



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_TPUP

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	23316602.172
tx_rate_mbps	Unknown
throughput_rx_mbps	11938.100
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	4860.000
max_latency_ns	354400.000
avg_latency_ns	9252.500
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	112214
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.22
majflt/s	0.00
VSZ	4143516
RSS	20674
%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	112213
%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	16761277.665
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.548
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	8960.000
max_latency_ns	484120.000
avg_latency_ns	11282.000
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	112214
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.22
majflt/s	0.00
VSZ	4143516
RSS	20674
%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	112213
%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	4699193.011
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.895
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	16120.000
max_latency_ns	53180.000
avg_latency_ns	41132.000
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	112214
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.22
majflt/s	0.00
VSZ	4143516
RSS	20674
%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	112213
%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	2394608.226
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.631
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	49480.000
max_latency_ns	85140.000
avg_latency_ns	73713.500
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	112214
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.22
majflt/s	0.00
VSZ	4143516
RSS	20674
%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	112213
%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	1625470.065
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.708
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	44700.000
max_latency_ns	78680.000
avg_latency_ns	66676.000
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	112214
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.22
majflt/s	0.00
VSZ	4143516
RSS	20674
%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	112213
%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	13623
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	114613
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.95
majflt/s	0.00
VSZ	4143516
RSS	18637
%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	114612
%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	2969277
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	114613
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	25.95
majflt/s	0.00
VSZ	4143516
RSS	18637
%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	114612
%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	114613
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	25.95
majflt/s	0.00
VSZ	4143516
RSS	18637
%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	114612
%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	114613
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.95
majflt/s	0.00
VSZ	4143516
RSS	18637
%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	114612
%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	114613
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	25.95
majflt/s	0.00
VSZ	4143516
RSS	18637
%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	114612
%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	10392309.094
tx_rate_mbps	Unknown
throughput_rx_mbps	5653.416
tx_rate_percent	69.836
throughput_rx_percent	73.162
frame_loss_percent	0.000
min_latency_ns	5840.000
max_latency_ns	214600.000
avg_latency_ns	10992.000
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	117845
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.54
majflt/s	0.00
VSZ	4143516
RSS	20644
%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	117844
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	8184665.716
tx_rate_mbps	Unknown
throughput_rx_mbps	8643.007
tx_rate_percent	96.906
throughput_rx_percent	99.526
frame_loss_percent	0.000
min_latency_ns	5300.000
max_latency_ns	262180.000
avg_latency_ns	8323.000
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	117845
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.54
majflt/s	0.00
VSZ	4143516
RSS	20644
%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	117844
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331452.306
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	5560.000
max_latency_ns	198420.000
avg_latency_ns	14861.000
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	117845
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.54
majflt/s	0.00
VSZ	4143516
RSS	20644
%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	117844
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.683
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.595
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5740.000
max_latency_ns	56740.000
avg_latency_ns	6970.000
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	117845
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.54
majflt/s	0.00
VSZ	4143516
RSS	20644
%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	117844
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.182
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.435
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	196060.000
avg_latency_ns	7383.000
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	117845
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	25.54
majflt/s	0.00
VSZ	4143516
RSS	20644
%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	117844
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.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	18712906.636
tx_rate_mbps	Unknown
throughput_rx_mbps	9581.008
tx_rate_percent	62.875
throughput_rx_percent	62.875
frame_loss_percent	0.000
min_latency_ns	5360.000
max_latency_ns	628300.000
avg_latency_ns	8677.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	120972
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	28.17
majflt/s	0.00
VSZ	4143516
RSS	18612
%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	120971
%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
tx_rate_fps	Unknown
throughput_rx_fps	16761273.793
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.544
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	5500.000
max_latency_ns	465560.000
avg_latency_ns	11690.000
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	120972
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	28.17
majflt/s	0.00
VSZ	4143516
RSS	18612
%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	120971
%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
tx_rate_fps	Unknown
throughput_rx_fps	4699150.374
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.720
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22340.000
max_latency_ns	99280.000
avg_latency_ns	74706.000
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	120972
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	28.17
majflt/s	0.00
VSZ	4143516
RSS	18612
%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	120971
%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
tx_rate_fps	Unknown
throughput_rx_fps	2394603.876
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	39420.000
max_latency_ns	80460.000
avg_latency_ns	69329.000
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	120972
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	28.17
majflt/s	0.00
VSZ	4143516
RSS	18612
%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	120971
%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
tx_rate_fps	Unknown
throughput_rx_fps	1625465.769
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.656
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	41500.000
max_latency_ns	82620.000
avg_latency_ns	71524.000
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	120972
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	28.17
majflt/s	0.00
VSZ	4143516
RSS	18612
%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	120971
%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.

