



**CHARACTERIZE VSWITCH
PERFORMANCE FOR TELCO NFV USE
CASES LEVEL TEST REPORT**

Release draft (18ff286)

OPNFV

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PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

1.1 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.

1.1.1 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.

1.1.2 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.

1.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

1.2 Details of the Level Test Report

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

1.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcb1c9a67adb4c07c9

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	22626038.137
tx_rate_mbps	Unknown
throughput_rx_mbps	11584.532
tx_rate_percent	76.023
throughput_rx_percent	76.023
min_latency_ns	5200.000
max_latency_ns	267060.000
avg_latency_ns	7498.500
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	30248
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	23.63
majflt/s	0.00
VSZ	2668108
RSS	19987
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	30247
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	15716126.542
tx_rate_mbps	Unknown
throughput_rx_mbps	16093.314
tx_rate_percent	93.039
throughput_rx_percent	93.039
min_latency_ns	7960.000
max_latency_ns	287240.000
avg_latency_ns	9880.000
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	30248
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	23.63
majflt/s	0.00
VSZ	2668108
RSS	19987
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	30247
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	4699183.002
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.854
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	14560.000
max_latency_ns	58620.000
avg_latency_ns	41292.500
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	30248
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	23.63
majflt/s	0.00
VSZ	2668108
RSS	19987
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	30247
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	2394599.430
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.559
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	34560.000
max_latency_ns	80740.000
avg_latency_ns	64595.000
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	30248
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	23.63
majflt/s	0.00
VSZ	2668108
RSS	19987
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	30247
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	1625467.827
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.681
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	21860.000
max_latency_ns	59300.000
avg_latency_ns	43047.500
type	rfc2544
packet_size	1518
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	30248
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	23.63
majflt/s	0.00
VSZ	2668108
RSS	19987
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	30247
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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.

1.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9

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	14078
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	31690
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	19.01
majflt/s	0.00
VSZ	2668108
RSS	20008
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	31689
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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
b2b_frames	90727
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	31690
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	19.01
majflt/s	0.00
VSZ	2668108
RSS	20008
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	31689
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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:

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Metric	Result
b2b_frames	2349624
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	31690
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	19.01
majflt/s	0.00
VSZ	2668108
RSS	20008
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	31689
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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
b2b_frames	1197318
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	31690
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	19.01
majflt/s	0.00
VSZ	2668108
RSS	20008
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	31689
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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
b2b_frames	812743
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	31690
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	19.01
majflt/s	0.00
VSZ	2668108
RSS	20008
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	31689
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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 vspcrf and marked as unknown. They will be resolved in the next release.

1.2.3 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: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9

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	11428165.709
tx_rate_mbps	Unknown
throughput_rx_mbps	6216.922
tx_rate_percent	76.797
throughput_rx_percent	80.454
min_latency_ns	7280.000
max_latency_ns	163940.000
avg_latency_ns	8828.000
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	33181
%usr	200.04
%system	0.03
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.34
majflt/s	0.00
VSZ	2668108
RSS	18031
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	33180
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	7335453.947
tx_rate_mbps	Unknown
throughput_rx_mbps	7746.239
tx_rate_percent	86.852
throughput_rx_percent	89.199
min_latency_ns	4400.000
max_latency_ns	262600.000
avg_latency_ns	5193.000
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	33181
%usr	200.04
%system	0.03
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	16.34
majflt/s	0.00
VSZ	2668108
RSS	18031
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	33180
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331452.494
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.236
tx_rate_percent	99.227
throughput_rx_percent	99.973
min_latency_ns	5860.000
max_latency_ns	123160.000
avg_latency_ns	9390.000
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	33181
%usr	200.04
%system	0.03
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	16.34
majflt/s	0.00
VSZ	2668108
RSS	18031
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	33180
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47232
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.530
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.593
tx_rate_percent	99.227
throughput_rx_percent	99.607
min_latency_ns	5920.000
max_latency_ns	26660.000
avg_latency_ns	6520.000
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	33181
%usr	200.04
%system	0.03
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	16.34
majflt/s	0.00
VSZ	2668108
RSS	18031
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	33180
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.258
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.436
tx_rate_percent	99.227
throughput_rx_percent	99.485
min_latency_ns	6380.000
max_latency_ns	126740.000
avg_latency_ns	7087.000
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	33181
%usr	200.04
%system	0.03
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	16.34
majflt/s	0.00
VSZ	2668108
RSS	18031
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	33180
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
RSS	3344
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

1.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9

Below are test details:

