DPU AND OVN ENABLE ZERO TRUST MULTI-TENANT CLOUD ON STEROIDS

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We started the OVS HW offload a long time ago at Mellanox.

Our first showing of it was at the OVS conference was in 2016.

OVS HW offload code is upstream from OVS 2.8.

Now at NVIDIA we continue improving HW capabilities like:

- GENEVE, CT& NAT, meters, DPDK support
- And fully support K8s networking offload
SDN, STORAGE AND SECURITY TRANSITION
NVIDIA BLUEFIELD-2
The World’s Most Advanced DPU

- Tile architecture running 8 x Arm® A72 CPUs
- Arm frequency: 2GHz - 2.75GHz
- Up to 32GB DDR4 @3200MT/s w/ ECC
- Running Linux OS

- ConnectX-6 Dx NIC
  - Dual 10→100Gb/s ports or single 200Gb/s
  - OVS acceleration, IPSec/TLS,, ConnTrack

- Acceleration engines: RegEx, PKA, SHA-2
- 1GbE Out-of-Band management port
- Fully integrated PCIe switch
OVN-KUBERNETES CNI OFFLOAD

Fully OVN offload and acceleration as a primary network CNI

Network policy acceleration included

Secured control plane running on the DPU Arm processors

Accelerated networking data-plane leveraging SR-IOV DPU switchdev

Untrusted worker node, Zero Trust of the Host. Direct host-DPU communication is not allowed
## ASAP²: VXLAN + CONNECTION TRACKING

Non offload vs HW Acceleration

### CONNECTX-5 vs. BlueField2

<table>
<thead>
<tr>
<th>Test</th>
<th>Non offload</th>
<th>ASAP²</th>
<th>Benefit</th>
<th>ASAP²</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXLAN + 64 Connections</td>
<td>1M PPS</td>
<td>34M PPS</td>
<td>34X</td>
<td>75M PPS</td>
<td>75X</td>
</tr>
<tr>
<td>VXLAN + 500K Connections</td>
<td>0.5M PPS</td>
<td>12M PPS</td>
<td>24X</td>
<td>25M PPS</td>
<td>50X</td>
</tr>
</tbody>
</table>

### OVS over DPDK vs. OVS Offload (ASAP²)

50-75 Times Faster While Using Zero Cores
THANK YOU