



VSPERF Results

Release draft (a8ef2c3)

OPNFV

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OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

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

Supported deployment scenarios:

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

Loopback applications in the Guest can be:

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

Supported traffic generators:

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

OPNFV BRAHMAPUTRA RESULTS

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

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

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

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

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

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

This document is currently in draft form.

3.1.1 Document identifier

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

3.1.2 Scope

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

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

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

3.2.1 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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: 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	26396
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:26:16

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	147740
%usr	200.23
%system	0.10
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	14.53
majflt/s	0.00
VSZ	4768460
RSS	57829
%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	147733
%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	126689189
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:26:16

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	147740
%usr	200.23
%system	0.10
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.53
majflt/s	0.00
VSZ	4768460
RSS	57829
%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	147733
%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	00:26:16

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	147740
%usr	200.23
%system	0.10
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.53
majflt/s	0.00
VSZ	4768460
RSS	57829
%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	147733
%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	00:26:16

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	147740
%usr	200.23
%system	0.10
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	14.53
majflt/s	0.00
VSZ	4768460
RSS	57829
%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	147733
%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:

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Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:26:16

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	147740
%usr	200.23
%system	0.10
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.53
majflt/s	0.00
VSZ	4768460
RSS	57829
%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	147733
%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: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	4210844.967
tx_rate_mbps	Unknown
throughput_rx_mbps	2155.953
tx_rate_percent	14.148
throughput_rx_percent	14.148
frame_loss_percent	0.000
min_latency_ns	5220.000
max_latency_ns	81560.000
avg_latency_ns	7184.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:17:02
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	157242
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	15.94
majflt/s	0.00
VSZ	19452620
RSS	59842
%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	157235
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
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	157487
%usr	0.00
%system	0.04
%guest	200.12
%CPU	100.19
CPU	.
minflt/s	3.15
majflt/s	0.00
VSZ	4740732
RSS	209343
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	73.74
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	3043181.467
tx_rate_mbps	Unknown
throughput_rx_mbps	3116.218
tx_rate_percent	18.016
throughput_rx_percent	18.016
frame_loss_percent	0.000
min_latency_ns	4960.000
max_latency_ns	89500.000
avg_latency_ns	6479.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:17:02
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	157242
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	15.94
majflt/s	0.00
VSZ	19452620
RSS	59842
%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	157235
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
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	157487
%usr	0.00
%system	0.04
%guest	200.12
%CPU	100.19
CPU	.
minflt/s	3.15
majflt/s	0.00
VSZ	4740732
RSS	209343
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	73.74
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	4699003.095
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.117
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	45080.000
max_latency_ns	205160.000
avg_latency_ns	191831.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:17:02
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	157242
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	15.94
majflt/s	0.00
VSZ	19452620
RSS	59842
%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	157235
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
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	157487
%usr	0.00
%system	0.04
%guest	200.12
%CPU	100.19
CPU	.
minflt/s	3.15
majflt/s	0.00
VSZ	4740732
RSS	209343
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	73.74
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	2394555.531
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.199
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22180.000
max_latency_ns	125380.000
avg_latency_ns	103295.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:17:02
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	157242
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	15.94
majflt/s	0.00
VSZ	19452620
RSS	59842
%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	157235
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
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	157487
%usr	0.00
%system	0.04
%guest	200.12
%CPU	100.19
CPU	.
minflt/s	3.15
majflt/s	0.00
VSZ	4740732
RSS	209343
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	73.74
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	1625463.108
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.624
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	45660.000
max_latency_ns	92120.000
avg_latency_ns	78257.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:17:02
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	157242
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	15.94
majflt/s	0.00
VSZ	19452620
RSS	59842
%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	157235
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47764
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	157487
%usr	0.00
%system	0.04
%guest	200.12
%CPU	100.19
CPU	.
minflt/s	3.15
majflt/s	0.00
VSZ	4740732
RSS	209343
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	73.74
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: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	11543283.422
tx_rate_mbps	Unknown
throughput_rx_mbps	6279.546
tx_rate_percent	77.570
throughput_rx_percent	81.265
frame_loss_percent	0.000
min_latency_ns	5680.000
max_latency_ns	334640.000
avg_latency_ns	7598.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:27:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	151300
%usr	200.21
%system	0.11
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	11.53
majflt/s	0.00
VSZ	4768460
RSS	57814
%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	151293
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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	8184667.751
tx_rate_mbps	Unknown
throughput_rx_mbps	8643.009
tx_rate_percent	96.906
throughput_rx_percent	99.526
frame_loss_percent	0.000
min_latency_ns	5220.000
max_latency_ns	140100.000
avg_latency_ns	7905.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:27:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	151300
%usr	200.21
%system	0.11
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	11.53
majflt/s	0.00
VSZ	4768460
RSS	57814
%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	151293
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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	2331452.329
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.235
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	6360.000
max_latency_ns	52180.000
avg_latency_ns	18274.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:27:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	151300
%usr	200.21
%system	0.11
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	11.53
majflt/s	0.00
VSZ	4768460
RSS	57814
%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	151293
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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	1188058.576
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	57840.000
avg_latency_ns	8138.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:27:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	151300
%usr	200.21
%system	0.11
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	11.53
majflt/s	0.00
VSZ	4768460
RSS	57814
%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	151293
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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	806457.936
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.432
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6200.000
max_latency_ns	60720.000
avg_latency_ns	8474.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:27:44

