



VSPERF Results

Release draft (589565c)

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: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	23316605.755
tx_rate_mbps	Unknown
throughput_rx_mbps	11938.102
tx_rate_percent	78.344
throughput_rx_percent	78.344
frame_loss_percent	0.000
min_latency_ns	5080.000
max_latency_ns	251960.000
avg_latency_ns	8162.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	128842
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	40.73
majflt/s	0.00
VSZ	4143528
RSS	20748
%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	128839
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3340
%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	16761275.838
tx_rate_mbps	Unknown
throughput_rx_mbps	17163.546
tx_rate_percent	99.227
throughput_rx_percent	99.227
frame_loss_percent	0.000
min_latency_ns	8600.000
max_latency_ns	136080.000
avg_latency_ns	11226.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	128842
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	40.73
majflt/s	0.00
VSZ	4143528
RSS	20748
%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	128839
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3340
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699148.980
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.714
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14980.000
max_latency_ns	79560.000
avg_latency_ns	62950.500
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	128842
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	40.73
majflt/s	0.00
VSZ	4143528
RSS	20748
%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	128839
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3340
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394609.456
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.641
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	28100.000
max_latency_ns	62060.000
avg_latency_ns	50305.500
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	128842
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	40.73
majflt/s	0.00
VSZ	4143528
RSS	20748
%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	128839
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3340
%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	1625471.945
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.731
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	34120.000
max_latency_ns	63220.000
avg_latency_ns	52417.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	128842
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	40.73
majflt/s	0.00
VSZ	4143528
RSS	20748
%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	128839
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3340
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	25970
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130789
%usr	199.92
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	29.13
majflt/s	0.00
VSZ	4143528
RSS	20729
%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	130786
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	2969277
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130789
%usr	199.92
%system	0.08
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	29.13
majflt/s	0.00
VSZ	4143528
RSS	20729
%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	130786
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130789
%usr	199.92
%system	0.08
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	29.13
majflt/s	0.00
VSZ	4143528
RSS	20729
%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	130786
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130789
%usr	199.92
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	29.13
majflt/s	0.00
VSZ	4143528
RSS	20729
%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	130786
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	130789
%usr	199.92
%system	0.08
%guest	0.00
%CPU	200.00
CPU	•
minflt/s	29.13
majflt/s	0.00
VSZ	4143528
RSS	20729
%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	130786
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	12118686.368
tx_rate_mbps	Unknown
throughput_rx_mbps	6592.565
tx_rate_percent	81.438
throughput_rx_percent	85.316
frame_loss_percent	0.000
min_latency_ns	5300.000
max_latency_ns	108820.000
avg_latency_ns	7366.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	133470
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	48.24
majflt/s	0.00
VSZ	4143536
RSS	18669
%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	133467
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	8184666.403
tx_rate_mbps	Unknown
throughput_rx_mbps	8643.008
tx_rate_percent	96.906
throughput_rx_percent	99.526
frame_loss_percent	0.000
min_latency_ns	4940.000
max_latency_ns	98800.000
avg_latency_ns	7323.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	133470
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	48.24
majflt/s	0.00
VSZ	4143536
RSS	18669
%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	133467
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331451.540
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.232
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	6060.000
max_latency_ns	41480.000
avg_latency_ns	13377.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	133470
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	48.24
majflt/s	0.00
VSZ	4143536
RSS	18669
%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	133467
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.576
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	5780.000
max_latency_ns	46580.000
avg_latency_ns	7289.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	133470
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	48.24
majflt/s	0.00
VSZ	4143536
RSS	18669
%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	133467
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.200
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.435
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6180.000
max_latency_ns	52900.000
avg_latency_ns	7376.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	133470
%usr	199.93
%system	0.08
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	48.24
majflt/s	0.00
VSZ	4143536
RSS	18669
%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	133467
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
RSS	3348
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	19633558.293
tx_rate_mbps	Unknown
throughput_rx_mbps	10052.382
tx_rate_percent	65.969
throughput_rx_percent	65.969
frame_loss_percent	0.000
min_latency_ns	4560.000
max_latency_ns	70820.000
avg_latency_ns	6022.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	136459
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	53.11
majflt/s	0.00
VSZ	4143528
RSS	18654
%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	136456
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
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	15716127.632
tx_rate_mbps	Unknown
throughput_rx_mbps	16093.315
tx_rate_percent	93.039
throughput_rx_percent	93.039
frame_loss_percent	0.000
min_latency_ns	7380.000
max_latency_ns	52860.000
avg_latency_ns	8920.000
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	136459
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	53.11
majflt/s	0.00
VSZ	4143528
RSS	18654
%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	136456
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
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	4699189.439
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.880
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	14660.000
max_latency_ns	55700.000
avg_latency_ns	42396.000
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	136459
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	53.11
majflt/s	0.00
VSZ	4143528
RSS	18654
%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	136456
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
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	2394604.858
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.603
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	32940.000
max_latency_ns	73180.000
avg_latency_ns	61181.500
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	136459
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	53.11
majflt/s	0.00
VSZ	4143528
RSS	18654
%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	136456
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
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	1625470.542
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.714
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	26500.000
max_latency_ns	58740.000
avg_latency_ns	47356.000
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	136459
%usr	199.93
%system	0.07
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	53.11
majflt/s	0.00
VSZ	4143528
RSS	18654
%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	136456
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47640
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.

