



VSPERF Results

Release draft (40460b1)

OPNFV

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

OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

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

Supported deployment scenarios:

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

Loopback applications in the Guest can be:

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

Supported traffic generators:

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

OPNFV BRAHMAPUTRA RESULTS

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

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

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

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

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

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

This document is currently in draft form.

3.1.1 Document identifier

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

3.1.2 Scope

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

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

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

3.2.1 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	26822
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:44:38

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176265
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	21.86
majflt/s	0.00
VSZ	4768464
RSS	57782
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	176251
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	63344594
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:44:38

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176265
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	21.86
majflt/s	0.00
VSZ	4768464
RSS	57782
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	176251
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	70488721
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:44:38

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	176265
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	21.86
majflt/s	0.00
VSZ	4768464
RSS	57782
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	176251
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:44:38

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176265
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	21.86
majflt/s	0.00
VSZ	4768464
RSS	57782
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	176251
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:44:38

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176265
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	21.86
majflt/s	0.00
VSZ	4768464
RSS	57782
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	176251
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.2 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4901416.431
tx_rate_mbps	Unknown
throughput_rx_mbps	2509.525
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	6020.000
max_latency_ns	80600.000
avg_latency_ns	8519.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:44:52
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192330
%usr	200.26
%system	0.08
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	155.04
majflt/s	0.00
VSZ	19452620
RSS	61926
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	192323
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47756
RSS	3384
%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	192575
%usr	0.00
%system	0.07
%guest	200.06
%CPU	100.18
CPU	.
minflt/s	0.69
majflt/s	0.00
VSZ	4813352
RSS	164258
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	57.20
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	4610960.699
tx_rate_mbps	Unknown
throughput_rx_mbps	4721.624
tx_rate_percent	27.297
throughput_rx_percent	27.297
frame_loss_percent	0.000
min_latency_ns	6380.000
max_latency_ns	89940.000
avg_latency_ns	8832.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:44:52
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192330
%usr	200.26
%system	0.08
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	155.04
majflt/s	0.00
VSZ	19452620
RSS	61926
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	192323
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47756
RSS	3384
%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	192575
%usr	0.00
%system	0.07
%guest	200.06
%CPU	100.18
CPU	.
minflt/s	0.69
majflt/s	0.00
VSZ	4813352
RSS	164258
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	57.20
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	1900627.959
tx_rate_mbps	Unknown
throughput_rx_mbps	7784.972
tx_rate_percent	40.445
throughput_rx_percent	40.445
frame_loss_percent	0.000
min_latency_ns	5540.000
max_latency_ns	71700.000
avg_latency_ns	6706.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:44:52
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192330
%usr	200.26
%system	0.08
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	155.04
majflt/s	0.00
VSZ	19452620
RSS	61926
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	192323
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47756
RSS	3384
%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	192575
%usr	0.00
%system	0.07
%guest	200.06
%CPU	100.18
CPU	.
minflt/s	0.69
majflt/s	0.00
VSZ	4813352
RSS	164258
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	57.20
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394603.278
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.590
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	71240.000
max_latency_ns	113180.000
avg_latency_ns	102056.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:44:52
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192330
%usr	200.26
%system	0.08
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	155.04
majflt/s	0.00
VSZ	19452620
RSS	61926
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	192323
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47756
RSS	3384
%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	192575
%usr	0.00
%system	0.07
%guest	200.06
%CPU	100.18
CPU	.
minflt/s	0.69
majflt/s	0.00
VSZ	4813352
RSS	164258
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	57.20
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	1524912.038
tx_rate_mbps	Unknown
throughput_rx_mbps	18518.532
tx_rate_percent	93.813
throughput_rx_percent	93.813
frame_loss_percent	0.000
min_latency_ns	8360.000
max_latency_ns	171620.000
avg_latency_ns	11053.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:44:52
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192330
%usr	200.26
%system	0.08
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	155.04
majflt/s	0.00
VSZ	19452620
RSS	61926
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	192323
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47756
RSS	3384
%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	192575