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	151300
%usr	200.21
%system	0.11
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	11.53
majflt/s	0.00
VSZ	4768460
RSS	57814
%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	151293
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	8089
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:44:25
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	170098
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	16.74
majflt/s	0.00
VSZ	34136780
RSS	57905
%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	170091
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3392
%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	170405
%usr	0.00
%system	0.13
%guest	200.07
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4837968
RSS	199954
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	40.14
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	170354
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.20
majflt/s	0.00
VSZ	4795020
RSS	181479
%MEM	0.28
kB_rd/s	0.00
kB_wr/s	0.02
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	2899
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:44:25
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	170098
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	16.74
majflt/s	0.00
VSZ	34136780
RSS	57905
%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	170091
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3392
%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	170405
%usr	0.00
%system	0.13
%guest	200.07
%CPU	100.18
CPU	•
minflt/s	1.09
majflt/s	0.00
VSZ	4837968
RSS	199954
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	40.14
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	170354
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	•
minflt/s	0.20
majflt/s	0.00
VSZ	4795020
RSS	181479
%MEM	0.28
kB_rd/s	0.00
kB_wr/s	0.02
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	8604
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:44:25
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	170098
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	16.74
majflt/s	0.00
VSZ	34136780
RSS	57905
%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	170091
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3392
%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	170405
%usr	0.00
%system	0.13
%guest	200.07
%CPU	100.18
CPU	•
minflt/s	1.09
majflt/s	0.00
VSZ	4837968
RSS	199954
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	40.14
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	170354
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	•
minflt/s	0.20
majflt/s	0.00
VSZ	4795020
RSS	181479
%MEM	0.28
kB_rd/s	0.00
kB_wr/s	0.02
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	00:44:25
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	170098
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	16.74
majflt/s	0.00
VSZ	34136780
RSS	57905
%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	170091
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3392
%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	170405
%usr	0.00
%system	0.13
%guest	200.07
%CPU	100.18
CPU	.
minflt/s	1.09
majflt/s	0.00
VSZ	4837968
RSS	199954
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	40.14
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	170354
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	.
minflt/s	0.20
majflt/s	0.00
VSZ	4795020
RSS	181479
%MEM	0.28
kB_rd/s	0.00
kB_wr/s	0.02
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	00:44:25
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	170098
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	16.74
majflt/s	0.00
VSZ	34136780
RSS	57905
%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	170091
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3392
%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	170405
%usr	0.00
%system	0.13
%guest	200.07
%CPU	100.18
CPU	•
minflt/s	1.09
majflt/s	0.00
VSZ	4837968
RSS	199954
%MEM	0.30
kB_rd/s	0.00
kB_wr/s	40.14
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	170354
%usr	0.00
%system	0.06
%guest	200.06
%CPU	100.16
CPU	•
minflt/s	0.20
majflt/s	0.00
VSZ	4795020
RSS	181479
%MEM	0.28
kB_rd/s	0.00
kB_wr/s	0.02
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_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	23316602.747
tx_rate_mbps	Unknown
throughput_rx_mbps	11938.101
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	4440.000
max_latency_ns	243120.000
avg_latency_ns	8534.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:16:42

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145294
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	14.11
majflt/s	0.00
VSZ	4768464
RSS	57840
%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	145287
%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	15977430.106
tx_rate_mbps	Unknown
throughput_rx_mbps	16360.888
tx_rate_percent	94.586
throughput_rx_percent	94.586
frame_loss_percent	0.000
min_latency_ns	4620.000
max_latency_ns	244740.000
avg_latency_ns	9027.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:16:42

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145294
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	14.11
majflt/s	0.00
VSZ	4768464
RSS	57840
%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	145287
%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	4699182.312
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.851
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	13240.000
max_latency_ns	57080.000
avg_latency_ns	43887.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:16:42