3.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	3980662.731
tx_rate_mbps	Unknown
throughput_rx_mbps	2038.099
tx_rate_percent	13.375
throughput_rx_percent	13.375
frame_loss_percent	0.000
min_latency_ns	5080.000
max_latency_ns	51960.000
avg_latency_ns	6897.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	138456
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.05
majflt/s	0.00
VSZ	20920744
RSS	24334
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	138453
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47744
RSS	3376
%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	138653
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.85
majflt/s	0.00
VSZ	4800468
RSS	43805
%MEM	0.07
kB_rd/s	0.13
kB_wr/s	15.40
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4349668.960
tx_rate_mbps	Unknown
throughput_rx_mbps	4454.061
tx_rate_percent	25.750
throughput_rx_percent	25.750
frame_loss_percent	0.000
min_latency_ns	5820.000
max_latency_ns	78020.000
avg_latency_ns	8574.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	138456
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.05
majflt/s	0.00
VSZ	20920744
RSS	24334
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	138453
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47744
RSS	3376
%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	138653
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.85
majflt/s	0.00
VSZ	4800468
RSS	43805
%MEM	0.07
kB_rd/s	0.13
kB_wr/s	15.40
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4698813.461
tx_rate_mbps	Unknown
throughput_rx_mbps	19246.340
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	21280.000
max_latency_ns	325960.000
avg_latency_ns	294338.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	138456
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.05
majflt/s	0.00
VSZ	20920744
RSS	24334
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	138453
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47744
RSS	3376
%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	138653
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.85
majflt/s	0.00
VSZ	4800468
RSS	43805
%MEM	0.07
kB_rd/s	0.13
kB_wr/s	15.40
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394583.842
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.431
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	21640.000
max_latency_ns	94360.000
avg_latency_ns	79519.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	138456
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.05
majflt/s	0.00
VSZ	20920744
RSS	24334
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	138453
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47744
RSS	3376
%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	138653
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.85
majflt/s	0.00
VSZ	4800468
RSS	43805
%MEM	0.07
kB_rd/s	0.13
kB_wr/s	15.40
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625457.468
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.555
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	22140.000
max_latency_ns	84220.000
avg_latency_ns	69080.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	138456
%usr	199.94
%system	0.06
%guest	0.00
%CPU	200.00
CPU	.
minflt/s	27.05
majflt/s	0.00
VSZ	20920744
RSS	24334
%MEM	0.04
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	138453
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47744
RSS	3376
%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	138653
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.85
majflt/s	0.00
VSZ	4800468
RSS	43805
%MEM	0.07
kB_rd/s	0.13
kB_wr/s	15.40
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	9366
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhdchd	
Statistic	Value
UID	0
PID	140682
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	20.88
majflt/s	0.00
VSZ	20920748
RSS	20838
%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	140679
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47752
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	140814
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.02
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4755408
RSS	44166
%MEM	0.07
kB_rd/s	0.16
kB_wr/s	69.76
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	8699
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	140682
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	•
minflt/s	20.88
majflt/s	0.00
VSZ	20920748
RSS	20838
%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	140679
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47752
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	140814
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.02
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4755408
RSS	44166
%MEM	0.07
kB_rd/s	0.16
kB_wr/s	69.76
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	44055418
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	140682
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	20.88
