.
minflt/s	3.59
majflt/s	0.00
VSZ	2775652
RSS	15509
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	87860
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
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	87861
%usr	0.22
%system	1.36
%guest	0.00
%CPU	1.57
CPU	•
minflt/s	3.59
majflt/s	0.00
VSZ	2775652
RSS	15509
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	87860
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
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	87861
%usr	0.22
%system	1.36
%guest	0.00
%CPU	1.57
CPU	•
minflt/s	3.59
majflt/s	0.00
VSZ	2775652
RSS	15509
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	87860
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
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	87861
%usr	0.22
%system	1.36
%guest	0.00
%CPU	1.57
CPU	.
minflt/s	3.59
majflt/s	0.00
VSZ	2775652
RSS	15509
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	87860
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	87861
%usr	0.22
%system	1.36
%guest	0.00
%CPU	1.57
CPU	•
minflt/s	3.59
majflt/s	0.00
VSZ	2775652
RSS	15509
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	87860
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.3 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: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	609189.830
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	1543300.000
avg_latency_ns	42489.000
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	91931
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775644
RSS	14383
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91930
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	607052.488
tx_rate_mbps	Unknown
throughput_rx_mbps	641.047
tx_rate_percent	7.188
throughput_rx_percent	7.382
frame_loss_percent	0.000
min_latency_ns	4680.000
max_latency_ns	1801220.000
avg_latency_ns	68332.000
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	91931
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775644
RSS	14383
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	91930
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	568682.522
tx_rate_mbps	Unknown
throughput_rx_mbps	2347.521
tx_rate_percent	24.203
throughput_rx_percent	24.385
frame_loss_percent	0.000
min_latency_ns	5420.000
max_latency_ns	1982440.000
avg_latency_ns	78366.000
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	91931
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775644
RSS	14383
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91930
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	558343.514
tx_rate_mbps	Unknown
throughput_rx_mbps	4591.817
tx_rate_percent	46.633
throughput_rx_percent	46.812
frame_loss_percent	0.000
min_latency_ns	5940.000
max_latency_ns	1565500.000
avg_latency_ns	51855.000
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	91931
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775644
RSS	14383
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91930
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	548730.200
tx_rate_mbps	Unknown
throughput_rx_mbps	6681.339
tx_rate_percent	67.516
throughput_rx_percent	67.691
frame_loss_percent	0.000
min_latency_ns	6440.000
max_latency_ns	1173520.000
avg_latency_ns	35055.000
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	91931
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775644
RSS	14383
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	91930
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218373.426
tx_rate_mbps	Unknown
throughput_rx_mbps	623.807
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4020.000
max_latency_ns	8115900.000
avg_latency_ns	65858.000
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	94746
%usr	0.24
%system	1.45
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	5.17
majflt/s	0.00
VSZ	2775648
RSS	15244
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	94745
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214077.887
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.216
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	4440.000
max_latency_ns	4158540.000
avg_latency_ns	131312.000
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	94746
%usr	0.24
%system	1.45
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	5.17
majflt/s	0.00
VSZ	2775648
RSS	15244
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	94745
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1064675.416
tx_rate_mbps	Unknown
throughput_rx_mbps	4360.911
tx_rate_percent	22.656
throughput_rx_percent	22.656
frame_loss_percent	0.000
min_latency_ns	5720.000
max_latency_ns	1471380.000
avg_latency_ns	37192.500
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	94746
%usr	0.24
%system	1.45
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	5.17
majflt/s	0.00
VSZ	2775648
RSS	15244
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	94745
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1024082.841
tx_rate_mbps	Unknown
throughput_rx_mbps	8389.287
tx_rate_percent	42.766
throughput_rx_percent	42.766
frame_loss_percent	0.000
min_latency_ns	6280.000
max_latency_ns	668820.000
avg_latency_ns	18313.500
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	94746
%usr	0.24
%system	1.45
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	5.17
majflt/s	0.00
VSZ	2775648
RSS	15244
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	94745
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1072315.789
tx_rate_mbps	Unknown
throughput_rx_mbps	13022.203
tx_rate_percent	65.969
throughput_rx_percent	65.969
frame_loss_percent	0.000
min_latency_ns	7100.000
max_latency_ns	1250800.000
avg_latency_ns	34954.500
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	94746
%usr	0.24
%system	1.45
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	5.17
majflt/s	0.00
VSZ	2775648
RSS	15244
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	94745
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	524777.170
tx_rate_mbps	Unknown
throughput_rx_mbps	268.686
tx_rate_percent	1.773
throughput_rx_percent	1.763
frame_loss_percent	0.575
min_latency_ns	15880.000
max_latency_ns	37837980.000
avg_latency_ns	83395.000
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	97634
%usr	0.21
%system	1.35
%guest	0.00
%CPU	1.56
CPU	.