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145294
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	14.11
majflt/s	0.00
VSZ	4768464
RSS	57840
%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	145287
%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	2394605.808
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.611
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	24300.000
max_latency_ns	64180.000
avg_latency_ns	49130.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:16:42

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145294
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	14.11
majflt/s	0.00
VSZ	4768464
RSS	57840
%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	145287
%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	1625461.922
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.610
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14540.000
max_latency_ns	63360.000
avg_latency_ns	51849.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:16:42

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145294
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	.
minflt/s	14.11
majflt/s	0.00
VSZ	4768464
RSS	57840
%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	145287
%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: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	22626031.854
tx_rate_mbps	Unknown
throughput_rx_mbps	11584.528
tx_rate_percent	76.023
throughput_rx_percent	76.023
frame_loss_percent	0.000
min_latency_ns	4780.000
max_latency_ns	480980.000
avg_latency_ns	8577.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:16:33
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	154885
%usr	200.25
%system	0.08
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	30.38
majflt/s	0.00
VSZ	4768460
RSS	59784
%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	154878
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%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	16369283.132
tx_rate_mbps	Unknown
throughput_rx_mbps	16762.146
tx_rate_percent	96.906
throughput_rx_percent	96.906
frame_loss_percent	0.000
min_latency_ns	4780.000
max_latency_ns	408520.000
avg_latency_ns	10199.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:16:33
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	154885
%usr	200.25
%system	0.08
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	30.38
majflt/s	0.00
VSZ	4768460
RSS	59784
%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	154878
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%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	4699191.209
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.887
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22660.000
max_latency_ns	63460.000
avg_latency_ns	49068.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:16:33
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	154885
%usr	200.25
%system	0.08
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	30.38
majflt/s	0.00
VSZ	4768460
RSS	59784
%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	154878
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%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	2394595.799
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.529
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14000.000
max_latency_ns	66620.000
avg_latency_ns	52869.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:16:33
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	154885
%usr	200.25
%system	0.08
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	30.38
majflt/s	0.00
VSZ	4768460
RSS	59784
%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	154878
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%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	1625406.948
tx_rate_mbps	Unknown
throughput_rx_mbps	19738.942
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14260.000
max_latency_ns	264000.000
avg_latency_ns	126555.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:16:33
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	154885
%usr	200.25
%system	0.08
%guest	0.00
%CPU	200.33
CPU	.
minflt/s	30.38
majflt/s	0.00
VSZ	4768460
RSS	59784
%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	154878
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%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: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	9366
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:50:34
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	159776
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	10.08
majflt/s	0.00
VSZ	19452624
RSS	57903
%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	159769
%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	159918
%usr	0.00
%system	0.03
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	1.68
majflt/s	0.00
VSZ	4792952
RSS	257482
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	5.60
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3866
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:50:34
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	159776
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.34
CPU	•
minflt/s	10.08
majflt/s	0.00
VSZ	19452624
RSS	57903
%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	159769
%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	159918
%usr	0.00
%system	0.03
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	1.68
majflt/s	0.00
VSZ	4792952
RSS	257482
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	5.60
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	35244360
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:50:34
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	159776
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	10.08
majflt/s	0.00
VSZ	19452624
RSS	57903
%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	159769
%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	159918
%usr	0.00
%system	0.03
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	1.68
majflt/s	0.00
VSZ	4792952
RSS	257482
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	5.60
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	00:50:34
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	159776
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	10.08
majflt/s	0.00
VSZ	19452624
RSS	57903
%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	159769
%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	159918
%usr	0.00
%system	0.03
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	1.68
majflt/s	0.00
VSZ	4792952
RSS	257482
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	5.60
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	00:50:34
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	159776
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	10.08
majflt/s	0.00
VSZ	19452624
RSS	57903
%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	159769
%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	159918
%usr	0.00
%system	0.03
%guest	200.11
%CPU	100.16
CPU	.
minflt/s	1.68
majflt/s	0.00
VSZ	4792952
RSS	257482
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	5.60
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: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: pvpv
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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: pvpv_tput
- Description: LTD.Throughput.RFC2544.PacketLossRatio
- Deployment: pvpv
- Traffic type: rfc2544
- Bidirectional : True