3.2.5 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	2369328.456
tx_rate_mbps	Unknown
throughput_rx_mbps	1213.096
tx_rate_percent	7.961
throughput_rx_percent	7.961
frame_loss_percent	0.000
min_latency_ns	4800.000
max_latency_ns	72900.000
avg_latency_ns	5973.000
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	123391
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	18.54
majflt/s	0.00
VSZ	20920732
RSS	18741
%MEM	0.03
kB_rd/s	0.06
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123390
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47719
RSS	3348
%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	123517
%usr	0.00
%system	0.03
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	1.70
majflt/s	0.00
VSZ	4773840
RSS	45084
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	8.29
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	4349663.494
tx_rate_mbps	Unknown
throughput_rx_mbps	4454.055
tx_rate_percent	25.750
throughput_rx_percent	25.750
frame_loss_percent	0.000
min_latency_ns	7460.000
max_latency_ns	80580.000
avg_latency_ns	11235.500
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	123391
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	18.54
majflt/s	0.00
VSZ	20920732
RSS	18741
%MEM	0.03
kB_rd/s	0.06
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123390
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47719
RSS	3348
%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	123517
%usr	0.00
%system	0.03
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	1.70
majflt/s	0.00
VSZ	4773840
RSS	45084
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	8.29
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	4116387.277
tx_rate_mbps	Unknown
throughput_rx_mbps	16860.722
tx_rate_percent	87.625
throughput_rx_percent	87.625
frame_loss_percent	0.000
min_latency_ns	12380.000
max_latency_ns	1180300.000
avg_latency_ns	897857.500
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	123391
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	18.54
majflt/s	0.00
VSZ	20920732
RSS	18741
%MEM	0.03
kB_rd/s	0.06
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123390
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47719
RSS	3348
%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	123517
%usr	0.00
%system	0.03
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	1.70
majflt/s	0.00
VSZ	4773840
RSS	45084
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	8.29
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	2116822.050
tx_rate_mbps	Unknown
throughput_rx_mbps	17341.006
tx_rate_percent	88.398
throughput_rx_percent	88.398
frame_loss_percent	0.000
min_latency_ns	8320.000
max_latency_ns	95560.000
avg_latency_ns	10557.500
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	123391
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	18.54
majflt/s	0.00
VSZ	20920732
RSS	18741
%MEM	0.03
kB_rd/s	0.06
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123390
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47719
RSS	3348
%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	123517
%usr	0.00
%system	0.03
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	1.70
majflt/s	0.00
VSZ	4773840
RSS	45084
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	8.29
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	1512339.225
tx_rate_mbps	Unknown
throughput_rx_mbps	18365.848
tx_rate_percent	93.039
throughput_rx_percent	93.039
frame_loss_percent	0.000
min_latency_ns	8380.000
max_latency_ns	264820.000
avg_latency_ns	10656.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	123391
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	18.54
majflt/s	0.00
VSZ	20920732
RSS	18741
%MEM	0.03
kB_rd/s	0.06
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123390
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47719
RSS	3348
%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	123517
%usr	0.00
%system	0.03
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	1.70
majflt/s	0.00
VSZ	4773840
RSS	45084
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	8.29
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	6811
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-vswhitcd	
Statistic	Value
UID	0
PID	126636
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	12.39
majflt/s	0.00
VSZ	20920732
RSS	20773
%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	126635
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	126763
%usr	0.00
%system	0.17
%guest	200.14
%CPU	100.01
CPU	.
minflt/s	1.33
majflt/s	0.00
VSZ	4768192
RSS	64567
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	6.14
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3866
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	126636
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	12.39
majflt/s	0.00
VSZ	20920732
RSS	20773
%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	126635
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	126763
%usr	0.00
%system	0.17
%guest	200.14
%CPU	100.01
CPU	.