minflt/s	4.90
majflt/s	0.00
VSZ	2775652
RSS	14991
%MEM	0.02
kB_rd/s	0.14
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	97633
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	97796
%usr	0.00
%system	1.09
%guest	198.90
%CPU	100.00
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4824560
RSS	45006
%MEM	0.07
kB_rd/s	0.24
kB_wr/s	9.40
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	299487.765
tx_rate_mbps	Unknown
throughput_rx_mbps	306.675
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.027
min_latency_ns	13500.000
max_latency_ns	3721940.000
avg_latency_ns	54540.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	97634
%usr	0.21
%system	1.35
%guest	0.00
%CPU	1.56
CPU	.
minflt/s	4.90
majflt/s	0.00
VSZ	2775652
RSS	14991
%MEM	0.02
kB_rd/s	0.14
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	97633
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	97796
%usr	0.00
%system	1.09
%guest	198.90
%CPU	100.00
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4824560
RSS	45006
%MEM	0.07
kB_rd/s	0.24
kB_wr/s	9.40
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	265067.045
tx_rate_mbps	Unknown
throughput_rx_mbps	1085.715
tx_rate_percent	5.641
throughput_rx_percent	5.641
frame_loss_percent	0.000
min_latency_ns	27520.000
max_latency_ns	1175140.000
avg_latency_ns	125041.500
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	97634
%usr	0.21
%system	1.35
%guest	0.00
%CPU	1.56
CPU	.
minflt/s	4.90
majflt/s	0.00
VSZ	2775652
RSS	14991
%MEM	0.02
kB_rd/s	0.14
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	97633
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	97796
%usr	0.00
%system	1.09
%guest	198.90
%CPU	100.00
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4824560
RSS	45006
%MEM	0.07
kB_rd/s	0.24
kB_wr/s	9.40
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	227677.296
tx_rate_mbps	Unknown
throughput_rx_mbps	1865.132
tx_rate_percent	9.508
throughput_rx_percent	9.508
frame_loss_percent	0.000
min_latency_ns	39100.000
max_latency_ns	653220.000
avg_latency_ns	135802.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	97634
%usr	0.21
%system	1.35
%guest	0.00
%CPU	1.56
CPU	.
minflt/s	4.90
majflt/s	0.00
VSZ	2775652
RSS	14991
%MEM	0.02
kB_rd/s	0.14
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	97633
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	97796
%usr	0.00
%system	1.09
%guest	198.90
%CPU	100.00
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4824560
RSS	45006
%MEM	0.07
kB_rd/s	0.24
kB_wr/s	9.40
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	229980.928
tx_rate_mbps	Unknown
throughput_rx_mbps	2792.888
tx_rate_percent	14.148
throughput_rx_percent	14.148
frame_loss_percent	0.000
min_latency_ns	42520.000
max_latency_ns	1790760.000
avg_latency_ns	177580.000
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	97634
%usr	0.21
%system	1.35
%guest	0.00
%CPU	1.56
CPU	.