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	988188.738
tx_rate_mbps	Unknown
throughput_rx_mbps	505.953
tx_rate_percent	3.320
throughput_rx_percent	3.320
frame_loss_percent	0.000
min_latency_ns	5340.000
max_latency_ns	54560.000
avg_latency_ns	6368.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:28:54
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	166264
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	14.62
majflt/s	0.00
VSZ	34136784
RSS	60002
%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	166257
%usr	0.01
%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	166557
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4781644
RSS	100333
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	51.77
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	166430
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.27
majflt/s	0.00
VSZ	4778584
RSS	157479
%MEM	0.24
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
tx_rate_fps	Unknown
throughput_rx_fps	2781886.298
tx_rate_mbps	Unknown
throughput_rx_mbps	2848.652
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	11760.000
max_latency_ns	101340.000
avg_latency_ns	18272.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:28:54
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	166264
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	14.62
majflt/s	0.00
VSZ	34136784
RSS	60002
%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	166257
%usr	0.01
%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	166557
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4781644
RSS	100333
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	51.77
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	166430
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.27
majflt/s	0.00
VSZ	4778584
RSS	157479
%MEM	0.24
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
tx_rate_fps	Unknown
throughput_rx_fps	3027344.979
tx_rate_mbps	Unknown
throughput_rx_mbps	12400.005
tx_rate_percent	64.422
throughput_rx_percent	64.422
frame_loss_percent	0.000
min_latency_ns	11600.000
max_latency_ns	173180.000
avg_latency_ns	39396.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:28:54
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	166264
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	14.62
majflt/s	0.00
VSZ	34136784
RSS	60002
%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	166257
%usr	0.01
%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	166557
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	•
minflt/s	0.60
majflt/s	0.00
VSZ	4781644
RSS	100333
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	51.77
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	166430
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	•
minflt/s	0.27
majflt/s	0.00
VSZ	4778584
RSS	157479
%MEM	0.24
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
tx_rate_fps	Unknown
throughput_rx_fps	1950132.243
tx_rate_mbps	Unknown
throughput_rx_mbps	15975.483
tx_rate_percent	81.438
throughput_rx_percent	81.438
frame_loss_percent	0.000
min_latency_ns	10940.000
max_latency_ns	143060.000
avg_latency_ns	26382.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:28:54
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	166264
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	14.62
majflt/s	0.00
VSZ	34136784
RSS	60002
%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	166257
%usr	0.01
%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	166557
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4781644
RSS	100333
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	51.77
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	166430
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.27
majflt/s	0.00
VSZ	4778584
RSS	157479
%MEM	0.24
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
tx_rate_fps	Unknown
throughput_rx_fps	1449477.667
tx_rate_mbps	Unknown
throughput_rx_mbps	17602.457
tx_rate_percent	89.172
throughput_rx_percent	89.172
frame_loss_percent	0.000
min_latency_ns	10340.000
max_latency_ns	104260.000
avg_latency_ns	20783.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:28:54
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	166264
%usr	200.27
%system	0.07
%guest	0.00
%CPU	200.34
CPU	.
minflt/s	14.62
majflt/s	0.00
VSZ	34136784
RSS	60002
%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	166257
%usr	0.01
%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	166557
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.18
CPU	.
minflt/s	0.60
majflt/s	0.00
VSZ	4781644
RSS	100333
%MEM	0.15
kB_rd/s	0.00
kB_wr/s	51.77
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	166430
%usr	0.00
%system	0.00
%guest	200.10
%CPU	100.15
CPU	.
minflt/s	0.27
majflt/s	0.00
VSZ	4778584
RSS	157479
%MEM	0.24
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.

3.3 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-pod3/2016-08-15_02-27-23/vswitchperf_logs_2016-08-15_02-27-23.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: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	00:43:26

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	179514
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	4.36
majflt/s	0.00
VSZ	3365532
RSS	17101
%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	179511
%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
b2b_frames	3382
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:43:26

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	179514
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	4.36
majflt/s	0.00
VSZ	3365532
RSS	17101
%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	179511
%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
b2b_frames	1344
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:43:26

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	179514
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	4.36
majflt/s	0.00
VSZ	3365532
RSS	17101
%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	179511
%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
b2b_frames	1096
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:43:26

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	179514
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	.
minflt/s	4.36
majflt/s	0.00
VSZ	3365532
RSS	17101
%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	179511
%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
b2b_frames	1116
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:43:26

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	179514
%usr	0.22
%system	1.50
%guest	0.00
%CPU	1.72
CPU	•
minflt/s	4.36
majflt/s	0.00
VSZ	3365532
RSS	17101
%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	179511
%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.

