VSPERF Results

Release draft (5a0c677)

OPNFV

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ONE

OPNFV BRAHMAPUTRA SCENARIOS

Available Tests and aspects of scenarios:

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

Supported deployment scenarios:

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

Loopback applications in the Guest can be:

- DPDK testpmd.
- Linux Bridge.
- l2fwd.

Supported traffic generators:

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

CHAPTER

TWO

OPNFV BRAHMAPUTRA RESULTS

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

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

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

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

CHAPTER

THREE

PERFORMANCE REPORT FOR OPEN VSWITCH WITH DPDK SUPPORT

3.1 Introduction

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

This document is currently in draft form.

3.1.1 Document identifier

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

3.1.2 Scope

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

3.1.3 References

OPNFV_vswitchperf_LTD_Brahmaputra_REVIEWED

3.2 Details of the Level Test Report

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

3.2.1 Test ID: BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	25970
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	01:04:24

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	178558
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	18.00
majflt/s	0.00
VSZ	4768460
RSS	57762
%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	178551
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	126689189
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	01:04:24

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	178558
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	18.00
majflt/s	0.00
VSZ	4768460
RSS	57762
%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	178551
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	70488721
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	01:04:24

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	178558
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	18.00
majflt/s	0.00
VSZ	4768460
RSS	57762
%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	178551
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	01:04:24

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	178558
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	18.00
majflt/s	0.00
VSZ	4768460
RSS	57762
%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	178551
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	01:04:24

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	178558
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	18.00
majflt/s	0.00
VSZ	4768460
RSS	57762
%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	178551
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.2 Test ID: PVP_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **VM images:**
  - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.qcow2
  - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.qcow2
- **VM loopback apps:**
  - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
  - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2369328.380
tx_rate_mbps	Unknown
throughput_rx_mbps	1213.096
tx_rate_percent	7.961
throughput_rx_percent	7.961
frame_loss_percent	0.000
min_latency_ns	4380.000
max_latency_ns	69060.000
avg_latency_ns	5557.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	01:10:33
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6944
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.92
majflt/s	0.00
VSZ	19452620
RSS	57848
%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	6937
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	7086
%usr	0.00
%system	0.02
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	1.20
majflt/s	0.00
VSZ	4810324
RSS	284169
%MEM	0.43
kB_rd/s	0.00
kB_wr/s	35.97
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	6439997.699
tx_rate_mbps	Unknown
throughput_rx_mbps	6594.558
tx_rate_percent	38.125
throughput_rx_percent	38.125
frame_loss_percent	0.000
min_latency_ns	22700.000
max_latency_ns	303380.000
avg_latency_ns	53809.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	01:10:33
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6944
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.92
majflt/s	0.00
VSZ	19452620
RSS	57848
%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	6937
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	7086
%usr	0.00
%system	0.02
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	1.20
majflt/s	0.00
VSZ	4810324
RSS	284169
%MEM	0.43
kB_rd/s	0.00
kB_wr/s	35.97
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	4699047.264
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.298
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	70160.000
max_latency_ns	198980.000
avg_latency_ns	187922.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	01:10:33
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6944
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.92
majflt/s	0.00
VSZ	19452620
RSS	57848
%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	6937
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	7086
%usr	0.00
%system	0.02
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	1.20
majflt/s	0.00
VSZ	4810324
RSS	284169
%MEM	0.43
kB_rd/s	0.00
kB_wr/s	35.97
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	2394593.899
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.513
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	60560.000
max_latency_ns	128080.000
avg_latency_ns	114488.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	01:10:33
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6944
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.92
majflt/s	0.00
VSZ	19452620
RSS	57848
%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	6937
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	7086
%usr	0.00
%system	0.02
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	1.20
majflt/s	0.00
VSZ	4810324
RSS	284169
%MEM	0.43
kB_rd/s	0.00
kB_wr/s	35.97
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625462.187
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.613
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	58500.000
max_latency_ns	126380.000
avg_latency_ns	106679.500
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	01:10:33
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	6944
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	14.92
majflt/s	0.00
VSZ	19452620
RSS	57848
%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	6937
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3380
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	7086
%usr	0.00
%system	0.02
%guest	200.11
%CPU	100.16
CPU	•
minflt/s	1.20
majflt/s	0.00
VSZ	4810324
RSS	284169
%MEM	0.43
kB_rd/s	0.00
kB_wr/s	35.97
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.3 Test ID: PHY2PHY_TPUT_MOD_VLAN