minflt/s	4.90
majflt/s	0.00
VSZ	2775652
RSS	14991
%MEM	0.02
kB_rd/s	0.14
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	97633
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	97796
%usr	0.00
%system	1.09
%guest	198.90
%CPU	100.00
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4824560
RSS	45006
%MEM	0.07
kB_rd/s	0.24
kB_wr/s	9.40
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: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	100685
%usr	0.22
%system	1.39
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775760
RSS	16913
%MEM	0.03
kB_rd/s	0.09
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	100684
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	100851
%usr	0.00
%system	0.02
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.52
majflt/s	0.00
VSZ	4771412
RSS	52187
%MEM	0.08
kB_rd/s	0.52
kB_wr/s	47.81
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	100685
%usr	0.22
%system	1.39
%guest	0.00
%CPU	1.61
CPU	•
minflt/s	4.49
majflt/s	0.00
VSZ	2775760
RSS	16913
%MEM	0.03
kB_rd/s	0.09
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	100684
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	100851
%usr	0.00
%system	0.02
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.52
majflt/s	0.00
VSZ	4771412
RSS	52187
%MEM	0.08
kB_rd/s	0.52
kB_wr/s	47.81
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	100685
%usr	0.22
%system	1.39
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775760
RSS	16913
%MEM	0.03
kB_rd/s	0.09
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	100684
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	100851
%usr	0.00
%system	0.02
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.52
majflt/s	0.00
VSZ	4771412
RSS	52187
%MEM	0.08
kB_rd/s	0.52
kB_wr/s	47.81
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	100685
%usr	0.22
%system	1.39
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775760
RSS	16913
%MEM	0.03
kB_rd/s	0.09
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	100684
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	100851
%usr	0.00
%system	0.02
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.52
majflt/s	0.00
VSZ	4771412
RSS	52187
%MEM	0.08
kB_rd/s	0.52
kB_wr/s	47.81
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	100685
%usr	0.22
%system	1.39
%guest	0.00
%CPU	1.61
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775760
RSS	16913
%MEM	0.03
kB_rd/s	0.09
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	100684
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	100851
%usr	0.00
%system	0.02
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.52
majflt/s	0.00
VSZ	4771412
RSS	52187
%MEM	0.08
kB_rd/s	0.52
kB_wr/s	47.81
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: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	524826.992
tx_rate_mbps	Unknown
throughput_rx_mbps	268.711
tx_rate_percent	1.773
throughput_rx_percent	1.763
frame_loss_percent	0.575
min_latency_ns	27580.000
max_latency_ns	36974320.000
avg_latency_ns	130514.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	105019
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	5.27
majflt/s	0.00
VSZ	2775764
RSS	10096
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	105018
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105348
%usr	0.00
%system	1.32
%guest	198.63
%CPU	100.00
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4804164
RSS	35143
%MEM	0.05
kB_rd/s	0.04
kB_wr/s	9.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105243
%usr	0.00
%system	1.32
%guest	198.62
%CPU	99.99
CPU	.
minflt/s	0.02
majflt/s	0.00
VSZ	4822096
RSS	61509
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299503.202
tx_rate_mbps	Unknown
throughput_rx_mbps	306.691
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.022
min_latency_ns	24740.000
max_latency_ns	4235620.000
avg_latency_ns	75208.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	105019
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	5.27
majflt/s	0.00
VSZ	2775764
RSS	10096
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	105018
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105348
%usr	0.00
%system	1.32
%guest	198.63
%CPU	100.00
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4804164
RSS	35143
%MEM	0.05
kB_rd/s	0.04
kB_wr/s	9.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105243
%usr	0.00
%system	1.32
%guest	198.62
%CPU	99.99
CPU	.
minflt/s	0.02
majflt/s	0.00
VSZ	4822096
RSS	61509
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	228721.834
tx_rate_mbps	Unknown
throughput_rx_mbps	936.845
tx_rate_percent	4.867
throughput_rx_percent	4.867
frame_loss_percent	0.000
min_latency_ns	31100.000
max_latency_ns	975020.000
avg_latency_ns	140432.000
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	105019
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	5.27
majflt/s	0.00
VSZ	2775764
RSS	10096
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	105018
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105348
%usr	0.00
%system	1.32
%guest	198.63
%CPU	100.00
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4804164
RSS	35143
%MEM	0.05
kB_rd/s	0.04
kB_wr/s	9.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105243
%usr	0.00
%system	1.32
%guest	198.62
%CPU	99.99
CPU	.
minflt/s	0.02
majflt/s	0.00
VSZ	4822096
RSS	61509
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	227678.057
tx_rate_mbps	Unknown
throughput_rx_mbps	1865.139
tx_rate_percent	9.508
throughput_rx_percent	9.508
frame_loss_percent	0.000
min_latency_ns	59480.000
max_latency_ns	1974660.000
avg_latency_ns	160972.500
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	105019
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	5.27
majflt/s	0.00
VSZ	2775764
RSS	10096
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	105018
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105348
%usr	0.00
%system	1.32
%guest	198.63
%CPU	100.00
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4804164
RSS	35143
%MEM	0.05
kB_rd/s	0.04
kB_wr/s	9.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105243
%usr	0.00
%system	1.32
%guest	198.62
%CPU	99.99
CPU	.