%usr	0.00
%system	0.07
%guest	200.06
%CPU	100.18
CPU	.
minflt/s	0.69
majflt/s	0.00
VSZ	4813352
RSS	164258
%MEM	0.25
kB_rd/s	0.00
kB_wr/s	57.20
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: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	9816778.561
tx_rate_mbps	Unknown
throughput_rx_mbps	5340.328
tx_rate_percent	65.969
throughput_rx_percent	69.110
frame_loss_percent	0.000
min_latency_ns	4660.000
max_latency_ns	370360.000
avg_latency_ns	6362.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:44:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	181908
%usr	200.24
%system	0.10
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	133.30
majflt/s	0.00
VSZ	4768460
RSS	57822
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	181901
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	7792715.141
tx_rate_mbps	Unknown
throughput_rx_mbps	8229.107
tx_rate_percent	92.266
throughput_rx_percent	94.759
frame_loss_percent	0.000
min_latency_ns	4720.000
max_latency_ns	196800.000
avg_latency_ns	5749.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:44:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	181908
%usr	200.24
%system	0.10
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	133.30
majflt/s	0.00
VSZ	4768460
RSS	57822
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	181901
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331451.734
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	6720.000
max_latency_ns	162340.000
avg_latency_ns	40784.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:44:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	181908
%usr	200.24
%system	0.10
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	133.30
majflt/s	0.00
VSZ	4768460
RSS	57822
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	181901
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.571
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	163060.000
avg_latency_ns	10524.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:44:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	181908
%usr	200.24
%system	0.10
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	133.30
majflt/s	0.00
VSZ	4768460
RSS	57822
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	181901
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.260
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	176700.000
avg_latency_ns	9993.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:44:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	181908
%usr	200.24
%system	0.10
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	133.30
majflt/s	0.00
VSZ	4768460
RSS	57822
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	181901
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.4 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	5108
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:49:17
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15493
%usr	200.28
%system	0.09
%guest	0.00
%CPU	200.37
CPU	•
minflt/s	251.33
majflt/s	0.00
VSZ	34136784
RSS	57947
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15388
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	15706
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4823620
RSS	196063
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	54.37
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15652
%usr	0.00
%system	0.04
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	5.95
majflt/s	0.00
VSZ	4767316
RSS	222700
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	0.11
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	5316
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:49:17
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15493
%usr	200.28
%system	0.09
%guest	0.00
%CPU	200.37
CPU	.
minflt/s	251.33
majflt/s	0.00
VSZ	34136784
RSS	57947
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15388
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	15706
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	•
minflt/s	0.46
majflt/s	0.00
VSZ	4823620
RSS	196063
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	54.37
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15652
%usr	0.00
%system	0.04
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	5.95
majflt/s	0.00
VSZ	4767316
RSS	222700
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	0.11
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	4302
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:49:17
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15493
%usr	200.28
%system	0.09
%guest	0.00
%CPU	200.37
CPU	•
minflt/s	251.33
majflt/s	0.00
VSZ	34136784
RSS	57947
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	15388
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	15706
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4823620
RSS	196063
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	54.37
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15652
%usr	0.00
%system	0.04
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	5.95
majflt/s	0.00
VSZ	4767316
RSS	222700
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	0.11
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	8769
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:49:17
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15493
%usr	200.28
%system	0.09
%guest	0.00
%CPU	200.37
CPU	•
minflt/s	251.33
majflt/s	0.00
VSZ	34136784
RSS	57947
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	15388
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	15706
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4823620
RSS	196063
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	54.37
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15652
%usr	0.00
%system	0.04
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	5.95
majflt/s	0.00
VSZ	4767316
RSS	222700
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	0.11
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	4571683
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:49:17
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15493
%usr	200.28
%system	0.09
%guest	0.00
%CPU	200.37
CPU	•
minflt/s	251.33
majflt/s	0.00
VSZ	34136784
RSS	57947
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	15388
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	15706
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4823620
RSS	196063
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	54.37
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15652
%usr	0.00
%system	0.04
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	5.95
majflt/s	0.00
VSZ	4767316
RSS	222700
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	0.11
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: PHY2PHY_TPUB

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6afba3946fe04368d93994db3f7a5fd