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	11313020.286
tx_rate_mbps	Unknown
throughput_rx_mbps	6154.283
tx_rate_percent	76.023
throughput_rx_percent	79.644
frame_loss_percent	0.000
min_latency_ns	5460.000
max_latency_ns	408160.000
avg_latency_ns	6774.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	01:09:00

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	186409
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	7.96
majflt/s	0.00
VSZ	4768460
RSS	57847
%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	186402
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	8119355.402
tx_rate_mbps	Unknown
throughput_rx_mbps	8574.039
tx_rate_percent	96.133
throughput_rx_percent	98.731
frame_loss_percent	0.000
min_latency_ns	5100.000
max_latency_ns	243260.000
avg_latency_ns	6855.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	01:09:00

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	186409
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	7.96
majflt/s	0.00
VSZ	4768460
RSS	57847
%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	186402
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2331451.903
tx_rate_mbps	Unknown
throughput_rx_mbps	9624.233
tx_rate_percent	99.227
throughput_rx_percent	99.973
frame_loss_percent	0.000
min_latency_ns	5160.000
max_latency_ns	253320.000
avg_latency_ns	21130.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	01:09:00

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	186409
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	7.96
majflt/s	0.00
VSZ	4768460
RSS	57847
%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	186402
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1188058.511
tx_rate_mbps	Unknown
throughput_rx_mbps	9770.593
tx_rate_percent	99.227
throughput_rx_percent	99.607
frame_loss_percent	0.000
min_latency_ns	5700.000
max_latency_ns	228480.000
avg_latency_ns	7905.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	01:09:00

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	186409
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	7.96
majflt/s	0.00
VSZ	4768460
RSS	57847
%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	186402
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	806458.222
tx_rate_mbps	Unknown
throughput_rx_mbps	9819.435
tx_rate_percent	99.227
throughput_rx_percent	99.485
frame_loss_percent	0.000
min_latency_ns	6160.000
max_latency_ns	241660.000
avg_latency_ns	7946.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	01:09:00

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	186409
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	7.96
majflt/s	0.00
VSZ	4768460
RSS	57847
%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	186402
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.4 Test ID: PHY2PHY_TPUT

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB
- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

- Test ID: phy2phy_tput
- 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	23086567.666
tx_rate_mbps	Unknown
throughput_rx_mbps	11820.323
tx_rate_percent	77.570
throughput_rx_percent	77.570
frame_loss_percent	0.000
min_latency_ns	4880.000
max_latency_ns	249080.000
avg_latency_ns	8092.500
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	00:53:43

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171860
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	16.31
majflt/s	0.00
VSZ	4768464
RSS	57790
%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	171853
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	16890787.089
tx_rate_mbps	Unknown
throughput_rx_mbps	17296.166
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	48840.000
max_latency_ns	347020.000
avg_latency_ns	152644.500
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	00:53:43

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171860
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	16.31
majflt/s	0.00
VSZ	4768464
RSS	57790
%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	171853
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699194.546
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.901
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	49000.000
max_latency_ns	83820.000
avg_latency_ns	72685.000
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	00:53:43

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171860
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	16.31
majflt/s	0.00
VSZ	4768464
RSS	57790
%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	171853
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394609.647
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.642
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	50160.000
max_latency_ns	83620.000
avg_latency_ns	72741.000
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	00:53:43

