



VSPERF Results

Release draft (2596960)

OPNFV

May 04, 2016

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OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

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

Supported deployment scenarios:

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

Loopback applications in the Guest can be:

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

Supported traffic generators:

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

OPNFV BRAHMAPUTRA RESULTS

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

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

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

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

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

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

This document is currently in draft form.

3.1.1 Document identifier

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

3.1.2 Scope

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

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

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

3.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 2596960ac9508ecc54a25d7b0f628e0713a82a2
- 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	22396046.848
tx_rate_mbps	Unknown
throughput_rx_mbps	11466.776
tx_rate_percent	75.250
throughput_rx_percent	75.250
frame_loss_percent	0.000
min_latency_ns	5240.000
max_latency_ns	603700.000
avg_latency_ns	9110.000
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	89960
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	50.98
majflt/s	0.00
VSZ	4143520
RSS	18626
%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	89959
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3336
%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	16761269.094
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.540
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	5380.000
max_latency_ns	123940.000
avg_latency_ns	11601.500
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	89960
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	50.98
majflt/s	0.00
VSZ	4143520
RSS	18626
%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	89959
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3336
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699184.678
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.860
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	28500.000
max_latency_ns	69460.000
avg_latency_ns	56853.500
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	89960
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	50.98
majflt/s	0.00
VSZ	4143520
RSS	18626
%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	89959
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3336
%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	2394609.990
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.645
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	19100.000
max_latency_ns	54620.000
avg_latency_ns	40246.000
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	89960
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	50.98
majflt/s	0.00
VSZ	4143520
RSS	18626
%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	89959
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3336
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625462.534
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.617
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	18580.000
max_latency_ns	71300.000
avg_latency_ns	49919.000
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	89960
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	50.98
majflt/s	0.00
VSZ	4143520
RSS	18626
%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	89959
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3336
%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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	19584
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	92011
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	47.74
majflt/s	0.00
VSZ	4143520
RSS	18495
%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	92010
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1693416
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	92011
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	47.74
majflt/s	0.00
VSZ	4143520
RSS	18495
%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	92010
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	92011
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	47.74
majflt/s	0.00
VSZ	4143520
RSS	18495
%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	92010
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	92011
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	47.74
majflt/s	0.00
VSZ	4143520
RSS	18495
%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	92010
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	92011
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	47.74
majflt/s	0.00
VSZ	4143520
RSS	18495
%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	92010
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47608
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.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: 2596960ac9508ecc54a25d7b0f628e0713a82a2
- 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	10047016.199
tx_rate_mbps	Unknown
throughput_rx_mbps	5465.577
tx_rate_percent	67.516
throughput_rx_percent	70.731
frame_loss_percent	0.000
min_latency_ns	5420.000
max_latency_ns	543780.000
avg_latency_ns	7707.000
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	94679
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	45.69
majflt/s	0.00
VSZ	4143520
RSS	20163
%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	94678
%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	7858064.303
tx_rate_mbps	Unknown
throughput_rx_mbps	8298.116
tx_rate_percent	93.039
throughput_rx_percent	95.554
frame_loss_percent	0.000
min_latency_ns	4980.000
max_latency_ns	357840.000
avg_latency_ns	6088.000
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	94679
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	45.69
majflt/s	0.00
VSZ	4143520
RSS	20163
%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	94678
%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	2331451.704
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.233
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	6140.000
max_latency_ns	288340.000
avg_latency_ns	19186.000
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	94679
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	45.69
majflt/s	0.00
VSZ	4143520
RSS	20163
%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	94678
%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	1188058.583
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.594
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5760.000
max_latency_ns	279420.000
avg_latency_ns	7851.000
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	94679
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	45.69
majflt/s	0.00
VSZ	4143520
RSS	20163
%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	94678
%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	806458.242
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.436
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6180.000
max_latency_ns	38980.000
avg_latency_ns	7464.000
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	94679
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	45.69
majflt/s	0.00
VSZ	4143520
RSS	20163
%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	94678
%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.