minflt/s	1.33
majflt/s	0.00
VSZ	4768192
RSS	64567
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	6.14
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	4818564
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	126636
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.39
majflt/s	0.00
VSZ	20920732
RSS	20773
%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	126635
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	126763
%usr	0.00
%system	0.17
%guest	200.14
%CPU	100.01
CPU	.
minflt/s	1.33
majflt/s	0.00
VSZ	4768192
RSS	64567
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	6.14
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	126636
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.39
majflt/s	0.00
VSZ	20920732
RSS	20773
%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	126635
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	126763
%usr	0.00
%system	0.17
%guest	200.14
%CPU	100.01
CPU	.
minflt/s	1.33
majflt/s	0.00
VSZ	4768192
RSS	64567
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	6.14
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	126636
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.39
majflt/s	0.00
VSZ	20920732
RSS	20773
%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	126635
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	126763
%usr	0.00
%system	0.17
%guest	200.14
%CPU	100.01
CPU	.
minflt/s	1.33
majflt/s	0.00
VSZ	4768192
RSS	64567
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	6.14
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: 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_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- 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
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	131181
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	4.71
majflt/s	0.00
VSZ	37697948
RSS	22230
%MEM	0.03
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	131180
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	2308
%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	131437
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.87
majflt/s	0.00
VSZ	4829128
RSS	43108
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	9.52
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131409
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4765128
RSS	55154
%MEM	0.08
kB_rd/s	0.11
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	131181
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	4.71
majflt/s	0.00
VSZ	37697948
RSS	22230
%MEM	0.03
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	131180
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	2308
%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	131437
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.87
majflt/s	0.00
VSZ	4829128
RSS	43108
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	9.52
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131409
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4765128
RSS	55154
%MEM	0.08
kB_rd/s	0.11
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	131181
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	4.71
majflt/s	0.00
VSZ	37697948
RSS	22230
%MEM	0.03
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	131180
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	2308
%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	131437
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.87
majflt/s	0.00
VSZ	4829128
RSS	43108
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	9.52
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131409
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4765128
RSS	55154
%MEM	0.08
kB_rd/s	0.11
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	131181
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	4.71
majflt/s	0.00
VSZ	37697948
RSS	22230
%MEM	0.03
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	131180
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	2308
%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	131437
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.87
majflt/s	0.00
VSZ	4829128
RSS	43108
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	9.52
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131409
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4765128
RSS	55154
%MEM	0.08
kB_rd/s	0.11
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	131181
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	4.71
majflt/s	0.00
VSZ	37697948
RSS	22230
%MEM	0.03
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	131180
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	2308
%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	131437
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.87
majflt/s	0.00
VSZ	4829128
RSS	43108
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	9.52
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	131409
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.00
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4765128
RSS	55154
%MEM	0.08
kB_rd/s	0.11
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-vswhdchd	
Statistic	Value
UID	0
PID	135070
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	14.77
majflt/s	0.00
VSZ	37697948
RSS	22780
%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	135069
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3340
%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	135324
%usr	0.00
%system	0.01
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4780996
RSS	41701
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	13.73
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	135297
%usr	0.00
%system	0.03
%guest	199.97
%CPU	100.03
CPU	.
minflt/s	21.80
majflt/s	0.00
VSZ	4870088
RSS	59786
%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
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	135070
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	14.77
majflt/s	0.00
VSZ	37697948
RSS	22780
%MEM	0.03
kB_rd/s	0.04
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	135069
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3340
%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	135324
%usr	0.00
%system	0.01
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4780996
RSS	41701
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	13.73
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	135297
%usr	0.00
%system	0.03
%guest	199.97
%CPU	100.03
CPU	.
minflt/s	21.80
majflt/s	0.00
VSZ	4870088
RSS	59786
%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
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	135070
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	14.77
majflt/s	0.00
VSZ	37697948
RSS	22780
%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	135069
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3340
%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	135324
%usr	0.00
%system	0.01
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4780996
RSS	41701
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	13.73
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	135297
%usr	0.00
%system	0.03
%guest	199.97
%CPU	100.03
CPU	.
minflt/s	21.80
majflt/s	0.00
VSZ	4870088
RSS	59786
%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
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	135070
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	14.77
majflt/s	0.00
VSZ	37697948
RSS	22780
%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	135069
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3340
%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	135324
%usr	0.00
%system	0.01
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4780996
RSS	41701
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	13.73
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	135297
%usr	0.00
%system	0.03
%guest	199.97
%CPU	100.03
CPU	.
minflt/s	21.80
majflt/s	0.00
VSZ	4870088
RSS	59786
%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
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	135070
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	14.77
majflt/s	0.00
VSZ	37697948
RSS	22780
%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	135069
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47708
RSS	3340
%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	135324
%usr	0.00
%system	0.01
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4780996
RSS	41701
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	13.73
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	135297
%usr	0.00
%system	0.03
%guest	199.97
%CPU	100.03
CPU	.
minflt/s	21.80
majflt/s	0.00
VSZ	4870088
RSS	59786
%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.