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171860
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	16.31
majflt/s	0.00
VSZ	4768464
RSS	57790
%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	171853
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625470.298
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.711
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	47280.000
max_latency_ns	80540.000
avg_latency_ns	68953.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	00:53:43

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	171860
%usr	200.23
%system	0.09
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	16.31
majflt/s	0.00
VSZ	4768464
RSS	57790
%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	171853
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3356
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.5 Test ID: PHY2PHY_SCALABILITY

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB

- Virtual Switch Set-up: p2p
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	22626031.719
tx_rate_mbps	Unknown
throughput_rx_mbps	11584.528
tx_rate_percent	76.023
throughput_rx_percent	76.023
frame_loss_percent	0.000
min_latency_ns	4560.000
max_latency_ns	288120.000
avg_latency_ns	8526.000
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	01:02:13
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	194890
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	15.80
majflt/s	0.00
VSZ	4768460
RSS	57800
%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	194883
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 128

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	15716128.643
tx_rate_mbps	Unknown
throughput_rx_mbps	16093.316
tx_rate_percent	93.039
throughput_rx_percent	93.039
frame_loss_percent	0.000
min_latency_ns	7480.000
max_latency_ns	332340.000
avg_latency_ns	8805.000
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	01:02:13
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	194890
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	15.80
majflt/s	0.00
VSZ	4768460
RSS	57800
%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	194883
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	4699190.269
tx_rate_mbps	Unknown
throughput_rx_mbps	19247.883
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	44720.000
max_latency_ns	81820.000
avg_latency_ns	71405.500
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	01:02:13
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	194890
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	15.80
majflt/s	0.00
VSZ	4768460
RSS	57800
%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	194883
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	2394606.143
tx_rate_mbps	Unknown
throughput_rx_mbps	19616.614
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	49360.000
max_latency_ns	87380.000
avg_latency_ns	76532.500
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	01:02:13
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	194890
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	15.80
majflt/s	0.00
VSZ	4768460
RSS	57800
%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	194883
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
tx_rate_fps	Unknown
throughput_rx_fps	1625466.923
tx_rate_mbps	Unknown
throughput_rx_mbps	19739.670
tx_rate_percent	100
throughput_rx_percent	100
frame_loss_percent	0.000
min_latency_ns	54740.000
max_latency_ns	93120.000
avg_latency_ns	82632.000
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	01:02:13
stream_count	8000
match_type	L4
pre-installed_flows	No

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	194890
%usr	200.24
%system	0.08
%guest	0.00
%CPU	200.32
CPU	•
minflt/s	15.80
majflt/s	0.00
VSZ	4768460
RSS	57800
%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	194883
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47656
RSS	3352
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.2.6 Test ID: PVP_BACK2BACK

Test Environment

Below is the environment that the test was performed in:

- OS: centos 7.2.1511 Core
- Kernel Version: 3.10.0-327.28.2.el7.x86_64
- **NIC(s):**
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
  - Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
- Board: Intel Corporation S2600WT2R [2 sockets]
- CPU: Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
- CPU cores: 88
- Memory: 65687480 kB
- Virtual Switch Set-up: pvp
- vswitchperf: GIT tag: 5a0c6772d255aeb0ab1e6246c91bbeb56bb3a239
- Traffic Generator: IxNet, Version: 8.01.1029.6, GIT tag: None
- vSwitch: OvsDpdkVhost, Version: 2.5.90, GIT tag: 81bec2c9bc5362597950058cdbf6b0165f84a92d
- DPDK Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
- VNF: QemuDpdkVhostUser, Version: 2.5.0, GIT tag: a8c40fa2d667e585382080db36ac44e216b37a1c
- **VM images:**
  - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.qcow2
  - /home/jenkins/vloop-vnf-ubuntu-14.04_20160804.qcow2
- **VM loopback apps:**
  - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd
  - testpmd, Version: 16.04.0-rc0, GIT tag: 6dc5de3a6aefba3946fe04368d93994db3f7a5fd