- Test ID: phy2phy_scalability
- Description: LTD.Scalability.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	19633562.252
tx_rate_mbps	Unknown
throughput_rx_mbps	10052.384
tx_rate_percent	65.969
throughput_rx_percent	65.969
min_latency_ns	4660.000
max_latency_ns	375000.000
avg_latency_ns	5470.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	35250
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	26.05
majflt/s	0.00
VSZ	2668108
RSS	20007
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	35249
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	15846779.175
tx_rate_mbps	Unknown
throughput_rx_mbps	16227.102
tx_rate_percent	93.813
throughput_rx_percent	93.813
min_latency_ns	5280.000
max_latency_ns	115160.000
avg_latency_ns	10205.500
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	35250
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	26.05
majflt/s	0.00
VSZ	2668108
RSS	20007
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	35249
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	4699166.539
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.786
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	33040.000
max_latency_ns	86180.000
avg_latency_ns	69280.500
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	35250
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	26.05
majflt/s	0.00
VSZ	2668108
RSS	20007
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	35249
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	2394604.148
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.597
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	15820.000
max_latency_ns	57700.000
avg_latency_ns	40444.500
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	35250
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	•
minflt/s	26.05
majflt/s	0.00
VSZ	2668108
RSS	20007
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	35249
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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	1625467.264
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.674
tx_rate_percent	100
throughput_rx_percent	100
min_latency_ns	16320.000
max_latency_ns	55420.000
avg_latency_ns	38543.000
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	35250
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	26.05
majflt/s	0.00
VSZ	2668108
RSS	20007
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	35249
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47232
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.

1.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9

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	1678758.750
tx_rate_mbps	Unknown
throughput_rx_mbps	859.524
tx_rate_percent	5.641
throughput_rx_percent	5.641
min_latency_ns	4060.000
max_latency_ns	371620.000
avg_latency_ns	4691.500
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	36630
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	•
minflt/s	15.51
majflt/s	0.00
VSZ	19445324
RSS	20071
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	36629
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	36717
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	3.50
majflt/s	0.00
VSZ	4741092
RSS	88865
%MEM	0.27
kB_rd/s	0.00
kB_wr/s	9.76
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
tx_rate_fps	Unknown
throughput_rx_fps	1475402.156
tx_rate_mbps	Unknown
throughput_rx_mbps	1510.812
tx_rate_percent	8.734
throughput_rx_percent	8.734
min_latency_ns	4300.000
max_latency_ns	453200.000
avg_latency_ns	4914.000
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	36630
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	15.51
majflt/s	0.00
VSZ	19445324
RSS	20071
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	36629
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	36717
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	3.50
majflt/s	0.00
VSZ	4741092
RSS	88865
%MEM	0.27
kB_rd/s	0.00
kB_wr/s	9.76
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
tx_rate_fps	Unknown
throughput_rx_fps	1246403.420
tx_rate_mbps	Unknown
throughput_rx_mbps	5105.268
tx_rate_percent	26.523
throughput_rx_percent	26.523
min_latency_ns	5180.000
max_latency_ns	531060.000
avg_latency_ns	6013.500
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	36630
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	15.51
majflt/s	0.00
VSZ	19445324
RSS	20071
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	36629
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	36717
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	3.50
majflt/s	0.00
VSZ	4741092
RSS	88865
%MEM	0.27
kB_rd/s	0.00
kB_wr/s	9.76
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
tx_rate_fps	Unknown
throughput_rx_fps	1209299.224
tx_rate_mbps	Unknown
throughput_rx_mbps	9906.579
tx_rate_percent	50.500
throughput_rx_percent	50.500
min_latency_ns	5860.000
max_latency_ns	532740.000
avg_latency_ns	7230.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	36630
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	15.51
majflt/s	0.00
VSZ	19445324
RSS	20071
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	36629
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	36717
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	3.50
majflt/s	0.00
VSZ	4741092
RSS	88865
%MEM	0.27
kB_rd/s	0.00
kB_wr/s	9.76
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
tx_rate_fps	Unknown
throughput_rx_fps	1147747.345
tx_rate_mbps	Unknown
throughput_rx_mbps	13938.244
tx_rate_percent	70.609
throughput_rx_percent	70.609
min_latency_ns	6580.000
max_latency_ns	569860.000
avg_latency_ns	8902.000
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	36630
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	15.51
majflt/s	0.00
VSZ	19445324
RSS	20071
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	36629
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	36717
%usr	0.00
%system	0.04
%guest	199.92
%CPU	100.58
CPU	.
minflt/s	3.50
majflt/s	0.00
VSZ	4741092
RSS	88865
%MEM	0.27
kB_rd/s	0.00
kB_wr/s	9.76
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.

1.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9

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	8174
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	38842
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.82
majflt/s	0.00
VSZ	19445324
RSS	22089
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	38841
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	38937
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.86
CPU	•
minflt/s	3.11
majflt/s	0.00
VSZ	4800687
RSS	150045
%MEM	0.46
kB_rd/s	0.00
kB_wr/s	16.71
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	7216
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	38842
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.82
majflt/s	0.00
VSZ	19445324
RSS	22089
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	38841
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	38937
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.86
CPU	•
minflt/s	3.11
majflt/s	0.00
VSZ	4800687
RSS	150045
%MEM	0.46
kB_rd/s	0.00
kB_wr/s	16.71
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	2349624
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	38842
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.82
majflt/s	0.00
VSZ	19445324
RSS	22089
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	38841
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	38937
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.86
CPU	•
minflt/s	3.11
majflt/s	0.00
VSZ	4800687
RSS	150045
%MEM	0.46
kB_rd/s	0.00
kB_wr/s	16.71
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	1197318
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	38842
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.82
majflt/s	0.00
VSZ	19445324
RSS	22089
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	38841
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	38937
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.86
CPU	•
minflt/s	3.11
majflt/s	0.00
VSZ	4800687
RSS	150045
%MEM	0.46
kB_rd/s	0.00
kB_wr/s	16.71
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	812743
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	38842
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	11.82
majflt/s	0.00
VSZ	19445324
RSS	22089
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	38841
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47336
RSS	3360
%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	38937
%usr	0.00
%system	0.05
%guest	199.96
%CPU	100.86
CPU	.
minflt/s	3.11
majflt/s	0.00
VSZ	4800687
RSS	150045
%MEM	0.46
kB_rd/s	0.00
kB_wr/s	16.71
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.