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	22856340.135
tx_rate_mbps	Unknown
throughput_rx_mbps	11702.446
tx_rate_percent	76.797
throughput_rx_percent	76.797
frame_loss_percent	0.000
min_latency_ns	6320.000
max_latency_ns	177700.000
avg_latency_ns	7895.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:34:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171847
%usr	200.24
%system	0.09
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	139.99
majflt/s	0.00
VSZ	4768464
RSS	57820
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	171840
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	16891409.816
tx_rate_mbps	Unknown
throughput_rx_mbps	17296.804
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	42540.000
max_latency_ns	129980.000
avg_latency_ns	116970.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:34:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171847
%usr	200.24
%system	0.09
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	139.99
majflt/s	0.00
VSZ	4768464
RSS	57820
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	171840
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699197.678
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.914
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	35760.000
max_latency_ns	68640.000
avg_latency_ns	57488.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:34:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171847
%usr	200.24
%system	0.09
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	139.99
majflt/s	0.00
VSZ	4768464
RSS	57820
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	171840
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394572.197
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.335
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	36620.000
max_latency_ns	163020.000
avg_latency_ns	95457.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:34:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171847
%usr	200.24
%system	0.09
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	139.99
majflt/s	0.00
VSZ	4768464
RSS	57820
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	171840
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625445.023
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.404
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	36720.000
max_latency_ns	161600.000
avg_latency_ns	99376.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:34:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171847
%usr	200.24
%system	0.09
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	139.99
majflt/s	0.00
VSZ	4768464
RSS	57820
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	171840
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.6 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	22626036.832
tx_rate_mbps	Unknown
throughput_rx_mbps	11584.531
tx_rate_percent	76.023
throughput_rx_percent	76.023
frame_loss_percent	0.000
min_latency_ns	6940.000
max_latency_ns	166540.000
avg_latency_ns	8126.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:37:39
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	187550
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	115.70
majflt/s	0.00
VSZ	4768460
RSS	57815
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	187543
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	14670907.078
tx_rate_mbps	Unknown
throughput_rx_mbps	15023.009
tx_rate_percent	86.852
throughput_rx_percent	86.852
frame_loss_percent	0.000
min_latency_ns	6180.000
max_latency_ns	189980.000
avg_latency_ns	7971.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:37:39
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	187550
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	115.70
majflt/s	0.00
VSZ	4768460
RSS	57815
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	187543
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699186.964
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.870
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	43580.000
max_latency_ns	82920.000
avg_latency_ns	72060.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:37:39
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	187550
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	115.70
majflt/s	0.00
VSZ	4768460
RSS	57815
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	187543
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394605.760
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.610
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	41600.000
max_latency_ns	79860.000
avg_latency_ns	69057.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:37:39
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	187550
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	115.70
majflt/s	0.00
VSZ	4768460
RSS	57815
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	187543
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625465.676
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.655
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	43840.000
max_latency_ns	85980.000
avg_latency_ns	73967.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:37:39
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	187550
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	115.70
majflt/s	0.00
VSZ	4768460
RSS	57815
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	187543
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.7 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	6811
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:58:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhitcd	
Statistic	Value
UID	0
PID	2728
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	18.08
majflt/s	0.00
VSZ	19452620
RSS	57906
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	2721
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
RSS	3380
%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	2870
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4807208
RSS	267008
%MEM	0.41
kB_rd/s	0.00
kB_wr/s	24.40
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	8699
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:58:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	2728
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	18.08
majflt/s	0.00
VSZ	19452620
RSS	57906
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	2721
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47764
RSS	3380
%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	2870
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4807208
RSS	267008
%MEM	0.41
kB_rd/s	0.00
kB_wr/s	24.40
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	52866541