3.2.4 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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	18943036.418
tx_rate_mbps	Unknown
throughput_rx_mbps	9698.835
tx_rate_percent	63.648
throughput_rx_percent	63.648
frame_loss_percent	0.000
min_latency_ns	5120.000
max_latency_ns	762720.000
avg_latency_ns	8590.000
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	97732
%usr	199.93
%system	0.06
%guest	0.00
%CPU	199.99
CPU	.
minflt/s	51.82
majflt/s	0.00
VSZ	4143520
RSS	20548
%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	97731
%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	15977432.071
tx_rate_mbps	Unknown
throughput_rx_mbps	16360.890
tx_rate_percent	94.586
throughput_rx_percent	94.586
frame_loss_percent	0.000
min_latency_ns	8320.000
max_latency_ns	545780.000
avg_latency_ns	9542.500
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	97732
%usr	199.93
%system	0.06
%guest	0.00
%CPU	199.99
CPU	.
minflt/s	51.82
majflt/s	0.00
VSZ	4143520
RSS	20548
%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	97731
%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	4699158.472
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.753
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	17320.000
max_latency_ns	86080.000
avg_latency_ns	63012.500
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	97732
%usr	199.93
%system	0.06
%guest	0.00
%CPU	199.99
CPU	.
minflt/s	51.82
majflt/s	0.00
VSZ	4143520
RSS	20548
%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	97731
%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	2394598.592
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.552
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	29640.000
max_latency_ns	77160.000
avg_latency_ns	64341.500
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	97732
%usr	199.93
%system	0.06
%guest	0.00
%CPU	199.99
CPU	.
minflt/s	51.82
majflt/s	0.00
VSZ	4143520
RSS	20548
%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	97731
%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	1625469.052
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.696
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22620.000
max_latency_ns	57360.000
avg_latency_ns	44885.500
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	97732
%usr	199.93
%system	0.06
%guest	0.00
%CPU	199.99
CPU	.
minflt/s	51.82
majflt/s	0.00
VSZ	4143520
RSS	20548
%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	97731
%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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	4210843.862
tx_rate_mbps	Unknown
throughput_rx_mbps	2155.952
tx_rate_percent	14.148
throughput_rx_percent	14.148
frame_loss_percent	0.000
min_latency_ns	10780.000
max_latency_ns	1228600.000
avg_latency_ns	30691.000
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	99781
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.87
majflt/s	0.00
VSZ	20920736
RSS	32900
%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	99780
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3156
%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	99916
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.73
majflt/s	0.00
VSZ	4932548
RSS	48391
%MEM	0.07
kB_rd/s	0.15
kB_wr/s	8.27
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	3043181.200
tx_rate_mbps	Unknown
throughput_rx_mbps	3116.218
tx_rate_percent	18.016
throughput_rx_percent	18.016
frame_loss_percent	0.000
min_latency_ns	12740.000
max_latency_ns	245780.000
avg_latency_ns	21212.500
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	99781
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.87
majflt/s	0.00
VSZ	20920736
RSS	32900
%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	99780
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3156
%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	99916
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.73
majflt/s	0.00
VSZ	4932548
RSS	48391
%MEM	0.07
kB_rd/s	0.15
kB_wr/s	8.27
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2409464.433
tx_rate_mbps	Unknown
throughput_rx_mbps	9869.166
tx_rate_percent	51.273
throughput_rx_percent	51.273
frame_loss_percent	0.000
min_latency_ns	9940.000
max_latency_ns	383840.000
avg_latency_ns	54105.500
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	99781
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.87
majflt/s	0.00
VSZ	20920736
RSS	32900
%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	99780
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3156
%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	99916
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.73
majflt/s	0.00
VSZ	4932548
RSS	48391
%MEM	0.07
kB_rd/s	0.15
kB_wr/s	8.27
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1839000.202
tx_rate_mbps	Unknown
throughput_rx_mbps	15065.090
tx_rate_percent	76.797
throughput_rx_percent	76.797
frame_loss_percent	0.000
min_latency_ns	12300.000
max_latency_ns	469540.000
avg_latency_ns	124426.500
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	99781
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.87
majflt/s	0.00
VSZ	20920736
RSS	32900
%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	99780
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3156
%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	99916
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.73
majflt/s	0.00
VSZ	4932548
RSS	48391
%MEM	0.07
kB_rd/s	0.15
kB_wr/s	8.27
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1311167.135
tx_rate_mbps	Unknown
throughput_rx_mbps	15922.814
tx_rate_percent	80.664
throughput_rx_percent	80.664
frame_loss_percent	0.000
min_latency_ns	12620.000
max_latency_ns	1768360.000
avg_latency_ns	373829.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	99781
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.87
majflt/s	0.00
VSZ	20920736
RSS	32900
%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	99780
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3156
%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	99916
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.73
majflt/s	0.00
VSZ	4932548
RSS	48391
%MEM	0.07
kB_rd/s	0.15
kB_wr/s	8.27
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	103310
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	19.15
majflt/s	0.00
VSZ	20920736
RSS	20619
%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	103309
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3368
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	103442
%usr	0.00
%system	0.01
%guest	199.95
%CPU	100.01
CPU	.
minflt/s	0.53
majflt/s	0.00
VSZ	4776384
RSS	48686
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	65.12
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	6282
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	103310
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	19.15
majflt/s	0.00
VSZ	20920736
RSS	20619
%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	103309
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3368
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	103442
%usr	0.00
%system	0.01
%guest	199.95
%CPU	100.01
CPU	.
minflt/s	0.53
majflt/s	0.00
VSZ	4776384
RSS	48686