1.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9

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	1448569.097
tx_rate_mbps	Unknown
throughput_rx_mbps	741.667
tx_rate_percent	4.867
throughput_rx_percent	4.867
min_latency_ns	7020.000
max_latency_ns	305320.000
avg_latency_ns	14321.000
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	40448
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	•
minflt/s	13.20
majflt/s	0.00
VSZ	36222540
RSS	23381
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	40447
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40581
%usr	0.00
%system	0.03
%guest	199.91
%CPU	100.45
CPU	.
minflt/s	1.96
majflt/s	0.00
VSZ	4729832
RSS	40666
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	42.36
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40556
%usr	0.00
%system	0.01
%guest	200.02
%CPU	100.06
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4705256
RSS	111689
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	4.92
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	952808.817
tx_rate_mbps	Unknown
throughput_rx_mbps	975.676
tx_rate_percent	5.641
throughput_rx_percent	5.641
min_latency_ns	6200.000
max_latency_ns	345360.000
avg_latency_ns	10181.500
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	40448
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	13.20
majflt/s	0.00
VSZ	36222540
RSS	23381
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	40447
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40581
%usr	0.00
%system	0.03
%guest	199.91
%CPU	100.45
CPU	.
minflt/s	1.96
majflt/s	0.00
VSZ	4729832
RSS	40666
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	42.36
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40556
%usr	0.00
%system	0.01
%guest	200.02
%CPU	100.06
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4705256
RSS	111689
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	4.92
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	1210055.697
tx_rate_mbps	Unknown
throughput_rx_mbps	4956.388
tx_rate_percent	25.750
throughput_rx_percent	25.750
min_latency_ns	10940.000
max_latency_ns	316320.000
avg_latency_ns	26039.000
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	40448
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	13.20
majflt/s	0.00
VSZ	36222540
RSS	23381
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	40447
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40581
%usr	0.00
%system	0.03
%guest	199.91
%CPU	100.45
CPU	•
minflt/s	1.96
majflt/s	0.00
VSZ	4729832
RSS	40666
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	42.36
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40556
%usr	0.00
%system	0.01
%guest	200.02
%CPU	100.06
CPU	•
minflt/s	0.65
majflt/s	0.00
VSZ	4705256
RSS	111689
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	4.92
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	1061123.222
tx_rate_mbps	Unknown
throughput_rx_mbps	8692.721
tx_rate_percent	44.313
throughput_rx_percent	44.313
min_latency_ns	11520.000
max_latency_ns	277640.000
avg_latency_ns	19130.500
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	40448
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	13.20
majflt/s	0.00
VSZ	36222540
RSS	23381
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	40447
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40581
%usr	0.00
%system	0.03
%guest	199.91
%CPU	100.45
CPU	.
minflt/s	1.96
majflt/s	0.00
VSZ	4729832
RSS	40666
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	42.36
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40556
%usr	0.00
%system	0.01
%guest	200.02
%CPU	100.06
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4705256
RSS	111689
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	4.92
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	1047169.797
tx_rate_mbps	Unknown
throughput_rx_mbps	12716.830
tx_rate_percent	64.422
throughput_rx_percent	64.422
min_latency_ns	14140.000
max_latency_ns	282580.000
avg_latency_ns	20736.000
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	40448
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.08
CPU	.
minflt/s	13.20
majflt/s	0.00
VSZ	36222540
RSS	23381
%MEM	0.07
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	40447
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40581
%usr	0.00
%system	0.03
%guest	199.91
%CPU	100.45
CPU	.
minflt/s	1.96
majflt/s	0.00
VSZ	4729832
RSS	40666
%MEM	0.12
kB_rd/s	0.00
kB_wr/s	42.36
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	40556
%usr	0.00
%system	0.01
%guest	200.02
%CPU	100.06
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4705256
RSS	111689
%MEM	0.34
kB_rd/s	0.00
kB_wr/s	4.92
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.