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:58:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	2728
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	18.08
majflt/s	0.00
VSZ	19452620
RSS	57906
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	2721
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
RSS	3380
%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	2870
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4807208
RSS	267008
%MEM	0.41
kB_rd/s	0.00
kB_wr/s	24.40
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:58:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	2728
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	18.08
majflt/s	0.00
VSZ	19452620
RSS	57906
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	2721
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
RSS	3380
%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	2870
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4807208
RSS	267008
%MEM	0.41
kB_rd/s	0.00
kB_wr/s	24.40
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:58:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	2728
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	18.08
majflt/s	0.00
VSZ	19452620
RSS	57906
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	2721
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
RSS	3380
%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	2870
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4807208
RSS	267008
%MEM	0.41
kB_rd/s	0.00
kB_wr/s	24.40
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.8 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6afba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6afba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6afba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218378.193
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	5960.000
max_latency_ns	63240.000
avg_latency_ns	8433.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:40:57
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10055
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	18.10
majflt/s	0.00
VSZ	34136780
RSS	57911
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	10048
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	10336
%usr	0.00
%system	0.02
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.99
majflt/s	0.00
VSZ	4779608
RSS	134799
%MEM	0.21
kB_rd/s	0.00
kB_wr/s	66.64
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10209
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4719148
RSS	159098
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	0.21
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	2259291.250
tx_rate_mbps	Unknown
throughput_rx_mbps	2313.514
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	8460.000
max_latency_ns	77760.000
avg_latency_ns	12458.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:40:57
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10055
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	18.10
majflt/s	0.00
VSZ	34136780
RSS	57911
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10048
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	10336
%usr	0.00
%system	0.02
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.99
majflt/s	0.00
VSZ	4779608
RSS	134799
%MEM	0.21
kB_rd/s	0.00
kB_wr/s	66.64
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10209
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4719148
RSS	159098
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	0.21
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	2373130.566
tx_rate_mbps	Unknown
throughput_rx_mbps	9720.343
tx_rate_percent	50.500
throughput_rx_percent	50.500
frame_loss_percent	0.000
min_latency_ns	12320.000
max_latency_ns	135780.000
avg_latency_ns	18262.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:40:57
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10055
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	18.10
majflt/s	0.00
VSZ	34136780
RSS	57911
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	10048
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	10336
%usr	0.00
%system	0.02
%guest	200.10
%CPU	100.18
CPU	•
minflt/s	0.99
majflt/s	0.00
VSZ	4779608
RSS	134799
%MEM	0.21
kB_rd/s	0.00
kB_wr/s	66.64
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10209
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	•
minflt/s	0.01
majflt/s	0.00
VSZ	4719148
RSS	159098
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	0.21
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	1801959.964
tx_rate_mbps	Unknown
throughput_rx_mbps	14761.656
tx_rate_percent	75.250
throughput_rx_percent	75.250
frame_loss_percent	0.000
min_latency_ns	10840.000
max_latency_ns	139420.000
avg_latency_ns	23574.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:40:57
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10055
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	18.10
majflt/s	0.00
VSZ	34136780
RSS	57911
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10048
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	10336
%usr	0.00
%system	0.02
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.99
majflt/s	0.00
VSZ	4779608
RSS	134799
%MEM	0.21
kB_rd/s	0.00
kB_wr/s	66.64
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10209
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4719148
RSS	159098
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	0.21
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	1449477.864
tx_rate_mbps	Unknown
throughput_rx_mbps	17602.459
tx_rate_percent	89.172
throughput_rx_percent	89.172
frame_loss_percent	0.000
min_latency_ns	15680.000
max_latency_ns	114420.000
avg_latency_ns	20820.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:40:57
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10055
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	18.10
majflt/s	0.00
VSZ	34136780
RSS	57911
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10048
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%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	10336
%usr	0.00
%system	0.02
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.99
majflt/s	0.00
VSZ	4779608
RSS	134799
%MEM	0.21
kB_rd/s	0.00
kB_wr/s	66.64
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10209
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	4719148
RSS	159098
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	0.21
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-pod3/2016-08-03_07-12-19/vswitchperf_logs_2016-08-03_07-12-19.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: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d