4.2.2 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	499095.883
tx_rate_mbps	Unknown
throughput_rx_mbps	255.537
tx_rate_percent	1.773
throughput_rx_percent	1.677
frame_loss_percent	5.444
min_latency_ns	11840.000
max_latency_ns	79105560.000
avg_latency_ns	379735.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:29:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192136
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.57
majflt/s	0.00
VSZ	3365520
RSS	17776
%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	192133
%usr	0.01
%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	192337
%usr	0.00
%system	0.62
%guest	199.50
%CPU	100.18
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4747001
RSS	212959
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	67.52
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	299478.791
tx_rate_mbps	Unknown
throughput_rx_mbps	306.666
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.030
min_latency_ns	12660.000
max_latency_ns	6831860.000
avg_latency_ns	47587.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:29:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192136
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.57
majflt/s	0.00
VSZ	3365520
RSS	17776
%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	192133
%usr	0.01
%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	192337
%usr	0.00
%system	0.62
%guest	199.50
%CPU	100.18
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4747001
RSS	212959
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	67.52
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	228721.391
tx_rate_mbps	Unknown
throughput_rx_mbps	936.843
tx_rate_percent	4.867
throughput_rx_percent	4.867
frame_loss_percent	0.000
min_latency_ns	18780.000
max_latency_ns	1339920.000
avg_latency_ns	106083.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:29:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192136
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.57
majflt/s	0.00
VSZ	3365520
RSS	17776
%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	192133
%usr	0.01
%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	192337
%usr	0.00
%system	0.62
%guest	199.50
%CPU	100.18
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4747001
RSS	212959
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	67.52
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	209157.347
tx_rate_mbps	Unknown
throughput_rx_mbps	1713.417
tx_rate_percent	8.734
throughput_rx_percent	8.734
frame_loss_percent	0.000
min_latency_ns	22900.000
max_latency_ns	1083160.000
avg_latency_ns	107771.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:29:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192136
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.57
majflt/s	0.00
VSZ	3365520
RSS	17776
%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	192133
%usr	0.01
%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	192337
%usr	0.00
%system	0.62
%guest	199.50
%CPU	100.18
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4747001
RSS	212959
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	67.52
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	217412.061
tx_rate_mbps	Unknown
throughput_rx_mbps	2640.252
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	29040.000
max_latency_ns	655660.000
avg_latency_ns	99255.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:29:23
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	192136
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.57
majflt/s	0.00
VSZ	3365520
RSS	17776
%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	192133
%usr	0.01
%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	192337
%usr	0.00
%system	0.62
%guest	199.50
%CPU	100.18
CPU	.
minflt/s	0.81
majflt/s	0.00
VSZ	4747001
RSS	212959
%MEM	0.32
kB_rd/s	0.00
kB_wr/s	67.52
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: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	724285.491
tx_rate_mbps	Unknown
throughput_rx_mbps	394.011
tx_rate_percent	4.867
throughput_rx_percent	5.099
frame_loss_percent	0.000
min_latency_ns	4180.000
max_latency_ns	5596580.000
avg_latency_ns	460724.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:28:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	184901
%usr	0.21
%system	1.39
%guest	0.00
%CPU	1.59
CPU	.
minflt/s	4.01
majflt/s	0.00
VSZ	3365520
RSS	26168
%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	184898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	672377.097
tx_rate_mbps	Unknown
throughput_rx_mbps	710.030
tx_rate_percent	7.961
throughput_rx_percent	8.176
frame_loss_percent	0.000
min_latency_ns	4460.000
max_latency_ns	2724260.000
avg_latency_ns	170227.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:28:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	184901
%usr	0.21
%system	1.39
%guest	0.00
%CPU	1.59
CPU	.
minflt/s	4.01
majflt/s	0.00
VSZ	3365520
RSS	26168
%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	184898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	568682.806
tx_rate_mbps	Unknown
throughput_rx_mbps	2347.523
tx_rate_percent	24.203
throughput_rx_percent	24.385
frame_loss_percent	0.000
min_latency_ns	5460.000
max_latency_ns	1537360.000
avg_latency_ns	80277.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:28:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	184901
%usr	0.21
%system	1.39
%guest	0.00
%CPU	1.59
CPU	.
minflt/s	4.01
majflt/s	0.00
VSZ	3365520
RSS	26168
%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	184898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	539821.971
tx_rate_mbps	Unknown
throughput_rx_mbps	4439.496
tx_rate_percent	45.086
throughput_rx_percent	45.259
frame_loss_percent	0.000
min_latency_ns	5960.000
max_latency_ns	666140.000
avg_latency_ns	46872.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:28:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	184901
%usr	0.21
%system	1.39
%guest	0.00
%CPU	1.59
CPU	.
minflt/s	4.01
majflt/s	0.00
VSZ	3365520
RSS	26168
%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	184898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	555014.697
tx_rate_mbps	Unknown
throughput_rx_mbps	6757.859
tx_rate_percent	68.289
throughput_rx_percent	68.467
frame_loss_percent	0.000
min_latency_ns	6400.000
max_latency_ns	989180.000
avg_latency_ns	60833.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:28:31

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	184901
%usr	0.21
%system	1.39
%guest	0.00
%CPU	1.59
CPU	.
minflt/s	4.01
majflt/s	0.00
VSZ	3365520
RSS	26168
%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	184898
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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.

