



# Open vSwitch Hardware Offloads

Red Hat Networking Services Team

Marcelo Leitner  
Lance Richardson

October 20, 2016

## Mellanox ASAP<sup>2</sup> OVS Offload Features

### OVS Features Supported by ConnectX-4 Lx HW Offloads:

- Forwarding (VF-VF, VF-PF), Drop
- VLAN Push/Pop
- VXLAN Tunnel Encap/Decap
- Per-flow Packet/Byte Counters
- SW supports 10,000 offloaded flows currently, targeting support for 64K, may support 1M in the future using HW table as a flow cache.

### OVS Features Not Supported by ConnectX-4 Lx HW Offloads:

- IPFIX/SFlow
- MPLS, Geneve, GRE, STT, LISP
- Header modification (hardware limitation)
- Conntrack, NAT (hardware limitation)
- Recirculation (hardware limitation)

## Netronome OVS Offload Features

### OVS Features Supported by Agilio HW Offloads:

- Forwarding (VF-VF, VF-PF), Drop
- Header modifications (tunnel headers, L2/L3/L4, MPLS).
- VLAN Push/Pop
- MPLS Push/Pop
- VXLAN, VXLAN-GPE, NVGRE Tunnel Encap/Decap
- Link aggregation, including LACP modes, as well as OVS group select.
- QoS Features (rate limiting per VM, prioritization)
- Conntrack (limited/preliminary)
- Per-flow Packet/Byte Counters
- SW supports 10,000 offloaded flows currently, targeting support for 64K, may support 1M in the future using HW table as a flow cache.

### OVS Features Not Supported by Agilio HW Offloads:

- IPFIX/SFlow, NAT, Recirculation
- Geneve, STT, LISP

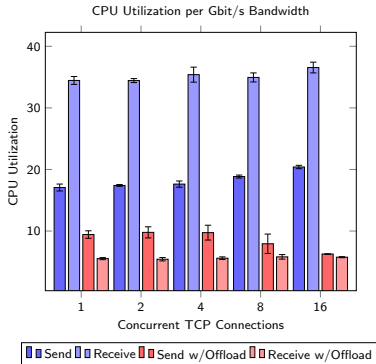
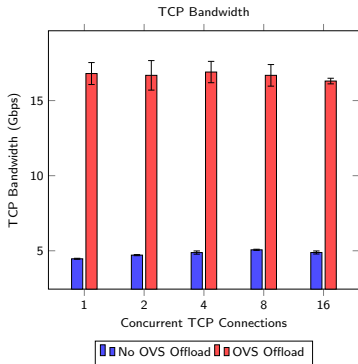
## Feature Table

Features:

Feature	Mellanox ASAP <sup>2</sup>	Mellanox TC	Netronome
Header Editing	N	N	Y
VLAN Push/Pop	Y	?	Y
MPLS Push/Pop	N	N	Y
VXLAN Encap/Decap	Y	?	Y
GENEVE Encap/Decap	N	N	N
VXLAN-GPE Encap/Decap	N	N	Y
NVGRE Encap/Decap	N	N	Y
Rate Limiting	N	N	Y
QoS Prioritization	N	N	Y
Conntrack	N	N	Y
NAT	N	N	N
Recirculation	N	N	N
IPFIX	N	N	N
SFlow	N	N	N

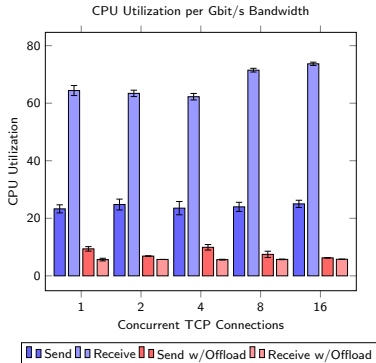
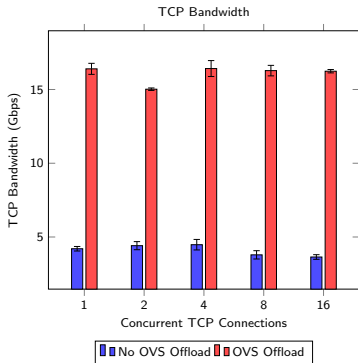
## Agilio OVS, Remote Guest VM

- Two physical servers, one guest VM per server.
- 40 Gbps Ethernet connection between servers.
- No tunneling encapsulation.



## Agilio OVS w/VXLAN, Remote Guest VM

- Two physical servers, one guest VM per server.
- 40 Gbps Ethernet connection between servers.
- VXLAN tunneling encapsulation.



## Agilio OVS, Local Guest VM

- One physical server, two guest VMs, iperf3 VM-VM.
- No tunneling encapsulation.