majflt/s	0.00
VSZ	20920748
RSS	20838
%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	140679
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47752
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	140814
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.02
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4755408
RSS	44166
%MEM	0.07
kB_rd/s	0.16
kB_wr/s	69.76
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	140682
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	20.88
majflt/s	0.00
VSZ	20920748
RSS	20838
%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	140679
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47752
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	140814
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.02
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4755408
RSS	44166
%MEM	0.07
kB_rd/s	0.16
kB_wr/s	69.76
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	140682
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	20.88
majflt/s	0.00
VSZ	20920748
RSS	20838
%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	140679
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47752
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	140814
%usr	0.00
%system	0.02
%guest	199.95
%CPU	100.02
CPU	.
minflt/s	0.80
majflt/s	0.00
VSZ	4755408
RSS	44166
%MEM	0.07
kB_rd/s	0.16
kB_wr/s	69.76
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- DPDK Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	0
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145425
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	19.50
majflt/s	0.00
VSZ	37697964
RSS	20735
%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	145422
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3164
%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	145682
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	4865996
RSS	37262
%MEM	0.06
kB_rd/s	0.40
kB_wr/s	9.29
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	145632
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4867520
RSS	39217
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	0
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145425
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	19.50
majflt/s	0.00
VSZ	37697964
RSS	20735
%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	145422
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3164
%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	145682
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	4865996
RSS	37262
%MEM	0.06
kB_rd/s	0.40
kB_wr/s	9.29
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	145632
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4867520
RSS	39217
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	0
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145425
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	19.50
majflt/s	0.00
VSZ	37697964
RSS	20735
%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	145422
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3164
%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	145682
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	4865996
RSS	37262
%MEM	0.06
kB_rd/s	0.40
kB_wr/s	9.29
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	145632
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4867520
RSS	39217
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	0
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145425
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	19.50
majflt/s	0.00
VSZ	37697964
RSS	20735
%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	145422
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3164
%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	145682
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	4865996
RSS	37262
%MEM	0.06
kB_rd/s	0.40
kB_wr/s	9.29
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	145632
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4867520
RSS	39217
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	0
tx_rate_mbps	Unknown
throughput_rx_mbps	0
tx_rate_percent	1.773
throughput_rx_percent	0.000
frame_loss_percent	100.000
min_latency_ns	0
max_latency_ns	0
avg_latency_ns	0
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	145425
%usr	199.95
%system	0.06
%guest	0.00
%CPU	200.01
CPU	.
minflt/s	19.50
majflt/s	0.00
VSZ	37697964
RSS	20735
%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	145422
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47740
RSS	3164
%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	145682
%usr	0.00
%system	0.00
%guest	199.94
%CPU	100.01
CPU	.
minflt/s	0.43
majflt/s	0.00
VSZ	4865996
RSS	37262
%MEM	0.06
kB_rd/s	0.40
kB_wr/s	9.29
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	145632
%usr	0.00
%system	0.00
%guest	199.94
%CPU	99.99
CPU	.
minflt/s	0.05
majflt/s	0.00
VSZ	4867520
RSS	39217
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.3 Rationale for decisions