4.2.4 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	00:43:31
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10196
%usr	0.21
%system	1.41
%guest	0.00
%CPU	1.62
CPU	•
minflt/s	4.91
majflt/s	0.00
VSZ	3365644
RSS	19304
%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	10193
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	10594
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.15
CPU	.
minflt/s	1.66
majflt/s	0.00
VSZ	4742936
RSS	226156
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	6.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10467
%usr	0.00
%system	0.05
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	1.25
majflt/s	0.00
VSZ	4754200
RSS	237587
%MEM	0.36
kB_rd/s	0.00
kB_wr/s	4.08
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	00:43:31
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10196
%usr	0.21
%system	1.41
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.91
majflt/s	0.00
VSZ	3365644
RSS	19304
%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	10193
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	10594
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.15
CPU	•
minflt/s	1.66
majflt/s	0.00
VSZ	4742936
RSS	226156
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	6.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10467
%usr	0.00
%system	0.05
%guest	200.08
%CPU	100.16
CPU	•
minflt/s	1.25
majflt/s	0.00
VSZ	4754200
RSS	237587
%MEM	0.36
kB_rd/s	0.00
kB_wr/s	4.08
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	00:43:31
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10196
%usr	0.21
%system	1.41
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.91
majflt/s	0.00
VSZ	3365644
RSS	19304
%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	10193
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	10594
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.15
CPU	•
minflt/s	1.66
majflt/s	0.00
VSZ	4742936
RSS	226156
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	6.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10467
%usr	0.00
%system	0.05
%guest	200.08
%CPU	100.16
CPU	•
minflt/s	1.25
majflt/s	0.00
VSZ	4754200
RSS	237587
%MEM	0.36
kB_rd/s	0.00
kB_wr/s	4.08
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	00:43:31
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10196
%usr	0.21
%system	1.41
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.91
majflt/s	0.00
VSZ	3365644
RSS	19304
%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	10193
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	10594
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.15
CPU	.
minflt/s	1.66
majflt/s	0.00
VSZ	4742936
RSS	226156
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	6.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10467
%usr	0.00
%system	0.05
%guest	200.08
%CPU	100.16
CPU	.
minflt/s	1.25
majflt/s	0.00
VSZ	4754200
RSS	237587
%MEM	0.36
kB_rd/s	0.00
kB_wr/s	4.08
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	00:43:31
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10196
%usr	0.21
%system	1.41
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.91
majflt/s	0.00
VSZ	3365644
RSS	19304
%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	10193
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45880
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	10594
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.15
CPU	•
minflt/s	1.66
majflt/s	0.00
VSZ	4742936
RSS	226156
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	6.45
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	10467
%usr	0.00
%system	0.05
%guest	200.08
%CPU	100.16
CPU	•
minflt/s	1.25
majflt/s	0.00
VSZ	4754200
RSS	237587
%MEM	0.36
kB_rd/s	0.00
kB_wr/s	4.08
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: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	758000.554
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	4040.000
max_latency_ns	6658660.000
avg_latency_ns	689891.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:27:46

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176103
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	2.96
majflt/s	0.00
VSZ	3365520
RSS	17951
%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	176100
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	691513.600
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	4340.000
max_latency_ns	3195940.000
avg_latency_ns	262500.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:27:46

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176103
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	2.96
majflt/s	0.00
VSZ	3365520
RSS	17951
%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	176100
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	628535.385
tx_rate_mbps	Unknown
throughput_rx_mbps	2574.481
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	5200.000
max_latency_ns	3667900.000
avg_latency_ns	321705.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:27:46

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176103
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	2.96
majflt/s	0.00
VSZ	3365520
RSS	17951
%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	176100
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	579578.182
tx_rate_mbps	Unknown
throughput_rx_mbps	4747.904
tx_rate_percent	24.203
throughput_rx_percent	24.203
frame_loss_percent	0.000
min_latency_ns	5860.000
max_latency_ns	1271680.000
avg_latency_ns	101894.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:27:46

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176103
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	2.96
majflt/s	0.00
VSZ	3365520
RSS	17951
%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	176100
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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
tx_rate_fps	Unknown
throughput_rx_fps	594573.348
tx_rate_mbps	Unknown
throughput_rx_mbps	7220.499
tx_rate_percent	36.578
throughput_rx_percent	36.578
frame_loss_percent	0.000
min_latency_ns	6640.000
max_latency_ns	1903400.000
avg_latency_ns	108404.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:27:46

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	176103
%usr	0.21
%system	1.47
%guest	0.00
%CPU	1.69
CPU	.
minflt/s	2.96
majflt/s	0.00
VSZ	3365520
RSS	17951
%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	176100
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
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.