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	65.12
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	6184
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	103310
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	19.15
majflt/s	0.00
VSZ	20920736
RSS	20619
%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	103309
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3368
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	103442
%usr	0.00
%system	0.01
%guest	199.95
%CPU	100.01
CPU	.
minflt/s	0.53
majflt/s	0.00
VSZ	4776384
RSS	48686
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	65.12
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	11509
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	103310
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	19.15
majflt/s	0.00
VSZ	20920736
RSS	20619
%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	103309
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3368
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	103442
%usr	0.00
%system	0.01
%guest	199.95
%CPU	100.01
CPU	.
minflt/s	0.53
majflt/s	0.00
VSZ	4776384
RSS	48686
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	65.12
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	13021
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	103310
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	19.15
majflt/s	0.00
VSZ	20920736
RSS	20619
%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	103309
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47716
RSS	3368
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	103442
%usr	0.00
%system	0.01
%guest	199.95
%CPU	100.01
CPU	.
minflt/s	0.53
majflt/s	0.00
VSZ	4776384
RSS	48686
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	65.12
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: pvpv
- vswitchperf: GIT tag: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2369327.791
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	12260.000
max_latency_ns	2700280.000
avg_latency_ns	36000.500
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	107942
%usr	199.95
%system	0.05
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.51
majflt/s	0.00
VSZ	37697952
RSS	20698
%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	107941
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	47716
RSS	3118
%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	108198
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.04
CPU	.
minflt/s	2.06
majflt/s	0.00
VSZ	4700062
RSS	37445
%MEM	0.06
kB_rd/s	0.55
kB_wr/s	109.26
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108166
%usr	0.00
%system	0.04
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	0.64
majflt/s	0.00
VSZ	4837828
RSS	83533
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	0.49
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	2259262.091
tx_rate_mbps	Unknown
throughput_rx_mbps	2313.484
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	13780.000
max_latency_ns	241860.000
avg_latency_ns	84697.000
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	107942
%usr	199.95
%system	0.05
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.51
majflt/s	0.00
VSZ	37697952
RSS	20698
%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	107941
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	47716
RSS	3118
%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	108198
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.04
CPU	.
minflt/s	2.06
majflt/s	0.00
VSZ	4700062
RSS	37445
%MEM	0.06
kB_rd/s	0.55
kB_wr/s	109.26
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108166
%usr	0.00
%system	0.04
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	0.64
majflt/s	0.00
VSZ	4837828
RSS	83533
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	0.49
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	1609858.716
tx_rate_mbps	Unknown
throughput_rx_mbps	6593.981
tx_rate_percent	34.258
throughput_rx_percent	34.258
frame_loss_percent	0.000
min_latency_ns	13480.000
max_latency_ns	2911420.000
avg_latency_ns	108470.500
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	107942
%usr	199.95
%system	0.05
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.51
majflt/s	0.00
VSZ	37697952
RSS	20698
%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	107941
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	47716
RSS	3118
%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	108198
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.04
CPU	.
minflt/s	2.06
majflt/s	0.00
VSZ	4700062
RSS	37445
%MEM	0.06
kB_rd/s	0.55
kB_wr/s	109.26
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108166
%usr	0.00
%system	0.04
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	0.64
majflt/s	0.00
VSZ	4837828
RSS	83533
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	0.49
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	1357458.033
tx_rate_mbps	Unknown
throughput_rx_mbps	11120.296
tx_rate_percent	56.688
throughput_rx_percent	56.688
frame_loss_percent	0.000
min_latency_ns	16040.000
max_latency_ns	575300.000
avg_latency_ns	59175.000
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	107942
%usr	199.95
%system	0.05
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.51
majflt/s	0.00
VSZ	37697952
RSS	20698
%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	107941
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	47716
RSS	3118
%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	108198
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.04
CPU	.
minflt/s	2.06
majflt/s	0.00
VSZ	4700062
RSS	37445
%MEM	0.06
kB_rd/s	0.55
kB_wr/s	109.26
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108166
%usr	0.00
%system	0.04
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	0.64
majflt/s	0.00
VSZ	4837828
RSS	83533
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	0.49
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	1135173.938
tx_rate_mbps	Unknown
throughput_rx_mbps	13785.552
tx_rate_percent	69.836
throughput_rx_percent	69.836
frame_loss_percent	0.000
min_latency_ns	18220.000
max_latency_ns	589180.000
avg_latency_ns	57775.500
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	107942
%usr	199.95
%system	0.05
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	12.51
majflt/s	0.00
VSZ	37697952
RSS	20698
%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	107941
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.03
majflt/s	0.00
VSZ	47716
RSS	3118
%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	108198
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.04
CPU	.
minflt/s	2.06
majflt/s	0.00
VSZ	4700062
RSS	37445
%MEM	0.06
kB_rd/s	0.55
kB_wr/s	109.26
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	108166
%usr	0.00
%system	0.04
%guest	199.96
%CPU	100.00
CPU	.
minflt/s	0.64
majflt/s	0.00
VSZ	4837828
RSS	83533
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	0.49
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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	8089
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	111448
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.56
majflt/s	0.00
VSZ	37697952
RSS	22688