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
test_execution_time	00:48:06

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	26828
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	3.97
majflt/s	0.00
VSZ	3365520
RSS	17403
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	26797
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3382
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:48:06

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	26828
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	3.97
majflt/s	0.00
VSZ	3365520
RSS	17403
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	26797
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1344
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:48:06

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	26828
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	3.97
majflt/s	0.00
VSZ	3365520
RSS	17403
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	26797
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1096
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:48:06

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	26828
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	3.97
majflt/s	0.00
VSZ	3365520
RSS	17403
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	26797
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1116
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:48:06

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	26828
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	3.97
majflt/s	0.00
VSZ	3365520
RSS	17403
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	26797
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2988
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.2 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- VNF: QemuVirtioNet, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	526512.688
tx_rate_mbps	Unknown
throughput_rx_mbps	269.574
tx_rate_percent	1.773
throughput_rx_percent	1.769
frame_loss_percent	0.246
min_latency_ns	13320.000
max_latency_ns	16499720.000
avg_latency_ns	64412.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:44:08
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	43236
%usr	0.22
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.44
majflt/s	0.00
VSZ	3365524
RSS	20369
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	43233
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	43437
%usr	0.00
%system	0.43
%guest	199.68
%CPU	100.15
CPU	.
minflt/s	0.23
majflt/s	0.00
VSZ	4774620
RSS	277856
%MEM	0.42
kB_rd/s	0.00
kB_wr/s	6.47
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299559.031
tx_rate_mbps	Unknown
throughput_rx_mbps	306.748
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.003
min_latency_ns	11740.000
max_latency_ns	2720500.000
avg_latency_ns	45676.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:44:08
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	43236
%usr	0.22
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.44
majflt/s	0.00
VSZ	3365524
RSS	20369
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	43233
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	43437
%usr	0.00
%system	0.43
%guest	199.68
%CPU	100.15
CPU	.
minflt/s	0.23
majflt/s	0.00
VSZ	4774620
RSS	277856
%MEM	0.42
kB_rd/s	0.00
kB_wr/s	6.47
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	265067.314
tx_rate_mbps	Unknown
throughput_rx_mbps	1085.716
tx_rate_percent	5.641
throughput_rx_percent	5.641
frame_loss_percent	0.000
min_latency_ns	24560.000
max_latency_ns	749940.000
avg_latency_ns	109498.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:44:08
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	43236
%usr	0.22
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.44
majflt/s	0.00
VSZ	3365524
RSS	20369
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	43233
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	43437
%usr	0.00
%system	0.43
%guest	199.68
%CPU	100.15
CPU	.
minflt/s	0.23
majflt/s	0.00
VSZ	4774620
RSS	277856
%MEM	0.42
kB_rd/s	0.00
kB_wr/s	6.47
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	209156.431
tx_rate_mbps	Unknown
throughput_rx_mbps	1713.409
tx_rate_percent	8.734
throughput_rx_percent	8.734
frame_loss_percent	0.000
min_latency_ns	30920.000
max_latency_ns	597160.000
avg_latency_ns	103017.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:44:08
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	43236
%usr	0.22
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.44
majflt/s	0.00
VSZ	3365524
RSS	20369
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	43233
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	43437
%usr	0.00
%system	0.43
%guest	199.68
%CPU	100.15
CPU	.
minflt/s	0.23
majflt/s	0.00
VSZ	4774620
RSS	277856
%MEM	0.42
kB_rd/s	0.00
kB_wr/s	6.47
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	267697.670
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.921
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	37340.000
max_latency_ns	2087080.000
avg_latency_ns	116747.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:44:08
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	43236
%usr	0.22
%system	1.48
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.44
majflt/s	0.00
VSZ	3365524
RSS	20369
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	43233
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	43437
%usr	0.00
%system	0.43
%guest	199.68
%CPU	100.15
CPU	.
minflt/s	0.23
majflt/s	0.00
VSZ	4774620
RSS	277856
%MEM	0.42
kB_rd/s	0.00
kB_wr/s	6.47
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.3 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: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d

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	494094.722
tx_rate_mbps	Unknown
throughput_rx_mbps	268.788
tx_rate_percent	3.320
throughput_rx_percent	3.478
frame_loss_percent	0.000
min_latency_ns	4640.000
max_latency_ns	247260.000
avg_latency_ns	24149.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:41:34

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	32837
%usr	0.22
%system	1.51
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	102.19
majflt/s	0.00
VSZ	3365528
RSS	17315
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	32834
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	672377.673
tx_rate_mbps	Unknown
throughput_rx_mbps	710.031
tx_rate_percent	7.961
throughput_rx_percent	8.176
frame_loss_percent	0.000
min_latency_ns	4480.000
max_latency_ns	3159480.000
avg_latency_ns	184722.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:41:34

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	32837
%usr	0.22
%system	1.51
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	102.19
majflt/s	0.00
VSZ	3365528
RSS	17315
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	32834
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	568683.448
tx_rate_mbps	Unknown
throughput_rx_mbps	2347.525
tx_rate_percent	24.203
throughput_rx_percent	24.385
frame_loss_percent	0.000
min_latency_ns	5320.000
max_latency_ns	1954680.000
avg_latency_ns	73652.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:41:34

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	32837
%usr	0.22
%system	1.51
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	102.19
majflt/s	0.00
VSZ	3365528
RSS	17315
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	32834
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	567603.351
tx_rate_mbps	Unknown
throughput_rx_mbps	4667.970
tx_rate_percent	47.406
throughput_rx_percent	47.588
frame_loss_percent	0.000
min_latency_ns	5960.000
max_latency_ns	1357300.000
avg_latency_ns	71235.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:41:34

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	32837
%usr	0.22
%system	1.51
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	102.19
majflt/s	0.00
VSZ	3365528
RSS	17315
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	32834
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	567588.264
tx_rate_mbps	Unknown
throughput_rx_mbps	6910.955
tx_rate_percent	69.836
throughput_rx_percent	70.018
frame_loss_percent	0.000
min_latency_ns	6420.000
max_latency_ns	952340.000
avg_latency_ns	70262.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:41:34