1.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- DPDK Version: 2.1.0, GIT tag: 7173acefc7cfdffffb9b91fcba1c9a67adb4c07c9
- VNF: QemuDpdkVhostUser, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdffffb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdffffb9b91fcba1c9a67adb4c07c9

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	7720
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	42766
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	15.61
majflt/s	0.00
VSZ	36222540
RSS	20131
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	42765
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42890
%usr	0.00
%system	0.06
%guest	200.02
%CPU	100.51
CPU	•
minflt/s	1.71
majflt/s	0.00
VSZ	4662756
RSS	42896
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	26.47
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42865
%usr	0.00
%system	0.02
%guest	200.05
%CPU	100.05
CPU	•
minflt/s	1.07
majflt/s	0.00
VSZ	4752868
RSS	127597
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	0.13
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	5670
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	42766
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	15.61
majflt/s	0.00
VSZ	36222540
RSS	20131
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	42765
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42890
%usr	0.00
%system	0.06
%guest	200.02
%CPU	100.51
CPU	•
minflt/s	1.71
majflt/s	0.00
VSZ	4662756
RSS	42896
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	26.47
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42865
%usr	0.00
%system	0.02
%guest	200.05
%CPU	100.05
CPU	•
minflt/s	1.07
majflt/s	0.00
VSZ	4752868
RSS	127597
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	0.13
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	3728
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	42766
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	15.61
majflt/s	0.00
VSZ	36222540
RSS	20131
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	42765
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42890
%usr	0.00
%system	0.06
%guest	200.02
%CPU	100.51
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4662756
RSS	42896
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	26.47
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42865
%usr	0.00
%system	0.02
%guest	200.05
%CPU	100.05
CPU	.
minflt/s	1.07
majflt/s	0.00
VSZ	4752868
RSS	127597
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	0.13
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	4677
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	42766
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	15.61
majflt/s	0.00
VSZ	36222540
RSS	20131
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	42765
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42890
%usr	0.00
%system	0.06
%guest	200.02
%CPU	100.51
CPU	.
minflt/s	1.71
majflt/s	0.00
VSZ	4662756
RSS	42896
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	26.47
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42865
%usr	0.00
%system	0.02
%guest	200.05
%CPU	100.05
CPU	.
minflt/s	1.07
majflt/s	0.00
VSZ	4752868
RSS	127597
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	0.13
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	19048
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	42766
%usr	200.05
%system	0.02
%guest	0.00
%CPU	200.07
CPU	.
minflt/s	15.61
majflt/s	0.00
VSZ	36222540
RSS	20131
%MEM	0.06
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	42765
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	47332
RSS	3364
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42890
%usr	0.00
%system	0.06
%guest	200.02
%CPU	100.51
CPU	•
minflt/s	1.71
majflt/s	0.00
VSZ	4662756
RSS	42896
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	26.47
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	42865
%usr	0.00
%system	0.02
%guest	200.05
%CPU	100.05
CPU	•
minflt/s	1.07
majflt/s	0.00
VSZ	4752868
RSS	127597
%MEM	0.39
kB_rd/s	0.00
kB_wr/s	0.13
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.

1.3 Rationale for decisions

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

1.4 Conclusions and recommendations

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

1.5 General

1.5.1 Glossary

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

1.5.2 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

2.1 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.

2.1.1 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.

2.1.2 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.

2.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

2.2 Details of the Level Test Report

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

2.2.1 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c

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	1218381.323
tx_rate_mbps	Unknown
throughput_rx_mbps	623.811
tx_rate_percent	4.094
throughput_rx_percent	4.094
min_latency_ns	3920.000
max_latency_ns	3044320.000
avg_latency_ns	73983.500
type	rfc2544
packet_size	64
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	45312
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.56
CPU	•
minflt/s	2.76
majflt/s	0.00
VSZ	1300912
RSS	8861
%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	45311
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3004
%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	1344754.895
tx_rate_mbps	Unknown
throughput_rx_mbps	1377.029
tx_rate_percent	7.961
throughput_rx_percent	7.961
min_latency_ns	4240.000
max_latency_ns	4347020.000
avg_latency_ns	140626.500
type	rfc2544
packet_size	128
traffic_type	udp

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	45312
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300912
RSS	8861
%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	45311
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3004
%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	1210039.402
tx_rate_mbps	Unknown
throughput_rx_mbps	4956.321
tx_rate_percent	25.750
throughput_rx_percent	25.750
min_latency_ns	4980.000
max_latency_ns	428240.000
avg_latency_ns	69185.000
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	45312
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.56
CPU	•
minflt/s	2.76
majflt/s	0.00
VSZ	1300912
RSS	8861
%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	45311
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3004
%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	1079645.919
tx_rate_mbps	Unknown
throughput_rx_mbps	8844.459
tx_rate_percent	45.086
throughput_rx_percent	45.086
min_latency_ns	6320.000
max_latency_ns	1366220.000
avg_latency_ns	46371.500
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	45312
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300912
RSS	8861
%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	45311
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3004
%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	1034599.260
tx_rate_mbps	Unknown
throughput_rx_mbps	12564.173
tx_rate_percent	63.648
throughput_rx_percent	63.648
min_latency_ns	7040.000
max_latency_ns	944460.000
avg_latency_ns	42832.000
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	45312
%usr	0.18
%system	0.38
%guest	0.00
%CPU	0.56
CPU	•
minflt/s	2.76
majflt/s	0.00
VSZ	1300912
RSS	8861
%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	45311
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3004
%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.