4.2.6 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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	758000.161
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	4060.000
max_latency_ns	7153200.000
avg_latency_ns	685875.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:28:59
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	188435
%usr	0.22
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	3.60
majflt/s	0.00
VSZ	3365524
RSS	17186
%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	188432
%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	691514.038
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	4340.000
max_latency_ns	4985140.000
avg_latency_ns	333397.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:28:59
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	188435
%usr	0.22
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	3.60
majflt/s	0.00
VSZ	3365524
RSS	17186
%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	188432
%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	592179.719
tx_rate_mbps	Unknown
throughput_rx_mbps	2425.568
tx_rate_percent	12.602
throughput_rx_percent	12.602
frame_loss_percent	0.000
min_latency_ns	5320.000
max_latency_ns	3019480.000
avg_latency_ns	126272.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:28:59
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	188435
%usr	0.22
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	3.60
majflt/s	0.00
VSZ	3365524
RSS	17186
%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	188432
%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	598091.625
tx_rate_mbps	Unknown
throughput_rx_mbps	4899.567
tx_rate_percent	24.977
throughput_rx_percent	24.977
frame_loss_percent	0.000
min_latency_ns	5700.000
max_latency_ns	3092900.000
avg_latency_ns	166366.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:28:59
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	188435
%usr	0.22
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	3.60
majflt/s	0.00
VSZ	3365524
RSS	17186
%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	188432
%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	569429.881
tx_rate_mbps	Unknown
throughput_rx_mbps	6915.156
tx_rate_percent	35.031
throughput_rx_percent	35.031
frame_loss_percent	0.000
min_latency_ns	6540.000
max_latency_ns	1764720.000
avg_latency_ns	75151.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:28:59
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	188435
%usr	0.22
%system	1.49
%guest	0.00
%CPU	1.71
CPU	.
minflt/s	3.60
majflt/s	0.00
VSZ	3365524
RSS	17186
%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	188432
%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.

4.2.7 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.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: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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	425
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:45:27
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	196026
%usr	0.20
%system	1.46
%guest	0.00
%CPU	1.66
CPU	•
minflt/s	4.56
majflt/s	0.00
VSZ	3365607
RSS	18824
%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	196023
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
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	196227
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.16
CPU	.
minflt/s	1.23
majflt/s	0.00
VSZ	4709132
RSS	251455
%MEM	0.38
kB_rd/s	0.00
kB_wr/s	32.21
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
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:45:27
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	196026
%usr	0.20
%system	1.46
%guest	0.00
%CPU	1.66
CPU	.
minflt/s	4.56
majflt/s	0.00
VSZ	3365607
RSS	18824
%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	196023
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
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	196227
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.16
CPU	.
minflt/s	1.23
majflt/s	0.00
VSZ	4709132
RSS	251455
%MEM	0.38
kB_rd/s	0.00
kB_wr/s	32.21
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
b2b_frames	537
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:45:27
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	196026
%usr	0.20
%system	1.46
%guest	0.00
%CPU	1.66
CPU	.
minflt/s	4.56
majflt/s	0.00
VSZ	3365607
RSS	18824
%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	196023
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
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	196227
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.16
CPU	.
minflt/s	1.23
majflt/s	0.00
VSZ	4709132
RSS	251455
%MEM	0.38
kB_rd/s	0.00
kB_wr/s	32.21
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
b2b_frames	274
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:45:27
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	196026
%usr	0.20
%system	1.46
%guest	0.00
%CPU	1.66
CPU	.
minflt/s	4.56
majflt/s	0.00
VSZ	3365607
RSS	18824
%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	196023
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
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	196227
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.16
CPU	.
minflt/s	1.23
majflt/s	0.00
VSZ	4709132
RSS	251455
%MEM	0.38
kB_rd/s	0.00
kB_wr/s	32.21
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
b2b_frames	0
b2b_frame_loss_percent	100
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:45:27
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	196026
%usr	0.20
%system	1.46
%guest	0.00
%CPU	1.66
CPU	.
minflt/s	4.56
majflt/s	0.00
VSZ	3365607
RSS	18824
%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	196023
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
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	196227
%usr	0.00
%system	0.06
%guest	200.09
%CPU	100.16
CPU	.
minflt/s	1.23
majflt/s	0.00
VSZ	4709132
RSS	251455
%MEM	0.38
kB_rd/s	0.00
kB_wr/s	32.21
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.