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	32837
%usr	0.22
%system	1.51
%guest	0.00
%CPU	1.73
CPU	.
minflt/s	102.19
majflt/s	0.00
VSZ	3365528
RSS	17315
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	32834
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- VNF: QemuVirtioNet, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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
test_execution_time	00:49:23
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	60188
%usr	0.21
%system	1.46
%guest	0.00
%CPU	1.67
CPU	•
minflt/s	4.94
majflt/s	0.00
VSZ	3365640
RSS	18697
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60185
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60484
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.61
majflt/s	0.00
VSZ	4803244
RSS	286417
%MEM	0.44
kB_rd/s	0.00
kB_wr/s	29.44
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60459
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.15
CPU	.
minflt/s	0.09
majflt/s	0.00
VSZ	4798176
RSS	311257
%MEM	0.47
kB_rd/s	0.00
kB_wr/s	0.19
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
test_execution_time	00:49:23
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	60188
%usr	0.21
%system	1.46
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.94
majflt/s	0.00
VSZ	3365640
RSS	18697
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	60185
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60484
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.61
majflt/s	0.00
VSZ	4803244
RSS	286417
%MEM	0.44
kB_rd/s	0.00
kB_wr/s	29.44
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60459
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.15
CPU	.
minflt/s	0.09
majflt/s	0.00
VSZ	4798176
RSS	311257
%MEM	0.47
kB_rd/s	0.00
kB_wr/s	0.19
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
test_execution_time	00:49:23
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	60188
%usr	0.21
%system	1.46
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.94
majflt/s	0.00
VSZ	3365640
RSS	18697
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	60185
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60484
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.61
majflt/s	0.00
VSZ	4803244
RSS	286417
%MEM	0.44
kB_rd/s	0.00
kB_wr/s	29.44
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60459
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.15
CPU	.
minflt/s	0.09
majflt/s	0.00
VSZ	4798176
RSS	311257
%MEM	0.47
kB_rd/s	0.00
kB_wr/s	0.19
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
test_execution_time	00:49:23
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	60188
%usr	0.21
%system	1.46
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.94
majflt/s	0.00
VSZ	3365640
RSS	18697
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	60185
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60484
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.61
majflt/s	0.00
VSZ	4803244
RSS	286417
%MEM	0.44
kB_rd/s	0.00
kB_wr/s	29.44
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60459
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.15
CPU	.
minflt/s	0.09
majflt/s	0.00
VSZ	4798176
RSS	311257
%MEM	0.47
kB_rd/s	0.00
kB_wr/s	0.19
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
test_execution_time	00:49:23
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	60188
%usr	0.21
%system	1.46
%guest	0.00
%CPU	1.67
CPU	.
minflt/s	4.94
majflt/s	0.00
VSZ	3365640
RSS	18697
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	60185
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60484
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.61
majflt/s	0.00
VSZ	4803244
RSS	286417
%MEM	0.44
kB_rd/s	0.00
kB_wr/s	29.44
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60459
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.15
CPU	.
minflt/s	0.09
majflt/s	0.00
VSZ	4798176
RSS	311257
%MEM	0.47
kB_rd/s	0.00
kB_wr/s	0.19
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: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d

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	758000.210
tx_rate_mbps	Unknown
throughput_rx_mbps	388.096
tx_rate_percent	2.547
throughput_rx_percent	2.547
frame_loss_percent	0.000
min_latency_ns	4100.000
max_latency_ns	6197260.000
avg_latency_ns	571692.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:40:04

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	21946
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.32
majflt/s	0.00
VSZ	3365520
RSS	30315
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	21943
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	691513.178
tx_rate_mbps	Unknown
throughput_rx_mbps	708.109
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4240.000
max_latency_ns	3453700.000
avg_latency_ns	223007.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:40:04

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	21946
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.32
majflt/s	0.00
VSZ	3365520
RSS	30315
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	21943
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	628521.924
tx_rate_mbps	Unknown
throughput_rx_mbps	2574.426
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	5320.000
max_latency_ns	2226120.000
avg_latency_ns	188292.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:40:04

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	21946
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.32
majflt/s	0.00
VSZ	3365520
RSS	30315
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	21943
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	579577.663
tx_rate_mbps	Unknown
throughput_rx_mbps	4747.900
tx_rate_percent	24.203
throughput_rx_percent	24.203
frame_loss_percent	0.000
min_latency_ns	5800.000
max_latency_ns	1646140.000
avg_latency_ns	70719.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:40:04

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	21946
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.32
majflt/s	0.00
VSZ	3365520
RSS	30315
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	21943
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	556857.013
tx_rate_mbps	Unknown
throughput_rx_mbps	6762.472
tx_rate_percent	34.258
throughput_rx_percent	34.258
frame_loss_percent	0.000
min_latency_ns	6520.000
max_latency_ns	655360.000
avg_latency_ns	52301.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:40:04

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	21946
%usr	0.23
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	4.32
majflt/s	0.00
VSZ	3365520
RSS	30315
%MEM	0.05
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	21943
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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.