%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	111447
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3296
%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	111684
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4837328
RSS	43234
%MEM	0.07
kB_rd/s	0.09
kB_wr/s	5.23
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	111582
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4843468
RSS	63761
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.03
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	5799
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	111448
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	14.56
majflt/s	0.00
VSZ	37697952
RSS	22688
%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	111447
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3296
%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	111684
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4837328
RSS	43234
%MEM	0.07
kB_rd/s	0.09
kB_wr/s	5.23
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	111582
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4843468
RSS	63761
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.03
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	4033
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	111448
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	14.56
majflt/s	0.00
VSZ	37697952
RSS	22688
%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	111447
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3296
%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	111684
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4837328
RSS	43234
%MEM	0.07
kB_rd/s	0.09
kB_wr/s	5.23
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	111582
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4843468
RSS	63761
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.03
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	5206
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	111448
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	14.56
majflt/s	0.00
VSZ	37697952
RSS	22688
%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	111447
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3296
%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	111684
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4837328
RSS	43234
%MEM	0.07
kB_rd/s	0.09
kB_wr/s	5.23
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	111582
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4843468
RSS	63761
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.03
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	7068
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	111448
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	14.56
majflt/s	0.00
VSZ	37697952
RSS	22688
%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	111447
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47712
RSS	3296
%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	111684
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.82
majflt/s	0.00
VSZ	4837328
RSS	43234
%MEM	0.07
kB_rd/s	0.09
kB_wr/s	5.23
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	111582
%usr	0.00
%system	0.01
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.54
majflt/s	0.00
VSZ	4843468
RSS	63761
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.03
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-pod3/2016-05-04_07-58-57/vswitchperf_logs_2016-05-04_07-58-57.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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	1218373.652
tx_rate_mbps	Unknown
throughput_rx_mbps	623.807
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4360.000
max_latency_ns	5723860.000
avg_latency_ns	42002.000
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	116309
%usr	0.24
%system	1.59
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	14676
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	116308
%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	1214104.848
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.243
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	4640.000
max_latency_ns	4037300.000
avg_latency_ns	75090.500
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	116309
%usr	0.24
%system	1.59
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	14676
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	116308
%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	1064674.521
tx_rate_mbps	Unknown
throughput_rx_mbps	4360.907
tx_rate_percent	22.656
throughput_rx_percent	22.656
frame_loss_percent	0.000
min_latency_ns	5740.000
max_latency_ns	752340.000
avg_latency_ns	20855.500
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	116309
%usr	0.24
%system	1.59
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	14676
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	116308
%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	1098165.597
tx_rate_mbps	Unknown
throughput_rx_mbps	8996.173
tx_rate_percent	45.859
throughput_rx_percent	45.859
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	1053240.000
avg_latency_ns	31390.000
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	116309
%usr	0.24
%system	1.59
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	14676
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	116308
%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	1059743.909
tx_rate_mbps	Unknown
throughput_rx_mbps	12869.530
tx_rate_percent	65.195
throughput_rx_percent	65.195
frame_loss_percent	0.000
min_latency_ns	7000.000
max_latency_ns	739280.000
avg_latency_ns	22496.500
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	116309
%usr	0.24
%system	1.59
%guest	0.00
%CPU	1.83
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	14676
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	116308
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	119211
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	9.69
majflt/s	0.00
VSZ	2775648
RSS	24994
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	119210
%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	119211
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	9.69
majflt/s	0.00
VSZ	2775648
RSS	24994
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119210
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	119211
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	9.69
majflt/s	0.00
VSZ	2775648
RSS	24994
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119210
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1370
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	119211
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	9.69
majflt/s	0.00
VSZ	2775648
RSS	24994
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	119210
%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	1860
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	119211
%usr	0.24
%system	1.48
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	9.69
majflt/s	0.00
VSZ	2775648
RSS	24994
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	119210
%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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 02ab4b1a6a173979a51cabd7000a34546d517e60