Below are test details:

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

Test results for packet size: 64

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	9366
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	64
traffic_type	udp
test_execution_time	01:14:16
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15676
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	10.15
majflt/s	0.00
VSZ	19452624
RSS	63983
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15643
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3384
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15817
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	•
minflt/s	0.45
majflt/s	0.00
VSZ	4788820
RSS	244579
%MEM	0.37
kB_rd/s	0.00
kB_wr/s	25.46
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	7249
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	128
traffic_type	udp
test_execution_time	01:14:16
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15676
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	10.15
majflt/s	0.00
VSZ	19452624
RSS	63983
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15643
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3384
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15817
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	•
minflt/s	0.45
majflt/s	0.00
VSZ	4788820
RSS	244579
%MEM	0.37
kB_rd/s	0.00
kB_wr/s	25.46
kB_ccwr/s	0.00

Test results for packet size: 512

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	70488721
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	512
traffic_type	udp
test_execution_time	01:14:16
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15676
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	10.15
majflt/s	0.00
VSZ	19452624
RSS	63983
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15643
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3384
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15817
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	•
minflt/s	0.45
majflt/s	0.00
VSZ	4788820
RSS	244579
%MEM	0.37
kB_rd/s	0.00
kB_wr/s	25.46
kB_ccwr/s	0.00

Test results for packet size: 1024

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	35919540
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1024
traffic_type	udp
test_execution_time	01:14:16
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15676
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	10.15
majflt/s	0.00
VSZ	19452624
RSS	63983
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15643
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3384
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15817
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	•
minflt/s	0.45
majflt/s	0.00
VSZ	4788820
RSS	244579
%MEM	0.37
kB_rd/s	0.00
kB_wr/s	25.46
kB_ccwr/s	0.00

Test results for packet size: 1518

A detailed summary of the main results is outlined below.

Results/Metrics Collected

The following are the metrics obtained during this test:

Metric	Result
b2b_frames	24382314
b2b_frame_loss_percent	0.0
type	rfc2544
packet_size	1518
traffic_type	udp
test_execution_time	01:14:16
guest_loopback_app	testpmd

Statistics collected

The following system statistics were collected during testcase execution:

Process: ovs-vswitchd	
Statistic	Value
UID	0
PID	15676
%usr	200.26
%system	0.07
%guest	0.00
%CPU	200.33
CPU	•
minflt/s	10.15
majflt/s	0.00
VSZ	19452624
RSS	63983
%MEM	0.10
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: ovsdb-server	
Statistic	Value
UID	0
PID	15643
%usr	0.00
%system	0.00
%guest	0.00
%CPU	0.00
CPU	•
minflt/s	0.00
majflt/s	0.00
VSZ	47760
RSS	3384
%MEM	0.01
kB_rd/s	0.00
kB_wr/s	0.00
kB_ccwr/s	0.00

Process: qemu-system-x86	
Statistic	Value
UID	0
PID	15817
%usr	0.00
%system	0.01
%guest	200.10
%CPU	100.16
CPU	•
minflt/s	0.45
majflt/s	0.00
VSZ	4788820
RSS	244579
%MEM	0.37
kB_rd/s	0.00
kB_wr/s	25.46
kB_ccwr/s	0.00

Anomalies

No anomalies were detected during the course of this test.

Testing Activities/Events

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

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

3.3 Rationale for decisions

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

3.4 Conclusions and recommendations

The test results are stable. The vsperf CI jobs that were used to obtain the results can be found at https://artifacts.opnfv.org/logs/vswitchperf/intel-pod3/2016-08-10_21-07-46/vswitchperf_logs_2016-08-10_21-07-46.tar.gz.

3.5 General

3.5.1 Glossary

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

3.5.2 Document change procedures and history

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