2.2.2 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c

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	5449
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	47308
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.59
CPU	•
minflt/s	2.76
majflt/s	0.00
VSZ	1300908
RSS	8928
%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	47307
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	3350
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	47308
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300908
RSS	8928
%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	47307
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1434
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	47308
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300908
RSS	8928
%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	47307
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1169
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	47308
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300908
RSS	8928
%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	47307
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1587
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	47308
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.59
CPU	.
minflt/s	2.76
majflt/s	0.00
VSZ	1300908
RSS	8928
%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	47307
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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.

2.2.3 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: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c

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	609190.774
tx_rate_mbps	Unknown
throughput_rx_mbps	331.400
tx_rate_percent	4.094
throughput_rx_percent	4.289
min_latency_ns	3940.000
max_latency_ns	2651440.000
avg_latency_ns	41615.000
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	49441
%usr	0.20
%system	0.38
%guest	0.00
%CPU	0.58
CPU	•
minflt/s	0.46
majflt/s	0.00
VSZ	1300912
RSS	10431
%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	49440
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	607053.445
tx_rate_mbps	Unknown
throughput_rx_mbps	641.048
tx_rate_percent	7.188
throughput_rx_percent	7.382
min_latency_ns	4080.000
max_latency_ns	2447380.000
avg_latency_ns	76307.000
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	49441
%usr	0.20
%system	0.38
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	1300912
RSS	10431
%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	49440
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	550509.577
tx_rate_mbps	Unknown
throughput_rx_mbps	2272.504
tx_rate_percent	23.430
throughput_rx_percent	23.606
min_latency_ns	5500.000
max_latency_ns	2222800.000
avg_latency_ns	62353.000
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	49441
%usr	0.20
%system	0.38
%guest	0.00
%CPU	0.58
CPU	•
minflt/s	0.46
majflt/s	0.00
VSZ	1300912
RSS	10431
%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	49440
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	530562.634
tx_rate_mbps	Unknown
throughput_rx_mbps	4363.347
tx_rate_percent	44.313
throughput_rx_percent	44.482
min_latency_ns	5620.000
max_latency_ns	1650900.000
avg_latency_ns	53506.000
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	49441
%usr	0.20
%system	0.38
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.46
majflt/s	0.00
VSZ	1300912
RSS	10431
%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	49440
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	523586.009
tx_rate_mbps	Unknown
throughput_rx_mbps	6375.183
tx_rate_percent	64.422
throughput_rx_percent	64.590
min_latency_ns	6780.000
max_latency_ns	1237800.000
avg_latency_ns	48772.000
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	49441
%usr	0.20
%system	0.38
%guest	0.00
%CPU	0.58
CPU	•
minflt/s	0.46
majflt/s	0.00
VSZ	1300912
RSS	10431
%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	49440
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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.

2.2.4 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c

Below are test details:

- Test ID: phy2phy_scalability
- Description: LTD.Scalability.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	1218379.560
tx_rate_mbps	Unknown
throughput_rx_mbps	623.810
tx_rate_percent	4.094
throughput_rx_percent	4.094
min_latency_ns	3980.000
max_latency_ns	2457940.000
avg_latency_ns	48097.500
type	rfc2544
packet_size	64
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	51430
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.98
majflt/s	0.00
VSZ	1300912
RSS	9997
%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	51429
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1214108.061
tx_rate_mbps	Unknown
throughput_rx_mbps	1243.247
tx_rate_percent	7.188
throughput_rx_percent	7.188
min_latency_ns	4080.000
max_latency_ns	350300.000
avg_latency_ns	42592.000
type	rfc2544
packet_size	128
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	51430
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.98
majflt/s	0.00
VSZ	1300912
RSS	9997
%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	51429
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1210037.519
tx_rate_mbps	Unknown
throughput_rx_mbps	4956.314
tx_rate_percent	25.750
throughput_rx_percent	25.750
min_latency_ns	4960.000
max_latency_ns	385160.000
avg_latency_ns	73002.500
type	rfc2544
packet_size	512
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	51430
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.98
majflt/s	0.00
VSZ	1300912
RSS	9997
%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	51429
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	1061123.950
tx_rate_mbps	Unknown
throughput_rx_mbps	8692.727
tx_rate_percent	44.313
throughput_rx_percent	44.313
min_latency_ns	5800.000
max_latency_ns	1676120.000
avg_latency_ns	43109.000
type	rfc2544
packet_size	1024
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	51430
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.98
majflt/s	0.00
VSZ	1300912
RSS	9997
%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	51429
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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	896304.942
tx_rate_mbps	Unknown
throughput_rx_mbps	10884.727
tx_rate_percent	55.141
throughput_rx_percent	55.141
min_latency_ns	6920.000
max_latency_ns	1522800.000
avg_latency_ns	32007.500
type	rfc2544
packet_size	1518
traffic_type	udp
stream_count	8000
match_type	L4
pre-installed_flows	False

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	51430
%usr	0.20
%system	0.39
%guest	0.00
%CPU	0.58
CPU	.
minflt/s	0.98
majflt/s	0.00
VSZ	1300912
RSS	9997
%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	51429
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45760
RSS	3000
%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.