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

3.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-05-12_03-12-18/vswitchperf_logs_2016-05-12_03-12-18.tar.gz.

3.5 General

3.5.1 Glossary

- NFV - Network Function Virtualization
- Mbps - 1,000,000bps

3.5.2 Document change procedures and history

Document ID	Author	Date Modified
<i>OPNFV_vswitchperf_LTR_ver_1.0_Jan_15_CN_DRAFT</i>	Christopher Nolan	23/01/2015
<i>OPNFV_vswitchperf_LTR_ver_1.1_Jan_15_CN_DRAFT</i>	Christopher Nolan	28/01/2015

PERFORMANCE REPORT FOR OPEN VSWITCH

4.1 Introduction

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

This document is currently in draft form.

4.1.1 Document identifier

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

4.1.2 Scope

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

4.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

4.2 Details of the Level Test Report

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

4.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1218379.583
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4460.000
max_latency_ns	2257640.000
avg_latency_ns	39520.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3680
%usr	0.20
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.61
majflt/s	0.00
VSZ	2775668
RSS	7730
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	3679
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214106.854
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.245
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	4540.000
max_latency_ns	3034880.000
avg_latency_ns	79167.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3680
%usr	0.20
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.61
majflt/s	0.00
VSZ	2775668
RSS	7730
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	3679
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1101020.964
tx_rate_mbps	Unknown
throughput_rx_mbps	4509.782
tx_rate_percent	23.430
throughput_rx_percent	23.430
frame_loss_percent	0.000
min_latency_ns	5620.000
max_latency_ns	1533940.000
avg_latency_ns	37552.500
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3680
%usr	0.20
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.61
majflt/s	0.00
VSZ	2775668
RSS	7730
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	3679
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1098165.707
tx_rate_mbps	Unknown
throughput_rx_mbps	8996.173
tx_rate_percent	45.859
throughput_rx_percent	45.859
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	1677280.000
avg_latency_ns	33048.500
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3680
%usr	0.20
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.61
majflt/s	0.00
VSZ	2775668
RSS	7730
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	3679
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1072315.474
tx_rate_mbps	Unknown
throughput_rx_mbps	13022.199
tx_rate_percent	65.969
throughput_rx_percent	65.969
frame_loss_percent	0.000
min_latency_ns	7000.000
max_latency_ns	1156800.000
avg_latency_ns	30284.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	3680
%usr	0.20
%system	1.20
%guest	0.00
%CPU	1.40
CPU	.
minflt/s	4.61
majflt/s	0.00
VSZ	2775668
RSS	7730
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	3679
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2992
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6584
%usr	0.22
%system	1.19
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	7.28
majflt/s	0.00
VSZ	2775664
RSS	9742
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	6583
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	3382
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6584
%usr	0.22
%system	1.19
%guest	0.00
%CPU	1.41
CPU	•
minflt/s	7.28
majflt/s	0.00
VSZ	2775664
RSS	9742
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6583
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vsitchd	
Statistic	Value
UID	0
PID	6584
%usr	0.22
%system	1.19
%guest	0.00
%CPU	1.41
CPU	•
minflt/s	7.28
majflt/s	0.00
VSZ	2775664
RSS	9742
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6583
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6584
%usr	0.22
%system	1.19
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	7.28
majflt/s	0.00
VSZ	2775664
RSS	9742
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	6583
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	1860
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6584
%usr	0.22
%system	1.19
%guest	0.00
%CPU	1.41
CPU	•
minflt/s	7.28
majflt/s	0.00
VSZ	2775664
RSS	9742
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	6583
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- NIC(s):
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	609189.528
tx_rate_mbps	Unknown
throughput_rx_mbps	331.399
tx_rate_percent	4.094
throughput_rx_percent	4.289
frame_loss_percent	0.000
min_latency_ns	4320.000
max_latency_ns	3871800.000
avg_latency_ns	63996.000
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10681
%usr	0.21
%system	1.22
%guest	0.00
%CPU	1.43
CPU	.
minflt/s	3.75
majflt/s	0.00
VSZ	2775664
RSS	7335
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10680
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	607052.386
tx_rate_mbps	Unknown
throughput_rx_mbps	641.047
tx_rate_percent	7.188
throughput_rx_percent	7.382
frame_loss_percent	0.000
min_latency_ns	4580.000
max_latency_ns	3057300.000
avg_latency_ns	91678.000
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10681
%usr	0.21
%system	1.22
%guest	0.00
%CPU	1.43
CPU	.
minflt/s	3.75
majflt/s	0.00
VSZ	2775664
RSS	7335
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	10680
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	550510.486
tx_rate_mbps	Unknown
throughput_rx_mbps	2272.507
tx_rate_percent	23.430
throughput_rx_percent	23.606
frame_loss_percent	0.000
min_latency_ns	5480.000
max_latency_ns	2300600.000
avg_latency_ns	62813.000
type	rfc2544
packet_size	512
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10681
%usr	0.21
%system	1.22
%guest	0.00
%CPU	1.43
CPU	.
minflt/s	3.75
majflt/s	0.00
VSZ	2775664
RSS	7335
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10680
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%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	539821.951
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	5420.000
max_latency_ns	1547360.000
avg_latency_ns	54379.000
type	rfc2544
packet_size	1024
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10681
%usr	0.21
%system	1.22
%guest	0.00
%CPU	1.43
CPU	.
minflt/s	3.75
majflt/s	0.00
VSZ	2775664
RSS	7335
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10680
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%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	536157.375
tx_rate_mbps	Unknown
throughput_rx_mbps	6528.252
tx_rate_percent	65.969
throughput_rx_percent	66.140
frame_loss_percent	0.000
min_latency_ns	6420.000
max_latency_ns	1307480.000
avg_latency_ns	43536.000
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	10681
%usr	0.21
%system	1.22
%guest	0.00
%CPU	1.43
CPU	.
minflt/s	3.75
majflt/s	0.00
VSZ	2775664
RSS	7335
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	10680
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce

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	1218378.890
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
frame_loss_percent	0.000
min_latency_ns	4340.000
max_latency_ns	2464480.000
avg_latency_ns	60123.000
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13489
%usr	0.22
%system	1.28
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.76
majflt/s	0.00
VSZ	2775668
RSS	8151
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13488
%usr	0.00
%system	0.01
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1214106.607
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.245
tx_rate_percent	7.188
throughput_rx_percent	7.188
frame_loss_percent	0.000
min_latency_ns	4520.000
max_latency_ns	3955220.000
avg_latency_ns	115117.000
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13489
%usr	0.22
%system	1.28
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.76
majflt/s	0.00
VSZ	2775668
RSS	8151
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13488
%usr	0.00
%system	0.01
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%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	1101020.401
tx_rate_mbps	Unknown
throughput_rx_mbps	4509.780
tx_rate_percent	23.430
throughput_rx_percent	23.430
frame_loss_percent	0.000
min_latency_ns	5600.000
max_latency_ns	1908820.000
avg_latency_ns	45755.000
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13489
%usr	0.22
%system	1.28
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.76
majflt/s	0.00
VSZ	2775668
RSS	8151
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13488
%usr	0.00
%system	0.01
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%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	987040.904
tx_rate_mbps	Unknown
throughput_rx_mbps	8085.839
tx_rate_percent	41.219
throughput_rx_percent	41.219
frame_loss_percent	0.000
min_latency_ns	6400.000
max_latency_ns	483820.000
avg_latency_ns	16140.000
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13489
%usr	0.22
%system	1.28
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.76
majflt/s	0.00
VSZ	2775668
RSS	8151
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	13488
%usr	0.00
%system	0.01
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%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	1009455.053
tx_rate_mbps	Unknown
throughput_rx_mbps	12258.822
tx_rate_percent	62.102
throughput_rx_percent	62.102
frame_loss_percent	0.000
min_latency_ns	7000.000
max_latency_ns	585960.000
avg_latency_ns	15746.500
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	13489
%usr	0.22
%system	1.28
%guest	0.00
%CPU	1.51
CPU	.
minflt/s	4.76
majflt/s	0.00
VSZ	2775668
RSS	8151
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	13488
%usr	0.00
%system	0.01
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45772
RSS	2996
%MEM	0.00
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	526617.548
tx_rate_mbps	Unknown
throughput_rx_mbps	269.628
tx_rate_percent	1.773
throughput_rx_percent	1.769
frame_loss_percent	0.226
min_latency_ns	15440.000
max_latency_ns	31120400.000
avg_latency_ns	66055.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	16308
%usr	0.19
%system	1.19
%guest	0.00
%CPU	1.38
CPU	.
minflt/s	4.26
majflt/s	0.00
VSZ	2775792
RSS	13469
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	16307
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3216
%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	16460
%usr	0.00
%system	0.76
%guest	199.19
%CPU	99.99
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4861520
RSS	113795
%MEM	0.17
kB_rd/s	0.01
kB_wr/s	8.47
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299563.441
tx_rate_mbps	Unknown
throughput_rx_mbps	306.753
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.001
min_latency_ns	12940.000
max_latency_ns	1315660.000
avg_latency_ns	50852.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	16308
%usr	0.19
%system	1.19
%guest	0.00
%CPU	1.38
CPU	.
minflt/s	4.26
majflt/s	0.00
VSZ	2775792
RSS	13469
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	16307
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3216
%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	16460
%usr	0.00
%system	0.76
%guest	199.19
%CPU	99.99
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4861520
RSS	113795
%MEM	0.17
kB_rd/s	0.01
kB_wr/s	8.47
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	301412.615
tx_rate_mbps	Unknown
throughput_rx_mbps	1234.586
tx_rate_percent	6.414
throughput_rx_percent	6.414
frame_loss_percent	0.000
min_latency_ns	36860.000
max_latency_ns	477420.000
avg_latency_ns	122356.500
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	16308
%usr	0.19
%system	1.19