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	724284.891
tx_rate_mbps	Unknown
throughput_rx_mbps	394.011
tx_rate_percent	4.867
throughput_rx_percent	5.099
frame_loss_percent	0.000
min_latency_ns	4180.000
max_latency_ns	7114920.000
avg_latency_ns	391808.000
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	123612
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	13675
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123611
%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	541728.879
tx_rate_mbps	Unknown
throughput_rx_mbps	572.066
tx_rate_percent	6.414
throughput_rx_percent	6.587
frame_loss_percent	0.000
min_latency_ns	4920.000
max_latency_ns	173060.000
avg_latency_ns	14340.000
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	123612
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	13675
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123611
%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	514164.921
tx_rate_mbps	Unknown
throughput_rx_mbps	2122.473
tx_rate_percent	21.883
throughput_rx_percent	22.047
frame_loss_percent	0.000
min_latency_ns	5640.000
max_latency_ns	595960.000
avg_latency_ns	13875.000
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	123612
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	13675
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123611
%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	549069.734
tx_rate_mbps	Unknown
throughput_rx_mbps	4515.549
tx_rate_percent	45.859
throughput_rx_percent	46.034
frame_loss_percent	0.000
min_latency_ns	6040.000
max_latency_ns	1173300.000
avg_latency_ns	46967.000
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	123612
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	13675
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123611
%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	504727.433
tx_rate_mbps	Unknown
throughput_rx_mbps	6145.561
tx_rate_percent	62.102
throughput_rx_percent	62.263
frame_loss_percent	0.000
min_latency_ns	6700.000
max_latency_ns	410320.000
avg_latency_ns	12270.000
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	123612
%usr	0.22
%system	1.41
%guest	0.00
%CPU	1.63
CPU	.
minflt/s	3.96
majflt/s	0.00
VSZ	2775652
RSS	13675
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	123611
%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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	1218380.145
tx_rate_mbps	Unknown
throughput_rx_mbps	623.811
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4460.000
max_latency_ns	2077800.000
avg_latency_ns	46724.000
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	126599
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	34.84
majflt/s	0.00
VSZ	2775648
RSS	14945
%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	126598
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214106.168
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.245
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	4520.000
max_latency_ns	3389360.000
avg_latency_ns	107227.500
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	126599
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	34.84
majflt/s	0.00
VSZ	2775648
RSS	14945
%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	126598
%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	1064674.248
tx_rate_mbps	Unknown
throughput_rx_mbps	4360.906
tx_rate_percent	22.656
throughput_rx_percent	22.656
frame_loss_percent	0.000
min_latency_ns	5700.000
max_latency_ns	1108860.000
avg_latency_ns	33841.000
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	126599
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	34.84
majflt/s	0.00
VSZ	2775648
RSS	14945
%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	126598
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45764
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1061124.736
tx_rate_mbps	Unknown
throughput_rx_mbps	8692.734
tx_rate_percent	44.313
throughput_rx_percent	44.313
frame_loss_percent	0.000
min_latency_ns	6260.000
max_latency_ns	1114860.000
avg_latency_ns	22862.000
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	126599
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	34.84
majflt/s	0.00
VSZ	2775648
RSS	14945
%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	126598
%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	1072304.153
tx_rate_mbps	Unknown
throughput_rx_mbps	13022.062
tx_rate_percent	65.969
throughput_rx_percent	65.969
frame_loss_percent	0.000
min_latency_ns	6980.000
max_latency_ns	1733080.000
avg_latency_ns	38552.500
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	126599
%usr	0.21
%system	1.34
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	34.84
majflt/s	0.00
VSZ	2775648
RSS	14945
%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	126598
%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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	525112.393