2.2.5 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdffffb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdffffb9b91fcba1c9a67adb4c07c9

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	526858.444
tx_rate_mbps	Unknown
throughput_rx_mbps	269.752
tx_rate_percent	1.773
throughput_rx_percent	1.770
min_latency_ns	15480.000
max_latency_ns	1587940.000
avg_latency_ns	444899.500
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	53501
%usr	0.19
%system	0.34
%guest	0.00
%CPU	0.54
CPU	.
minflt/s	2.36
majflt/s	0.00
VSZ	1300908
RSS	6853
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	53500
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	3212
%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	53603
%usr	0.00
%system	0.74
%guest	199.35
%CPU	100.55
CPU	.
minflt/s	4.33
majflt/s	0.00
VSZ	4805240
RSS	174078
%MEM	0.53
kB_rd/s	0.00
kB_wr/s	28.38
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	430215.136
tx_rate_mbps	Unknown
throughput_rx_mbps	440.540
tx_rate_percent	2.547
throughput_rx_percent	2.547
min_latency_ns	36020.000
max_latency_ns	381340.000
avg_latency_ns	117009.500
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	53501
%usr	0.19
%system	0.34
%guest	0.00
%CPU	0.54
CPU	.
minflt/s	2.36
majflt/s	0.00
VSZ	1300908
RSS	6853
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	53500
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	3212
%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	53603
%usr	0.00
%system	0.74
%guest	199.35
%CPU	100.55
CPU	•
minflt/s	4.33
majflt/s	0.00
VSZ	4805240
RSS	174078
%MEM	0.53
kB_rd/s	0.00
kB_wr/s	28.38
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	483140.817
tx_rate_mbps	Unknown
throughput_rx_mbps	1978.945
tx_rate_percent	10.281
throughput_rx_percent	10.281
min_latency_ns	30760.000
max_latency_ns	827980.000
avg_latency_ns	120092.500
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	53501
%usr	0.19
%system	0.34
%guest	0.00
%CPU	0.54
CPU	.
minflt/s	2.36
majflt/s	0.00
VSZ	1300908
RSS	6853
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	53500
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	3212
%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	53603
%usr	0.00
%system	0.74
%guest	199.35
%CPU	100.55
CPU	•
minflt/s	4.33
majflt/s	0.00
VSZ	4805240
RSS	174078
%MEM	0.53
kB_rd/s	0.00
kB_wr/s	28.38
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	449928.974
tx_rate_mbps	Unknown
throughput_rx_mbps	3685.818
tx_rate_percent	18.789
throughput_rx_percent	18.789
min_latency_ns	33620.000
max_latency_ns	636940.000
avg_latency_ns	125123.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	53501
%usr	0.19
%system	0.34
%guest	0.00
%CPU	0.54
CPU	.
minflt/s	2.36
majflt/s	0.00
VSZ	1300908
RSS	6853
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	53500
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	3212
%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	53603
%usr	0.00
%system	0.74
%guest	199.35
%CPU	100.55
CPU	•
minflt/s	4.33
majflt/s	0.00
VSZ	4805240
RSS	174078
%MEM	0.53
kB_rd/s	0.00
kB_wr/s	28.38
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	493995.462
tx_rate_mbps	Unknown
throughput_rx_mbps	5999.081
tx_rate_percent	30.391
throughput_rx_percent	30.391
min_latency_ns	23240.000
max_latency_ns	1090640.000
avg_latency_ns	145755.000
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	53501
%usr	0.19
%system	0.34
%guest	0.00
%CPU	0.54
CPU	.
minflt/s	2.36
majflt/s	0.00
VSZ	1300908
RSS	6853
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	53500
%usr	0.01
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45864
RSS	3212
%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	53603
%usr	0.00
%system	0.74
%guest	199.35
%CPU	100.55
CPU	.
minflt/s	4.33
majflt/s	0.00
VSZ	4805240
RSS	174078
%MEM	0.53
kB_rd/s	0.00
kB_wr/s	28.38
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.

2.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9

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
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	55679
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.78
majflt/s	0.00
VSZ	1300912
RSS	8976
%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	55678
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	55801
%usr	0.00
%system	0.04
%guest	199.72
%CPU	100.24
CPU	.
minflt/s	5.29
majflt/s	0.00
VSZ	4880488
RSS	260691
%MEM	0.80
kB_rd/s	0.00
kB_wr/s	53.70
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	257
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	55679
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.78
majflt/s	0.00
VSZ	1300912
RSS	8976
%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	55678
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	55801
%usr	0.00
%system	0.04
%guest	199.72
%CPU	100.24
CPU	.
minflt/s	5.29
majflt/s	0.00
VSZ	4880488
RSS	260691
%MEM	0.80
kB_rd/s	0.00
kB_wr/s	53.70
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	286
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	55679
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.78
majflt/s	0.00
VSZ	1300912
RSS	8976
%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	55678
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	55801
%usr	0.00
%system	0.04
%guest	199.72
%CPU	100.24
CPU	.
minflt/s	5.29
majflt/s	0.00
VSZ	4880488
RSS	260691
%MEM	0.80
kB_rd/s	0.00
kB_wr/s	53.70
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
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	55679
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.78
majflt/s	0.00
VSZ	1300912
RSS	8976
%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	55678
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	55801
%usr	0.00
%system	0.04
%guest	199.72
%CPU	100.24
CPU	.
minflt/s	5.29
majflt/s	0.00
VSZ	4880488
RSS	260691
%MEM	0.80
kB_rd/s	0.00
kB_wr/s	53.70
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	396
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	55679
%usr	0.19
%system	0.37
%guest	0.00
%CPU	0.56
CPU	.
minflt/s	2.78
majflt/s	0.00
VSZ	1300912
RSS	8976
%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	55678
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.01
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45868
RSS	3216
%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	55801
%usr	0.00
%system	0.04
%guest	199.72
%CPU	100.24
CPU	.
minflt/s	5.29
majflt/s	0.00
VSZ	4880488
RSS	260691
%MEM	0.80
kB_rd/s	0.00
kB_wr/s	53.70
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 vspcrf and marked as unknown. They will be resolved in the next release.