%guest	0.00
%CPU	1.38
CPU	.
minflt/s	4.26
majflt/s	0.00
VSZ	2775792
RSS	13469
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	16307
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3216
%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	16460
%usr	0.00
%system	0.76
%guest	199.19
%CPU	99.99
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4861520
RSS	113795
%MEM	0.17
kB_rd/s	0.01
kB_wr/s	8.47
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	227677.508
tx_rate_mbps	Unknown
throughput_rx_mbps	1865.134
tx_rate_percent	9.508
throughput_rx_percent	9.508
frame_loss_percent	0.000
min_latency_ns	34580.000
max_latency_ns	1454400.000
avg_latency_ns	120384.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	16308
%usr	0.19
%system	1.19
%guest	0.00
%CPU	1.38
CPU	.
minflt/s	4.26
majflt/s	0.00
VSZ	2775792
RSS	13469
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	16307
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3216
%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	16460
%usr	0.00
%system	0.76
%guest	199.19
%CPU	99.99
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4861520
RSS	113795
%MEM	0.17
kB_rd/s	0.01
kB_wr/s	8.47
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	280269.817
tx_rate_mbps	Unknown
throughput_rx_mbps	3403.597
tx_rate_percent	17.242
throughput_rx_percent	17.242
frame_loss_percent	0.000
min_latency_ns	41660.000
max_latency_ns	453760.000
avg_latency_ns	135317.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	16308
%usr	0.19
%system	1.19
%guest	0.00
%CPU	1.38
CPU	.
minflt/s	4.26
majflt/s	0.00
VSZ	2775792
RSS	13469
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	16307
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3216
%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	16460
%usr	0.00
%system	0.76
%guest	199.19
%CPU	99.99
CPU	.
minflt/s	0.47
majflt/s	0.00
VSZ	4861520
RSS	113795
%MEM	0.17
kB_rd/s	0.01
kB_wr/s	8.47
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	19369
%usr	0.21
%system	1.20
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	5.09
majflt/s	0.00
VSZ	2775780
RSS	16294
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	19368
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3212
%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	19534
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.00
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4731976
RSS	88676
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	4.32
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	19369
%usr	0.21
%system	1.20
%guest	0.00
%CPU	1.41
CPU	•
minflt/s	5.09
majflt/s	0.00
VSZ	2775780
RSS	16294
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	19368
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3212
%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	19534
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.00
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4731976
RSS	88676
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	4.32
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	19369
%usr	0.21
%system	1.20
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	5.09
majflt/s	0.00
VSZ	2775780
RSS	16294
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	19368
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3212
%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	19534
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.00
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4731976
RSS	88676
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	4.32
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	19369
%usr	0.21
%system	1.20
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	5.09
majflt/s	0.00
VSZ	2775780
RSS	16294
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	19368
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3212
%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	19534
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.00
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4731976
RSS	88676
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	4.32
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	19369
%usr	0.21
%system	1.20
%guest	0.00
%CPU	1.41
CPU	.
minflt/s	5.09
majflt/s	0.00
VSZ	2775780
RSS	16294
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	19368
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45884
RSS	3212
%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	19534
%usr	0.00
%system	0.01
%guest	199.93
%CPU	100.00
CPU	.
minflt/s	0.39
majflt/s	0.00
VSZ	4731976
RSS	88676
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	4.32
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