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-pod3/2016-05-10_07-12-52/vswitchperf_logs_2016-05-10_07-12-52.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	988188.745
tx_rate_mbps	Unknown
throughput_rx_mbps	505.953
tx_rate_percent	3.320
throughput_rx_percent	3.320
frame_loss_percent	0.000
min_latency_ns	4280.000
max_latency_ns	2369820.000
avg_latency_ns	53856.000
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	140350
%usr	0.23
%system	1.44
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	16540
%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	140349
%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	952809.475
tx_rate_mbps	Unknown
throughput_rx_mbps	975.677
tx_rate_percent	5.641
throughput_rx_percent	5.641
frame_loss_percent	0.000
min_latency_ns	4560.000
max_latency_ns	1798160.000
avg_latency_ns	63335.000
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	140350
%usr	0.23
%system	1.44
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	16540
%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	140349
%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	810254.074
tx_rate_mbps	Unknown
throughput_rx_mbps	3318.801
tx_rate_percent	17.242
throughput_rx_percent	17.242
frame_loss_percent	0.000
min_latency_ns	5660.000
max_latency_ns	2101920.000
avg_latency_ns	35522.500
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	140350
%usr	0.23
%system	1.44
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	16540
%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	140349
%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	820350.748
tx_rate_mbps	Unknown
throughput_rx_mbps	6720.313
tx_rate_percent	34.258
throughput_rx_percent	34.258
frame_loss_percent	0.000
min_latency_ns	6320.000
max_latency_ns	1256880.000
avg_latency_ns	36090.000
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	140350
%usr	0.23
%system	1.44
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	16540
%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	140349
%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	820870.765
tx_rate_mbps	Unknown
throughput_rx_mbps	9968.655
tx_rate_percent	50.500
throughput_rx_percent	50.500
frame_loss_percent	0.000
min_latency_ns	6720.000
max_latency_ns	1812600.000
avg_latency_ns	49309.000
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	140350
%usr	0.23
%system	1.44
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	16540
%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	140349
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.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	143160
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	15.78
majflt/s	0.00
VSZ	2775648
RSS	15570
%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	143159
%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	143160
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	15.78
majflt/s	0.00
VSZ	2775648
RSS	15570
%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	143159
%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	1344
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	143160
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	15.78
majflt/s	0.00
VSZ	2775648
RSS	15570
%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	143159
%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	1096
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	143160
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	15.78
majflt/s	0.00
VSZ	2775648
RSS	15570
%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	143159
%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	1116
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	143160
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	15.78
majflt/s	0.00
VSZ	2775648
RSS	15570
%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	143159
%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	609189.298
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	1492720.000
avg_latency_ns	43297.000
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	147235
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	3.86
majflt/s	0.00
VSZ	2775644
RSS	15692
%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	147234
%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	607052.396
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	4520.000
max_latency_ns	2322580.000
avg_latency_ns	76094.000
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	147235
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	3.86
majflt/s	0.00
VSZ	2775644
RSS	15692
%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	147234
%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	550510.537
tx_rate_mbps	Unknown
throughput_rx_mbps	2272.507
tx_rate_percent	23.430
throughput_rx_percent	23.606
frame_loss_percent	0.000
min_latency_ns	5480.000
max_latency_ns	1810880.000
avg_latency_ns	51644.000
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	147235
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	3.86
majflt/s	0.00
VSZ	2775644
RSS	15692
%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	147234
%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	502780.922
tx_rate_mbps	Unknown
throughput_rx_mbps	4134.870
tx_rate_percent	41.992
throughput_rx_percent	42.153
frame_loss_percent	0.000
min_latency_ns	6140.000
max_latency_ns	525660.000
avg_latency_ns	13090.000
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	147235
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	3.86