2.2.7 Test ID: PVVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB

- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfd9bbb9b91fcba1c9a67adb4c07c9

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	470742.176
tx_rate_mbps	Unknown
throughput_rx_mbps	241.020
tx_rate_percent	1.773
throughput_rx_percent	1.582
min_latency_ns	31380.000
max_latency_ns	3303260.000
avg_latency_ns	761177.000
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	58051
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	1300908
RSS	28184
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovssdb-server	
Statistic	Value
UID	0
PID	58050
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3000
%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	58228
%usr	0.00
%system	0.99
%guest	199.17
%CPU	100.45
CPU	.
minflt/s	2.79
majflt/s	0.00
VSZ	4685932
RSS	46034
%MEM	0.14
kB_rd/s	0.00
kB_wr/s	10.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	58205
%usr	0.00
%system	0.95
%guest	199.12
%CPU	100.06
CPU	.
minflt/s	1.07
majflt/s	0.00
VSZ	4680808
RSS	170950
%MEM	0.52
kB_rd/s	0.00
kB_wr/s	5.07
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	299567.529
tx_rate_mbps	Unknown
throughput_rx_mbps	306.757
tx_rate_percent	1.773
throughput_rx_percent	1.773
min_latency_ns	24720.000
max_latency_ns	939060.000
avg_latency_ns	70493.000
type	rfc2544
packet_size	128
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	58051
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	1300908
RSS	28184
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

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Process: ovssdb-server	
Statistic	Value
UID	0
PID	58050
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3000
%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	58228
%usr	0.00
%system	0.99
%guest	199.17
%CPU	100.45
CPU	.
minflt/s	2.79
majflt/s	0.00
VSZ	4685932
RSS	46034
%MEM	0.14
kB_rd/s	0.00
kB_wr/s	10.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	58205
%usr	0.00
%system	0.95
%guest	199.12
%CPU	100.06
CPU	.
minflt/s	1.07
majflt/s	0.00
VSZ	4680808
RSS	170950
%MEM	0.52
kB_rd/s	0.00
kB_wr/s	5.07
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	301412.484
tx_rate_mbps	Unknown
throughput_rx_mbps	1234.586
tx_rate_percent	6.414
throughput_rx_percent	6.414
min_latency_ns	30340.000
max_latency_ns	710860.000
avg_latency_ns	135169.500
type	rfc2544
packet_size	512
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	58051
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	1300908
RSS	28184
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	58050
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3000
%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	58228
%usr	0.00
%system	0.99
%guest	199.17
%CPU	100.45
CPU	•
minflt/s	2.79
majflt/s	0.00
VSZ	4685932
RSS	46034
%MEM	0.14
kB_rd/s	0.00
kB_wr/s	10.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	58205
%usr	0.00
%system	0.95
%guest	199.12
%CPU	100.06
CPU	•
minflt/s	1.07
majflt/s	0.00
VSZ	4680808
RSS	170950
%MEM	0.52
kB_rd/s	0.00
kB_wr/s	5.07
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	320288.788
tx_rate_mbps	Unknown
throughput_rx_mbps	2623.806
tx_rate_percent	13.375
throughput_rx_percent	13.375
min_latency_ns	55160.000
max_latency_ns	644920.000
avg_latency_ns	129622.000
type	rfc2544
packet_size	1024
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	58051
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	1300908
RSS	28184
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	58050
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3000
%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	58228
%usr	0.00
%system	0.99
%guest	199.17
%CPU	100.45
CPU	.
minflt/s	2.79
majflt/s	0.00
VSZ	4685932
RSS	46034
%MEM	0.14
kB_rd/s	0.00
kB_wr/s	10.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	58205
%usr	0.00
%system	0.95
%guest	199.12
%CPU	100.06
CPU	.
minflt/s	1.07
majflt/s	0.00
VSZ	4680808
RSS	170950
%MEM	0.52
kB_rd/s	0.00
kB_wr/s	5.07
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	305414.351
tx_rate_mbps	Unknown
throughput_rx_mbps	3708.952
tx_rate_percent	18.789
throughput_rx_percent	18.789
min_latency_ns	54380.000
max_latency_ns	1286620.000
avg_latency_ns	137945.500
type	rfc2544
packet_size	1518
traffic_type	udp
guest_loopback_app	testpmd testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	58051
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.11
majflt/s	0.00
VSZ	1300908
RSS	28184
%MEM	0.09
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	58050
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45872
RSS	3000
%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	58228
%usr	0.00
%system	0.99
%guest	199.17
%CPU	100.45
CPU	•
minflt/s	2.79
majflt/s	0.00
VSZ	4685932
RSS	46034
%MEM	0.14
kB_rd/s	0.00
kB_wr/s	10.90
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	58205
%usr	0.00
%system	0.95
%guest	199.12
%CPU	100.06
CPU	•
minflt/s	1.07
majflt/s	0.00
VSZ	4680808
RSS	170950
%MEM	0.52
kB_rd/s	0.00
kB_wr/s	5.07
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.