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

- Virtual Switch Set-up: pvvvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	526320.336
tx_rate_mbps	Unknown
throughput_rx_mbps	269.476
tx_rate_percent	1.773
throughput_rx_percent	1.768
frame_loss_percent	0.329
min_latency_ns	27460.000
max_latency_ns	30216080.000
avg_latency_ns	110027.000
type	rfc2544
packet_size	64
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	23813
%usr	0.19
%system	1.18
%guest	0.00
%CPU	1.37
CPU	.
minflt/s	5.75
majflt/s	0.01
VSZ	2775792
RSS	14231
%MEM	0.02
kB_rd/s	0.19
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	23812
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45884
RSS	3082
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24141
%usr	0.00
%system	1.41
%guest	198.58
%CPU	100.03
CPU	.
minflt/s	1.55
majflt/s	0.00
VSZ	4735572
RSS	37676
%MEM	0.06
kB_rd/s	1.42
kB_wr/s	113.32
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24025
%usr	0.00
%system	1.24
%guest	198.71
%CPU	99.98
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	4805196
RSS	147422
%MEM	0.22
kB_rd/s	0.01
kB_wr/s	0.04
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299561.173
tx_rate_mbps	Unknown
throughput_rx_mbps	306.751
tx_rate_percent	1.773
throughput_rx_percent	1.773
frame_loss_percent	0.002
min_latency_ns	24620.000
max_latency_ns	1633300.000
avg_latency_ns	76895.500
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	23813
%usr	0.19
%system	1.18
%guest	0.00
%CPU	1.37
CPU	.
minflt/s	5.75
majflt/s	0.01
VSZ	2775792
RSS	14231
%MEM	0.02
kB_rd/s	0.19
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	23812
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45884
RSS	3082
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24141
%usr	0.00
%system	1.41
%guest	198.58
%CPU	100.03
CPU	.
minflt/s	1.55
majflt/s	0.00
VSZ	4735572
RSS	37676
%MEM	0.06
kB_rd/s	1.42
kB_wr/s	113.32
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24025
%usr	0.00
%system	1.24
%guest	198.71
%CPU	99.98
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	4805196
RSS	147422
%MEM	0.22
kB_rd/s	0.01
kB_wr/s	0.04
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	301413.601
tx_rate_mbps	Unknown
throughput_rx_mbps	1234.590
tx_rate_percent	6.414
throughput_rx_percent	6.414
frame_loss_percent	0.000
min_latency_ns	57200.000
max_latency_ns	1675120.000
avg_latency_ns	179008.000
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	23813
%usr	0.19
%system	1.18
%guest	0.00
%CPU	1.37
CPU	.
minflt/s	5.75
majflt/s	0.01
VSZ	2775792
RSS	14231
%MEM	0.02
kB_rd/s	0.19
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	23812
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45884
RSS	3082
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24141
%usr	0.00
%system	1.41
%guest	198.58
%CPU	100.03
CPU	.
minflt/s	1.55
majflt/s	0.00
VSZ	4735572
RSS	37676
%MEM	0.06
kB_rd/s	1.42
kB_wr/s	113.32
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24025
%usr	0.00
%system	1.24
%guest	198.71
%CPU	99.98
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	4805196
RSS	147422
%MEM	0.22
kB_rd/s	0.01
kB_wr/s	0.04
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	246199.182
tx_rate_mbps	Unknown
throughput_rx_mbps	2016.864
tx_rate_percent	10.281
throughput_rx_percent	10.281
frame_loss_percent	0.000
min_latency_ns	62560.000
max_latency_ns	1152080.000
avg_latency_ns	174599.500
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	23813
%usr	0.19
%system	1.18
%guest	0.00
%CPU	1.37
CPU	.
minflt/s	5.75
majflt/s	0.01
VSZ	2775792
RSS	14231
%MEM	0.02
kB_rd/s	0.19
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	23812
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45884
RSS	3082
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24141
%usr	0.00
%system	1.41
%guest	198.58
%CPU	100.03
CPU	.
minflt/s	1.55
majflt/s	0.00
VSZ	4735572
RSS	37676
%MEM	0.06
kB_rd/s	1.42
kB_wr/s	113.32
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24025
%usr	0.00
%system	1.24
%guest	198.71
%CPU	99.98
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	4805196
RSS	147422
%MEM	0.22
kB_rd/s	0.01
kB_wr/s	0.04
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	267698.183
tx_rate_mbps	Unknown
throughput_rx_mbps	3250.927
tx_rate_percent	16.469
throughput_rx_percent	16.469
frame_loss_percent	0.000
min_latency_ns	51020.000
max_latency_ns	1568360.000
avg_latency_ns	174453.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	23813
%usr	0.19
%system	1.18
%guest	0.00
%CPU	1.37
CPU	.
minflt/s	5.75
majflt/s	0.01
VSZ	2775792
RSS	14231
%MEM	0.02
kB_rd/s	0.19
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	23812
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45884
RSS	3082
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24141
%usr	0.00
%system	1.41
%guest	198.58
%CPU	100.03
CPU	.
minflt/s	1.55
majflt/s	0.00
VSZ	4735572
RSS	37676
%MEM	0.06
kB_rd/s	1.42
kB_wr/s	113.32
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	24025
%usr	0.00
%system	1.24
%guest	198.71
%CPU	99.98
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	4805196
RSS	147422
%MEM	0.22
kB_rd/s	0.01
kB_wr/s	0.04
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.13.1.el7.x86_64
- **NIC(s):**
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
 - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WTT [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- CPU cores: 72
- Memory: 65696348 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 589565c7d88f238e0dbbe5562db06a07fd529605
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: f3ea2ad27fd076735fdb78286980749bb12fe1ce
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20160303_copy.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab
 - testpmd, Version: 2.2.0, GIT tag: a38e5ec15e3fe615b94f3cc5edca5974dab325ab