majflt/s	0.00
VSZ	2775644
RSS	15692
%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	147234
%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	511020.506
tx_rate_mbps	Unknown
throughput_rx_mbps	6222.186
tx_rate_percent	62.875
throughput_rx_percent	63.039
frame_loss_percent	0.000
min_latency_ns	6660.000
max_latency_ns	374260.000
avg_latency_ns	16405.000
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	147235
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	3.86
majflt/s	0.00
VSZ	2775644
RSS	15692
%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	147234
%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	988189.673
tx_rate_mbps	Unknown
throughput_rx_mbps	505.953
tx_rate_percent	3.320
throughput_rx_percent	3.320
frame_loss_percent	0.000
min_latency_ns	4360.000
max_latency_ns	2688040.000
avg_latency_ns	63912.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3405
%usr	0.23
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775652
RSS	15009
%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	3404
%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	822161.425
tx_rate_mbps	Unknown
throughput_rx_mbps	841.893
tx_rate_percent	4.867
throughput_rx_percent	4.867
frame_loss_percent	0.000
min_latency_ns	4820.000
max_latency_ns	492200.000
avg_latency_ns	31208.000
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	3405
%usr	0.23
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775652
RSS	15009
%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	3404
%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	737562.538
tx_rate_mbps	Unknown
throughput_rx_mbps	3021.056
tx_rate_percent	15.695
throughput_rx_percent	15.695
frame_loss_percent	0.000
min_latency_ns	5840.000
max_latency_ns	883760.000
avg_latency_ns	29774.500
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	3405
%usr	0.23
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775652
RSS	15009
%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	3404
%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	709224.817
tx_rate_mbps	Unknown
throughput_rx_mbps	5809.970
tx_rate_percent	29.617
throughput_rx_percent	29.617
frame_loss_percent	0.000
min_latency_ns	6460.000
max_latency_ns	847060.000
avg_latency_ns	31539.500
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	3405
%usr	0.23
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775652
RSS	15009
%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	3404
%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	707722.774
tx_rate_mbps	Unknown
throughput_rx_mbps	8594.585
tx_rate_percent	43.539
throughput_rx_percent	43.539
frame_loss_percent	0.000
min_latency_ns	7160.000
max_latency_ns	835200.000
avg_latency_ns	32161.000
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	3405
%usr	0.23
%system	1.45
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	2775652
RSS	15009
%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	3404
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.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	526211.525
tx_rate_mbps	Unknown
throughput_rx_mbps	269.420
tx_rate_percent	1.773
throughput_rx_percent	1.768
frame_loss_percent	0.303
min_latency_ns	7140.000
max_latency_ns	28202340.000
avg_latency_ns	64533.000
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	6388
%usr	0.19
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775648
RSS	16128
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6387
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6552
%usr	0.00
%system	1.11
%guest	198.86
%CPU	100.03
CPU	.
minflt/s	1.06
majflt/s	0.00
VSZ	4843554
RSS	54807
%MEM	0.08
kB_rd/s	0.45
kB_wr/s	109.86
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299567.876
tx_rate_mbps	Unknown
throughput_rx_mbps	306.758
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.000
min_latency_ns	7400.000
max_latency_ns	410380.000
avg_latency_ns	46734.500
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	6388
%usr	0.19
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775648
RSS	16128
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6387
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6552
%usr	0.00
%system	1.11
%guest	198.86
%CPU	100.03
CPU	.
minflt/s	1.06
majflt/s	0.00
VSZ	4843554
RSS	54807
%MEM	0.08
kB_rd/s	0.45
kB_wr/s	109.86
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	192375.622
tx_rate_mbps	Unknown
throughput_rx_mbps	787.971
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	11020.000
max_latency_ns	1319400.000
avg_latency_ns	89966.500
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	6388
%usr	0.19
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775648
RSS	16128
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6387
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6552
%usr	0.00
%system	1.11
%guest	198.86
%CPU	100.03
CPU	.
minflt/s	1.06
majflt/s	0.00
VSZ	4843554
RSS	54807
%MEM	0.08
kB_rd/s	0.45
kB_wr/s	109.86
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	320284.594
tx_rate_mbps	Unknown
throughput_rx_mbps	2623.771
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	11060.000
max_latency_ns	1246380.000
avg_latency_ns	111274.000
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	6388
%usr	0.19
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775648
RSS	16128
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6387
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6552
%usr	0.00
%system	1.11
%guest	198.86
%CPU	100.03
CPU	.