minflt/s	0.02
majflt/s	0.00
VSZ	4822096
RSS	61509
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	204837.294
tx_rate_mbps	Unknown
throughput_rx_mbps	2487.544
tx_rate_percent	12.602
throughput_rx_percent	12.602
frame_loss_percent	0.000
min_latency_ns	62180.000
max_latency_ns	730480.000
avg_latency_ns	159408.000
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	105019
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	5.27
majflt/s	0.00
VSZ	2775764
RSS	10096
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	105018
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105348
%usr	0.00
%system	1.32
%guest	198.63
%CPU	100.00
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4804164
RSS	35143
%MEM	0.05
kB_rd/s	0.04
kB_wr/s	9.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	105243
%usr	0.00
%system	1.32
%guest	198.62
%CPU	99.99
CPU	.
minflt/s	0.02
majflt/s	0.00
VSZ	4822096
RSS	61509
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 22ffe5b07adeb514572dc3db8b435ef4107e348b
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhdchd	
Statistic	Value
UID	0
PID	108352
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.64
majflt/s	0.00
VSZ	2775750
RSS	17597
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	108351
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	2164
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108672
%usr	0.00
%system	0.03
%guest	199.92
%CPU	100.00
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4732837
RSS	38658
%MEM	0.06
kB_rd/s	0.07
kB_wr/s	6.12
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108568
%usr	0.00
%system	0.37
%guest	199.57
%CPU	100.00
CPU	.
minflt/s	0.16
majflt/s	0.00
VSZ	4804700
RSS	50133
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	108352
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.64
majflt/s	0.00
VSZ	2775750
RSS	17597
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	108351
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	2164
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108672
%usr	0.00
%system	0.03
%guest	199.92
%CPU	100.00
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4732837
RSS	38658
%MEM	0.06
kB_rd/s	0.07
kB_wr/s	6.12
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108568
%usr	0.00
%system	0.37
%guest	199.57
%CPU	100.00
CPU	.
minflt/s	0.16
majflt/s	0.00
VSZ	4804700
RSS	50133
%MEM	0.08
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	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-vswitchd	
Statistic	Value
UID	0
PID	108352
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	•
minflt/s	4.64
majflt/s	0.00
VSZ	2775750
RSS	17597
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	108351
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	2164
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108672
%usr	0.00
%system	0.03
%guest	199.92
%CPU	100.00
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4732837
RSS	38658
%MEM	0.06
kB_rd/s	0.07
kB_wr/s	6.12
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108568
%usr	0.00
%system	0.37
%guest	199.57
%CPU	100.00
CPU	.
minflt/s	0.16
majflt/s	0.00
VSZ	4804700
RSS	50133
%MEM	0.08
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	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	108352
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	•
minflt/s	4.64
majflt/s	0.00
VSZ	2775750
RSS	17597
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	108351
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	2164
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108672
%usr	0.00
%system	0.03
%guest	199.92
%CPU	100.00
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4732837
RSS	38658
%MEM	0.06
kB_rd/s	0.07
kB_wr/s	6.12
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108568
%usr	0.00
%system	0.37
%guest	199.57
%CPU	100.00
CPU	.
minflt/s	0.16
majflt/s	0.00
VSZ	4804700
RSS	50133
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	108352
%usr	0.23
%system	1.48
%guest	0.00
%CPU	1.71
CPU	•
minflt/s	4.64
majflt/s	0.00
VSZ	2775750
RSS	17597
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	108351
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45876
RSS	2164
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108672
%usr	0.00
%system	0.03
%guest	199.92
%CPU	100.00
CPU	.
minflt/s	0.57
majflt/s	0.00
VSZ	4732837
RSS	38658
%MEM	0.06
kB_rd/s	0.07
kB_wr/s	6.12
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108568
%usr	0.00
%system	0.37
%guest	199.57
%CPU	100.00
CPU	.
minflt/s	0.16
majflt/s	0.00
VSZ	4804700
RSS	50133
%MEM	0.08
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.3 Rationale for decisions

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

4.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-05-06_07-36-14/vswitchperf_logs_2016-05-06_07-36-14.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