4.2.6 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d

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	758001.156
tx_rate_mbps	Unknown
throughput_rx_mbps	388.097
tx_rate_percent	2.547
throughput_rx_percent	2.547
frame_loss_percent	0.000
min_latency_ns	4080.000
max_latency_ns	6949380.000
avg_latency_ns	566520.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:43:36
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	37949
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	3365516
RSS	19340
%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	37946
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	691513.219
tx_rate_mbps	Unknown
throughput_rx_mbps	708.110
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4320.000
max_latency_ns	7269220.000
avg_latency_ns	260850.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:43:36
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	37949
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	3365516
RSS	19340
%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	37946
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	592180.734
tx_rate_mbps	Unknown
throughput_rx_mbps	2425.572
tx_rate_percent	12.602
throughput_rx_percent	12.602
frame_loss_percent	0.000
min_latency_ns	5320.000
max_latency_ns	2917580.000
avg_latency_ns	107689.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:43:36
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	37949
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	3365516
RSS	19340
%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	37946
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	598099.267
tx_rate_mbps	Unknown
throughput_rx_mbps	4899.629
tx_rate_percent	24.977
throughput_rx_percent	24.977
frame_loss_percent	0.000
min_latency_ns	5820.000
max_latency_ns	2811600.000
avg_latency_ns	114863.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:43:36
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	37949
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	3365516
RSS	19340
%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	37946
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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	556857.798
tx_rate_mbps	Unknown
throughput_rx_mbps	6762.481
tx_rate_percent	34.258
throughput_rx_percent	34.258
frame_loss_percent	0.000
min_latency_ns	6540.000
max_latency_ns	713160.000
avg_latency_ns	54837.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:43:36
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	37949
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.68
CPU	.
minflt/s	4.47
majflt/s	0.00
VSZ	3365516
RSS	19340
%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	37946
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2984
%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.

4.2.7 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbc6b0165f84a92d
- VNF: QemuVirtioNet, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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
test_execution_time	00:49:00
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	48788
%usr	0.22
%system	1.42
%guest	0.00
%CPU	1.64
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	3365516
RSS	18446
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	48773
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	48993
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	0.34
majflt/s	0.00
VSZ	4828888
RSS	188402
%MEM	0.29
kB_rd/s	0.00
kB_wr/s	5.82
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
test_execution_time	00:49:00
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	48788
%usr	0.22
%system	1.42
%guest	0.00
%CPU	1.64
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	3365516
RSS	18446
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	48773
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	48993
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	0.34
majflt/s	0.00
VSZ	4828888
RSS	188402
%MEM	0.29
kB_rd/s	0.00
kB_wr/s	5.82
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
test_execution_time	00:49:00
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	48788
%usr	0.22
%system	1.42
%guest	0.00
%CPU	1.64
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	3365516
RSS	18446
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	48773
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	48993
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	0.34
majflt/s	0.00
VSZ	4828888
RSS	188402
%MEM	0.29
kB_rd/s	0.00
kB_wr/s	5.82
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
test_execution_time	00:49:00
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	48788
%usr	0.22
%system	1.42
%guest	0.00
%CPU	1.64
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	3365516
RSS	18446
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	48773
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	48993
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	0.34
majflt/s	0.00
VSZ	4828888
RSS	188402
%MEM	0.29
kB_rd/s	0.00
kB_wr/s	5.82
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
test_execution_time	00:49:00
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	48788
%usr	0.22
%system	1.42
%guest	0.00
%CPU	1.64
CPU	.
minflt/s	4.49
majflt/s	0.00
VSZ	3365516
RSS	18446
%MEM	0.03
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	48773
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3204
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	48993
%usr	0.00
%system	0.02
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	0.34
majflt/s	0.00
VSZ	4828888
RSS	188402
%MEM	0.29
kB_rd/s	0.00
kB_wr/s	5.82
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_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.22.2.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 S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65689020 kB

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: 40460b1fd291612cca316527c4366e83ae295ce2
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- VNF: QemuVirtioNet, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **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: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
 - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