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhdchd	
Statistic	Value
UID	0
PID	27189
%usr	0.21
%system	1.15
%guest	0.00
%CPU	1.36
CPU	.
minflt/s	4.69
majflt/s	0.00
VSZ	2775792
RSS	28005
%MEM	0.04
kB_rd/s	0.11
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	27188
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45872
RSS	3146
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27452
%usr	0.00
%system	0.32
%guest	199.78
%CPU	99.99
CPU	.
minflt/s	0.96
majflt/s	0.00
VSZ	4803152
RSS	41771
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	6.39
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27411
%usr	0.00
%system	0.05
%guest	199.98
%CPU	99.99
CPU	.
minflt/s	1.00
majflt/s	0.00
VSZ	4814924
RSS	127071
%MEM	0.19
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	27189
%usr	0.21
%system	1.15
%guest	0.00
%CPU	1.36
CPU	.
minflt/s	4.69
majflt/s	0.00
VSZ	2775792
RSS	28005
%MEM	0.04
kB_rd/s	0.11
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	27188
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.01
majflt/s	0.00
VSZ	45872
RSS	3146
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27452
%usr	0.00
%system	0.32
%guest	199.78
%CPU	99.99
CPU	.
minflt/s	0.96
majflt/s	0.00
VSZ	4803152
RSS	41771
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	6.39
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27411
%usr	0.00
%system	0.05
%guest	199.98
%CPU	99.99
CPU	.
minflt/s	1.00
majflt/s	0.00
VSZ	4814924
RSS	127071
%MEM	0.19
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswhdchd	
Statistic	Value
UID	0
PID	27189
%usr	0.21
%system	1.15
%guest	0.00
%CPU	1.36
CPU	•
minflt/s	4.69
majflt/s	0.00
VSZ	2775792
RSS	28005
%MEM	0.04
kB_rd/s	0.11
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	27188
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.01
majflt/s	0.00
VSZ	45872
RSS	3146
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27452
%usr	0.00
%system	0.32
%guest	199.78
%CPU	99.99
CPU	.
minflt/s	0.96
majflt/s	0.00
VSZ	4803152
RSS	41771
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	6.39
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27411
%usr	0.00
%system	0.05
%guest	199.98
%CPU	99.99
CPU	.
minflt/s	1.00
majflt/s	0.00
VSZ	4814924
RSS	127071
%MEM	0.19
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	27189
%usr	0.21
%system	1.15
%guest	0.00
%CPU	1.36
CPU	•
minflt/s	4.69
majflt/s	0.00
VSZ	2775792
RSS	28005
%MEM	0.04
kB_rd/s	0.11
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	27188
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.01
majflt/s	0.00
VSZ	45872
RSS	3146
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27452
%usr	0.00
%system	0.32
%guest	199.78
%CPU	99.99
CPU	.
minflt/s	0.96
majflt/s	0.00
VSZ	4803152
RSS	41771
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	6.39
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27411
%usr	0.00
%system	0.05
%guest	199.98
%CPU	99.99
CPU	.
minflt/s	1.00
majflt/s	0.00
VSZ	4814924
RSS	127071
%MEM	0.19
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

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

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	27189
%usr	0.21
%system	1.15
%guest	0.00
%CPU	1.36
CPU	•
minflt/s	4.69
majflt/s	0.00
VSZ	2775792
RSS	28005
%MEM	0.04
kB_rd/s	0.11
kB_wr/s	0.01
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	27188
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.01
majflt/s	0.00
VSZ	45872
RSS	3146
%MEM	0.00
kB_rd/s	0.14
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27452
%usr	0.00
%system	0.32
%guest	199.78
%CPU	99.99
CPU	.
minflt/s	0.96
majflt/s	0.00
VSZ	4803152
RSS	41771
%MEM	0.06
kB_rd/s	0.11
kB_wr/s	6.39
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	27411
%usr	0.00
%system	0.05
%guest	199.98
%CPU	99.99
CPU	.
minflt/s	1.00
majflt/s	0.00
VSZ	4814924
RSS	127071
%MEM	0.19
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

4.3 Rationale for decisions

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

4.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-05-12_03-12-18/vswitchperf_logs_2016-05-12_03-12-18.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