minflt/s	1.06
majflt/s	0.00
VSZ	4843554
RSS	54807
%MEM	0.08
kB_rd/s	0.45
kB_wr/s	109.86
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	267697.576
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.919
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	11000.000
max_latency_ns	1455860.000
avg_latency_ns	107075.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6388
%usr	0.19
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.42
majflt/s	0.00
VSZ	2775648
RSS	16128
%MEM	0.02
kB_rd/s	0.15
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6387
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3208
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6552
%usr	0.00
%system	1.11
%guest	198.86
%CPU	100.03
CPU	.
minflt/s	1.06
majflt/s	0.00
VSZ	4843554
RSS	54807
%MEM	0.08
kB_rd/s	0.45
kB_wr/s	109.86
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	9446
%usr	0.23
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	30509
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	9445
%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	9610
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.59
majflt/s	0.00
VSZ	4838476
RSS	82913
%MEM	0.13
kB_rd/s	0.01
kB_wr/s	5.31
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	9446
%usr	0.23
%system	1.41
%guest	0.00
%CPU	1.63
CPU	•
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	30509
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	9445
%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	9610
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.59
majflt/s	0.00
VSZ	4838476
RSS	82913
%MEM	0.13
kB_rd/s	0.01
kB_wr/s	5.31
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	9446
%usr	0.23
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	30509
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	9445
%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	9610
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.59
majflt/s	0.00
VSZ	4838476
RSS	82913
%MEM	0.13
kB_rd/s	0.01
kB_wr/s	5.31
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	9446
%usr	0.23
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	30509
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	9445
%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	9610
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.59
majflt/s	0.00
VSZ	4838476
RSS	82913
%MEM	0.13
kB_rd/s	0.01
kB_wr/s	5.31
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	372
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	9446
%usr	0.23
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	4.27
majflt/s	0.00
VSZ	2775648
RSS	30509
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	9445
%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	9610
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.01
CPU	.
minflt/s	0.59
majflt/s	0.00
VSZ	4838476
RSS	82913
%MEM	0.13
kB_rd/s	0.01
kB_wr/s	5.31
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	526817.169
tx_rate_mbps	Unknown
throughput_rx_mbps	269.730
tx_rate_percent	1.773
throughput_rx_percent	1.770
frame_loss_percent	0.190
min_latency_ns	12780.000
max_latency_ns	24880280.000
avg_latency_ns	96031.500
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13898
%usr	0.22
%system	1.40
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	28.61
majflt/s	0.00
VSZ	2775749
RSS	15887
%MEM	0.02
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13897
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2654
%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	14152
%usr	0.00
%system	1.17
%guest	198.88
%CPU	100.03
CPU	.
minflt/s	27.75
majflt/s	0.00
VSZ	4787788
RSS	44999
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.43
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	14118
%usr	0.00
%system	1.26
%guest	198.69
%CPU	99.99
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	4790852
RSS	71223
%MEM	0.11
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	299553.105
tx_rate_mbps	Unknown
throughput_rx_mbps	306.742
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.005
min_latency_ns	14720.000
max_latency_ns	2424440.000
avg_latency_ns	72511.000
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13898
%usr	0.22
%system	1.40
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	28.61
majflt/s	0.00
VSZ	2775749
RSS	15887
%MEM	0.02
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13897
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2654
%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	14152
%usr	0.00
%system	1.17
%guest	198.88
%CPU	100.03
CPU	.
minflt/s	27.75
majflt/s	0.00
VSZ	4787788
RSS	44999
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.43
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	14118
%usr	0.00
%system	1.26
%guest	198.69
%CPU	99.99
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	4790852
RSS	71223
%MEM	0.11
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	265067.965
tx_rate_mbps	Unknown
throughput_rx_mbps	1085.718
tx_rate_percent	5.641
throughput_rx_percent	5.641
frame_loss_percent	0.000
min_latency_ns	18400.000
max_latency_ns	1216240.000
avg_latency_ns	130615.000
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	13898
%usr	0.22
%system	1.40
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	28.61
majflt/s	0.00
VSZ	2775749
RSS	15887
%MEM	0.02
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13897
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2654
%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	14152
%usr	0.00
%system	1.17
%guest	198.88
%CPU	100.03
CPU	.