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	525875.780
tx_rate_mbps	Unknown
throughput_rx_mbps	269.248
tx_rate_percent	1.773
throughput_rx_percent	1.767
frame_loss_percent	0.368
min_latency_ns	30340.000
max_latency_ns	26762260.000
avg_latency_ns	99031.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:40:19
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	54886
%usr	0.19
%system	1.36
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	6.98
majflt/s	0.00
VSZ	3365644
RSS	24433
%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	54883
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
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	55275
%usr	0.00
%system	0.51
%guest	199.60
%CPU	100.16
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4807392
RSS	230521
%MEM	0.35
kB_rd/s	0.00
kB_wr/s	25.99
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	55149
%usr	0.00
%system	0.58
%guest	199.53
%CPU	100.14
CPU	.
minflt/s	0.25
majflt/s	0.00
VSZ	4716252
RSS	217521
%MEM	0.33
kB_rd/s	0.00
kB_wr/s	3.32
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	299555.674
tx_rate_mbps	Unknown
throughput_rx_mbps	306.745
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.004
min_latency_ns	23040.000
max_latency_ns	2901080.000
avg_latency_ns	55314.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:40:19
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	54886
%usr	0.19
%system	1.36
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	6.98
majflt/s	0.00
VSZ	3365644
RSS	24433
%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	54883
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
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	55275
%usr	0.00
%system	0.51
%guest	199.60
%CPU	100.16
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4807392
RSS	230521
%MEM	0.35
kB_rd/s	0.00
kB_wr/s	25.99
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	55149
%usr	0.00
%system	0.58
%guest	199.53
%CPU	100.14
CPU	.
minflt/s	0.25
majflt/s	0.00
VSZ	4716252
RSS	217521
%MEM	0.33
kB_rd/s	0.00
kB_wr/s	3.32
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	228721.667
tx_rate_mbps	Unknown
throughput_rx_mbps	936.844
tx_rate_percent	4.867
throughput_rx_percent	4.867
frame_loss_percent	0.000
min_latency_ns	36580.000
max_latency_ns	1214560.000
avg_latency_ns	120357.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:40:19
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	54886
%usr	0.19
%system	1.36
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	6.98
majflt/s	0.00
VSZ	3365644
RSS	24433
%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	54883
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
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	55275
%usr	0.00
%system	0.51
%guest	199.60
%CPU	100.16
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4807392
RSS	230521
%MEM	0.35
kB_rd/s	0.00
kB_wr/s	25.99
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	55149
%usr	0.00
%system	0.58
%guest	199.53
%CPU	100.14
CPU	.
minflt/s	0.25
majflt/s	0.00
VSZ	4716252
RSS	217521
%MEM	0.33
kB_rd/s	0.00
kB_wr/s	3.32
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	227678.451
tx_rate_mbps	Unknown
throughput_rx_mbps	1865.142
tx_rate_percent	9.508
throughput_rx_percent	9.508
frame_loss_percent	0.000
min_latency_ns	52880.000
max_latency_ns	665540.000
avg_latency_ns	126899.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:40:19
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	54886
%usr	0.19
%system	1.36
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	6.98
majflt/s	0.00
VSZ	3365644
RSS	24433
%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	54883
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
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	55275
%usr	0.00
%system	0.51
%guest	199.60
%CPU	100.16
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4807392
RSS	230521
%MEM	0.35
kB_rd/s	0.00
kB_wr/s	25.99
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	55149
%usr	0.00
%system	0.58
%guest	199.53
%CPU	100.14
CPU	.
minflt/s	0.25
majflt/s	0.00
VSZ	4716252
RSS	217521
%MEM	0.33
kB_rd/s	0.00
kB_wr/s	3.32
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	217417.263
tx_rate_mbps	Unknown
throughput_rx_mbps	2640.315
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	57920.000
max_latency_ns	355560.000
avg_latency_ns	128558.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:40:19
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	54886
%usr	0.19
%system	1.36
%guest	0.00
%CPU	1.55
CPU	.
minflt/s	6.98
majflt/s	0.00
VSZ	3365644
RSS	24433
%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	54883
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
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	55275
%usr	0.00
%system	0.51
%guest	199.60
%CPU	100.16
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	4807392
RSS	230521
%MEM	0.35
kB_rd/s	0.00
kB_wr/s	25.99
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	55149
%usr	0.00
%system	0.58
%guest	199.53
%CPU	100.14
CPU	.
minflt/s	0.25
majflt/s	0.00
VSZ	4716252
RSS	217521
%MEM	0.33
kB_rd/s	0.00
kB_wr/s	3.32
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-pod3/2016-08-03_07-12-19/vswitchperf_logs_2016-08-03_07-12-19.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