2.2.8 Test ID: PVVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-229.14.1.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 S2600JF [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
- CPU cores: 32
- Memory: 32727096 kB
- Virtual Switch Set-up: pvvp
- vswitchperf: GIT tag: 669b2d855e0224a1a334bc6489962399ef37efac
- Traffic Generator: IxNet, Version: 7.50.1009.20, GIT tag: None
- vSwitch: OvsVanilla, Version: 2.5.90, GIT tag: 32756a57d59d4f8161b9578b7df42edf51ff807c
- VNF: QemuVirtioNet, Version: 2.3.0, GIT tag: e5b3a24181ea0cebf1c5b20f44d016311b7048f0
- **VM images:**
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
 - /home/jenkins/vloop-vnf-ubuntu-14.04_20151216.qcow2
- **VM loopback apps:**
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9
 - testpmd, Version: 2.1.0, GIT tag: 7173acefc7cfdfbbb9b91fcba1c9a67adb4c07c9

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
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	60388
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	1300912
RSS	7450
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60387
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45860
RSS	3212
%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	60650
%usr	0.00
%system	0.04
%guest	200.00
%CPU	100.52
CPU	.
minflt/s	2.44
majflt/s	0.00
VSZ	4857460
RSS	41740
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	42.15
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60570
%usr	0.00
%system	0.01
%guest	200.01
%CPU	100.05
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4834408
RSS	285657
%MEM	0.87
kB_rd/s	0.00
kB_wr/s	4.73
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:

CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT, Release draft (18ff286)

Metric	Result
b2b_frames	257
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	60388
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	•
minflt/s	0.55
majflt/s	0.00
VSZ	1300912
RSS	7450
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60387
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	45860
RSS	3212
%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	60650
%usr	0.00
%system	0.04
%guest	200.00
%CPU	100.52
CPU	.
minflt/s	2.44
majflt/s	0.00
VSZ	4857460
RSS	41740
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	42.15
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60570
%usr	0.00
%system	0.01
%guest	200.01
%CPU	100.05
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4834408
RSS	285657
%MEM	0.87
kB_rd/s	0.00
kB_wr/s	4.73
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:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Metric	Result
b2b_frames	286
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	60388
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	1300912
RSS	7450
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60387
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45860
RSS	3212
%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	60650
%usr	0.00
%system	0.04
%guest	200.00
%CPU	100.52
CPU	.
minflt/s	2.44
majflt/s	0.00
VSZ	4857460
RSS	41740
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	42.15
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60570
%usr	0.00
%system	0.01
%guest	200.01
%CPU	100.05
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4834408
RSS	285657
%MEM	0.87
kB_rd/s	0.00
kB_wr/s	4.73
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	292
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	60388
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	1300912
RSS	7450
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60387
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45860
RSS	3212
%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	60650
%usr	0.00
%system	0.04
%guest	200.00
%CPU	100.52
CPU	.
minflt/s	2.44
majflt/s	0.00
VSZ	4857460
RSS	41740
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	42.15
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60570
%usr	0.00
%system	0.01
%guest	200.01
%CPU	100.05
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4834408
RSS	285657
%MEM	0.87
kB_rd/s	0.00
kB_wr/s	4.73
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:

**CHARACTERIZE VSWITCH PERFORMANCE FOR TELCO NFV USE CASES LEVEL TEST REPORT,
Release draft (18ff286)**

Metric	Result
b2b_frames	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	60388
%usr	0.09
%system	0.18
%guest	0.00
%CPU	0.27
CPU	.
minflt/s	0.55
majflt/s	0.00
VSZ	1300912
RSS	7450
%MEM	0.02
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	60387
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	.
minflt/s	0.00
majflt/s	0.00
VSZ	45860
RSS	3212
%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	60650
%usr	0.00
%system	0.04
%guest	200.00
%CPU	100.52
CPU	.
minflt/s	2.44
majflt/s	0.00
VSZ	4857460
RSS	41740
%MEM	0.13
kB_rd/s	0.00
kB_wr/s	42.15
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	60570
%usr	0.00
%system	0.01
%guest	200.01
%CPU	100.05
CPU	.
minflt/s	0.65
majflt/s	0.00
VSZ	4834408
RSS	285657
%MEM	0.87
kB_rd/s	0.00
kB_wr/s	4.73
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.

2.3 Rationale for decisions

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

2.4 Conclusions and recommendations

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

2.5 General

2.5.1 Glossary

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

2.5.2 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