tx_rate_mbps	Unknown
throughput_rx_mbps	268.858
tx_rate_percent	1.773
throughput_rx_percent	1.764
frame_loss_percent	0.511
min_latency_ns	15400.000
max_latency_ns	35652280.000
avg_latency_ns	80245.000
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	129702
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.45
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	2775644
RSS	9941
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	129701
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3140
%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	129845
%usr	0.00
%system	0.78
%guest	199.22
%CPU	100.01
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4849752
RSS	49051
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.41
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299563.652
tx_rate_mbps	Unknown
throughput_rx_mbps	306.753
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.001
min_latency_ns	13040.000
max_latency_ns	1406920.000
avg_latency_ns	50722.500
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	129702
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.45
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	2775644
RSS	9941
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	129701
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3140
%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	129845
%usr	0.00
%system	0.78
%guest	199.22
%CPU	100.01
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4849752
RSS	49051
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.41
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	265066.868
tx_rate_mbps	Unknown
throughput_rx_mbps	1085.714
tx_rate_percent	5.641
throughput_rx_percent	5.641
frame_loss_percent	0.000
min_latency_ns	40900.000
max_latency_ns	471180.000
avg_latency_ns	107866.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	129702
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.45
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	2775644
RSS	9941
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	129701
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3140
%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	129845
%usr	0.00
%system	0.78
%guest	199.22
%CPU	100.01
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4849752
RSS	49051
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.41
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	264719.359
tx_rate_mbps	Unknown
throughput_rx_mbps	2168.581
tx_rate_percent	11.055
throughput_rx_percent	11.055
frame_loss_percent	0.000
min_latency_ns	44940.000
max_latency_ns	315300.000
avg_latency_ns	114073.500
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	129702
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.45
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	2775644
RSS	9941
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	129701
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3140
%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	129845
%usr	0.00
%system	0.78
%guest	199.22
%CPU	100.01
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4849752
RSS	49051
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.41
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	242552.550
tx_rate_mbps	Unknown
throughput_rx_mbps	2945.558
tx_rate_percent	14.922
throughput_rx_percent	14.922
frame_loss_percent	0.000
min_latency_ns	45540.000
max_latency_ns	1088680.000
avg_latency_ns	115513.500
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	129702
%usr	0.20
%system	1.24
%guest	0.00
%CPU	1.45
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	2775644
RSS	9941
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	129701
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3140
%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	129845
%usr	0.00
%system	0.78
%guest	199.22
%CPU	100.01
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4849752
RSS	49051
%MEM	0.07
kB_rd/s	0.10
kB_wr/s	9.41
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	132901
%usr	0.21
%system	1.31
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.62
majflt/s	0.00
VSZ	2775648
RSS	15835
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	132900
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3200
%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	133067
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4825676
RSS	78611
%MEM	0.12
kB_rd/s	0.23
kB_wr/s	68.36
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	132901
%usr	0.21
%system	1.31
%guest	0.00
%CPU	1.51
CPU	•
minflt/s	4.62
majflt/s	0.00
VSZ	2775648
RSS	15835
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	132900
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3200
%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	133067
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4825676
RSS	78611
%MEM	0.12
kB_rd/s	0.23
kB_wr/s	68.36