minflt/s	27.75
majflt/s	0.00
VSZ	4787788
RSS	44999
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.43
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	14118
%usr	0.00
%system	1.26
%guest	198.69
%CPU	99.99
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	4790852
RSS	71223
%MEM	0.11
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	246199.966
tx_rate_mbps	Unknown
throughput_rx_mbps	2016.870
tx_rate_percent	10.281
throughput_rx_percent	10.281
frame_loss_percent	0.000
min_latency_ns	48580.000
max_latency_ns	1406000.000
avg_latency_ns	153485.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13898
%usr	0.22
%system	1.40
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	28.61
majflt/s	0.00
VSZ	2775749
RSS	15887
%MEM	0.02
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13897
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2654
%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	14152
%usr	0.00
%system	1.17
%guest	198.88
%CPU	100.03
CPU	.
minflt/s	27.75
majflt/s	0.00
VSZ	4787788
RSS	44999
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.43
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	14118
%usr	0.00
%system	1.26
%guest	198.69
%CPU	99.99
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	4790852
RSS	71223
%MEM	0.11
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	267698.421
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.930
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	59020.000
max_latency_ns	1388920.000
avg_latency_ns	170074.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13898
%usr	0.22
%system	1.40
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	28.61
majflt/s	0.00
VSZ	2775749
RSS	15887
%MEM	0.02
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13897
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	2654
%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	14152
%usr	0.00
%system	1.17
%guest	198.88
%CPU	100.03
CPU	.
minflt/s	27.75
majflt/s	0.00
VSZ	4787788
RSS	44999
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.43
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	14118
%usr	0.00
%system	1.26
%guest	198.69
%CPU	99.99
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	4790852
RSS	71223
%MEM	0.11
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	17165
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	4.48
majflt/s	0.00
VSZ	2775750
RSS	27030
%MEM	0.04
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	17164
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	2132
%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	17502
%usr	0.00
%system	0.06
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.53
majflt/s	0.00
VSZ	4879956
RSS	47684
%MEM	0.07
kB_rd/s	0.07
kB_wr/s	6.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	17387
%usr	0.00
%system	0.05
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4700244
RSS	53369
%MEM	0.08
kB_rd/s	0.03
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	17165
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	4.48
majflt/s	0.00
VSZ	2775750
RSS	27030
%MEM	0.04
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	17164
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	2132
%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	17502
%usr	0.00
%system	0.06
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.53
majflt/s	0.00
VSZ	4879956
RSS	47684
%MEM	0.07
kB_rd/s	0.07
kB_wr/s	6.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	17387
%usr	0.00
%system	0.05
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4700244
RSS	53369
%MEM	0.08
kB_rd/s	0.03
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	17165
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.44
CPU	•
minflt/s	4.48
majflt/s	0.00
VSZ	2775750
RSS	27030
%MEM	0.04
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	17164
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	2132
%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	17502
%usr	0.00
%system	0.06
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.53
majflt/s	0.00
VSZ	4879956
RSS	47684
%MEM	0.07
kB_rd/s	0.07
kB_wr/s	6.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	17387
%usr	0.00
%system	0.05
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4700244
RSS	53369
%MEM	0.08
kB_rd/s	0.03
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	17165
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.44
CPU	•
minflt/s	4.48
majflt/s	0.00
VSZ	2775750
RSS	27030
%MEM	0.04
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	17164
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	2132
%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	17502
%usr	0.00
%system	0.06
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.53
majflt/s	0.00
VSZ	4879956
RSS	47684
%MEM	0.07
kB_rd/s	0.07
kB_wr/s	6.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	17387
%usr	0.00
%system	0.05
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4700244
RSS	53369
%MEM	0.08
kB_rd/s	0.03
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	17165
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.44
CPU	•
minflt/s	4.48
majflt/s	0.00
VSZ	2775750
RSS	27030
%MEM	0.04
kB_rd/s	0.03
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	17164
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	2132
%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	17502
%usr	0.00
%system	0.06
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.53
majflt/s	0.00
VSZ	4879956
RSS	47684
%MEM	0.07
kB_rd/s	0.07
kB_wr/s	6.16
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	17387
%usr	0.00
%system	0.05
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4700244
RSS	53369
%MEM	0.08
kB_rd/s	0.03
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-pod3/2016-05-10_07-12-52/vswitchperf_logs_2016-05-10_07-12-52.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