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: 3.10.0-327.28.2.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: 65687480 kB

- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: a8ef2c308d4c385b8eb0cae0f7f1f2d039affaaf
- 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_20160804.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.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_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	525928.088
tx_rate_mbps	Unknown
throughput_rx_mbps	269.275
tx_rate_percent	1.773
throughput_rx_percent	1.767
frame_loss_percent	0.359
min_latency_ns	28100.000
max_latency_ns	28461160.000
avg_latency_ns	114180.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:30:11
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6139
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.82
majflt/s	0.00
VSZ	3365648
RSS	18538
%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	6132
%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	6438
%usr	0.00
%system	0.90
%guest	199.21
%CPU	100.16
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	4715288
RSS	159696
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	37.17
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6398
%usr	0.00
%system	0.90
%guest	199.25
%CPU	100.15
CPU	.
minflt/s	1.12
majflt/s	0.00
VSZ	4721380
RSS	190202
%MEM	0.29
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
tx_rate_fps	Unknown
throughput_rx_fps	299557.911
tx_rate_mbps	Unknown
throughput_rx_mbps	306.747
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.004
min_latency_ns	27440.000
max_latency_ns	2375880.000
avg_latency_ns	62137.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:30:11
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6139
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.82
majflt/s	0.00
VSZ	3365648
RSS	18538
%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	6132
%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	6438
%usr	0.00
%system	0.90
%guest	199.21
%CPU	100.16
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	4715288
RSS	159696
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	37.17
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6398
%usr	0.00
%system	0.90
%guest	199.25
%CPU	100.15
CPU	.
minflt/s	1.12
majflt/s	0.00
VSZ	4721380
RSS	190202
%MEM	0.29
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
tx_rate_fps	Unknown
throughput_rx_fps	192375.990
tx_rate_mbps	Unknown
throughput_rx_mbps	787.972
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	43380.000
max_latency_ns	630200.000
avg_latency_ns	127804.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:30:11
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6139
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.82
majflt/s	0.00
VSZ	3365648
RSS	18538
%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	6132
%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	6438
%usr	0.00
%system	0.90
%guest	199.21
%CPU	100.16
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	4715288
RSS	159696
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	37.17
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6398
%usr	0.00
%system	0.90
%guest	199.25
%CPU	100.15
CPU	.
minflt/s	1.12
majflt/s	0.00
VSZ	4721380
RSS	190202
%MEM	0.29
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
tx_rate_fps	Unknown
throughput_rx_fps	227679.074
tx_rate_mbps	Unknown
throughput_rx_mbps	1865.147
tx_rate_percent	9.508
throughput_rx_percent	9.508
frame_loss_percent	0.000
min_latency_ns	57900.000
max_latency_ns	872940.000
avg_latency_ns	134635.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:30:11
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6139
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.82
majflt/s	0.00
VSZ	3365648
RSS	18538
%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	6132
%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	6438
%usr	0.00
%system	0.90
%guest	199.21
%CPU	100.16
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	4715288
RSS	159696
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	37.17
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6398
%usr	0.00
%system	0.90
%guest	199.25
%CPU	100.15
CPU	.
minflt/s	1.12
majflt/s	0.00
VSZ	4721380
RSS	190202
%MEM	0.29
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
tx_rate_fps	Unknown
throughput_rx_fps	267698.566
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.931
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	64640.000
max_latency_ns	1919860.000
avg_latency_ns	197713.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:30:11
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6139
%usr	0.20
%system	1.42
%guest	0.00
%CPU	1.62
CPU	.
minflt/s	4.82
majflt/s	0.00
VSZ	3365648
RSS	18538
%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	6132
%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	6438
%usr	0.00
%system	0.90
%guest	199.21
%CPU	100.16
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	4715288
RSS	159696
%MEM	0.24
kB_rd/s	0.00
kB_wr/s	37.17
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	6398
%usr	0.00
%system	0.90
%guest	199.25
%CPU	100.15
CPU	.
minflt/s	1.12
majflt/s	0.00
VSZ	4721380
RSS	190202
%MEM	0.29
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.

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-pod3/2016-08-15_02-27-23/vswitchperf_logs_2016-08-15_02-27-23.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