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	132901
%usr	0.21
%system	1.31
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.62
majflt/s	0.00
VSZ	2775648
RSS	15835
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	132900
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3200
%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	133067
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4825676
RSS	78611
%MEM	0.12
kB_rd/s	0.23
kB_wr/s	68.36
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	132901
%usr	0.21
%system	1.31
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.62
majflt/s	0.00
VSZ	2775648
RSS	15835
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	132900
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3200
%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	133067
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4825676
RSS	78611
%MEM	0.12
kB_rd/s	0.23
kB_wr/s	68.36
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	132901
%usr	0.21
%system	1.31
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.62
majflt/s	0.00
VSZ	2775648
RSS	15835
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	132900
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3200
%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	133067
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.02
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4825676
RSS	78611
%MEM	0.12
kB_rd/s	0.23
kB_wr/s	68.36
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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	524855.104
tx_rate_mbps	Unknown
throughput_rx_mbps	268.726
tx_rate_percent	1.773
throughput_rx_percent	1.764
frame_loss_percent	0.561
min_latency_ns	24720.000
max_latency_ns	31030860.000
avg_latency_ns	119735.500
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	137523
%usr	0.21
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	5.31
majflt/s	0.01
VSZ	2775743
RSS	8482
%MEM	0.01
kB_rd/s	0.24
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	137522
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3197
%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	137849
%usr	0.00
%system	1.18
%guest	198.82
%CPU	100.00
CPU	.
minflt/s	1.74
majflt/s	0.00
VSZ	4767312
RSS	42257
%MEM	0.06
kB_rd/s	0.14
kB_wr/s	8.86
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	137743
%usr	0.00
%system	1.16
%guest	198.83
%CPU	100.00
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4865116
RSS	64105
%MEM	0.10
kB_rd/s	0.04
kB_wr/s	0.04
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	299562.638
tx_rate_mbps	Unknown
throughput_rx_mbps	306.752
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.002
min_latency_ns	27120.000
max_latency_ns	1567920.000
avg_latency_ns	74820.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	137523
%usr	0.21
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	5.31
majflt/s	0.01
VSZ	2775743
RSS	8482
%MEM	0.01
kB_rd/s	0.24
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	137522
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3197
%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	137849
%usr	0.00
%system	1.18
%guest	198.82
%CPU	100.00
CPU	.
minflt/s	1.74
majflt/s	0.00
VSZ	4767312
RSS	42257
%MEM	0.06
kB_rd/s	0.14
kB_wr/s	8.86
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	137743
%usr	0.00
%system	1.16
%guest	198.83
%CPU	100.00
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4865116
RSS	64105
%MEM	0.10
kB_rd/s	0.04
kB_wr/s	0.04
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	265067.805
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	53220.000
max_latency_ns	650240.000
avg_latency_ns	156998.000
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	137523
%usr	0.21
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	5.31
majflt/s	0.01
VSZ	2775743
RSS	8482
%MEM	0.01
kB_rd/s	0.24
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	137522
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3197
%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	137849
%usr	0.00
%system	1.18
%guest	198.82
%CPU	100.00
CPU	.
minflt/s	1.74
majflt/s	0.00
VSZ	4767312
RSS	42257
%MEM	0.06
kB_rd/s	0.14
kB_wr/s	8.86
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	137743
%usr	0.00
%system	1.16
%guest	198.83
%CPU	100.00
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4865116
RSS	64105
%MEM	0.10
kB_rd/s	0.04
kB_wr/s	0.04
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	264720.182
tx_rate_mbps	Unknown
throughput_rx_mbps	2168.588
tx_rate_percent	11.055
throughput_rx_percent	11.055
frame_loss_percent	0.000
min_latency_ns	46100.000
max_latency_ns	1026800.000
avg_latency_ns	150664.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	137523
%usr	0.21
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	5.31
majflt/s	0.01
VSZ	2775743
RSS	8482
%MEM	0.01
kB_rd/s	0.24
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	137522
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3197
%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	137849
%usr	0.00
%system	1.18
%guest	198.82
%CPU	100.00
CPU	.
minflt/s	1.74
majflt/s	0.00
VSZ	4767312
RSS	42257
%MEM	0.06
kB_rd/s	0.14
kB_wr/s	8.86
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	137743
%usr	0.00
%system	1.16
%guest	198.83
%CPU	100.00
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4865116
RSS	64105
%MEM	0.10
kB_rd/s	0.04
kB_wr/s	0.04
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	267697.949
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.924
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	54780.000
max_latency_ns	946840.000
avg_latency_ns	172469.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	137523
%usr	0.21
%system	1.24
%guest	0.00
%CPU	1.44
CPU	.
minflt/s	5.31
majflt/s	0.01
VSZ	2775743
RSS	8482
%MEM	0.01
kB_rd/s	0.24
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	137522
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3197
%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	137849
%usr	0.00
%system	1.18
%guest	198.82
%CPU	100.00
CPU	.
minflt/s	1.74
majflt/s	0.00
VSZ	4767312
RSS	42257
%MEM	0.06
kB_rd/s	0.14
kB_wr/s	8.86
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	137743
%usr	0.00
%system	1.16
%guest	198.83
%CPU	100.00
CPU	.
minflt/s	1.02
majflt/s	0.00
VSZ	4865116
RSS	64105
%MEM	0.10
kB_rd/s	0.04
kB_wr/s	0.04
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: 25969600ac9508ecc54a25d7b0f628e0713a82a2
- 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	140944
%usr	0.20
%system	1.27
%guest	0.00
%CPU	1.47
CPU	.
minflt/s	4.52
majflt/s	0.00
VSZ	2775758
RSS	16404
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	140943
%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	141271
%usr	0.00
%system	0.07
%guest	199.88
%CPU	100.00
CPU	.
minflt/s	0.40
majflt/s	0.00
VSZ	4790356
RSS	43008
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	5.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	141165
%usr	0.00
%system	0.16
%guest	199.79
%CPU	99.98
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4814940
RSS	55937
%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	140944
%usr	0.20
%system	1.27
%guest	0.00
%CPU	1.47
CPU	.
minflt/s	4.52
majflt/s	0.00
VSZ	2775758
RSS	16404
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	140943
%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	141271
%usr	0.00
%system	0.07
%guest	199.88
%CPU	100.00
CPU	.
minflt/s	0.40
majflt/s	0.00
VSZ	4790356
RSS	43008
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	5.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	141165
%usr	0.00
%system	0.16
%guest	199.79
%CPU	99.98
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4814940
RSS	55937
%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	140944
%usr	0.20
%system	1.27
%guest	0.00
%CPU	1.47
CPU	•
minflt/s	4.52
majflt/s	0.00
VSZ	2775758
RSS	16404
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	140943
%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	141271
%usr	0.00
%system	0.07
%guest	199.88
%CPU	100.00
CPU	.
minflt/s	0.40
majflt/s	0.00
VSZ	4790356
RSS	43008
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	5.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	141165
%usr	0.00
%system	0.16
%guest	199.79
%CPU	99.98
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4814940
RSS	55937
%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	274
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	140944
%usr	0.20
%system	1.27
%guest	0.00
%CPU	1.47
CPU	•
minflt/s	4.52
majflt/s	0.00
VSZ	2775758
RSS	16404
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	140943
%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	141271
%usr	0.00
%system	0.07
%guest	199.88
%CPU	100.00
CPU	.
minflt/s	0.40
majflt/s	0.00
VSZ	4790356
RSS	43008
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	5.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	141165
%usr	0.00
%system	0.16
%guest	199.79
%CPU	99.98
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4814940
RSS	55937
%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	140944
%usr	0.20
%system	1.27
%guest	0.00
%CPU	1.47
CPU	•
minflt/s	4.52
majflt/s	0.00
VSZ	2775758
RSS	16404
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	140943
%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	141271
%usr	0.00
%system	0.07
%guest	199.88
%CPU	100.00
CPU	.
minflt/s	0.40
majflt/s	0.00
VSZ	4790356
RSS	43008
%MEM	0.07
kB_rd/s	0.08
kB_wr/s	5.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	141165
%usr	0.00
%system	0.16
%guest	199.79
%CPU	99.98
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4814940
RSS	55937
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.3 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-pod3/2016-05-04_07-58-57/vswitchperf_logs_2016-05-04_07-58-57.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