

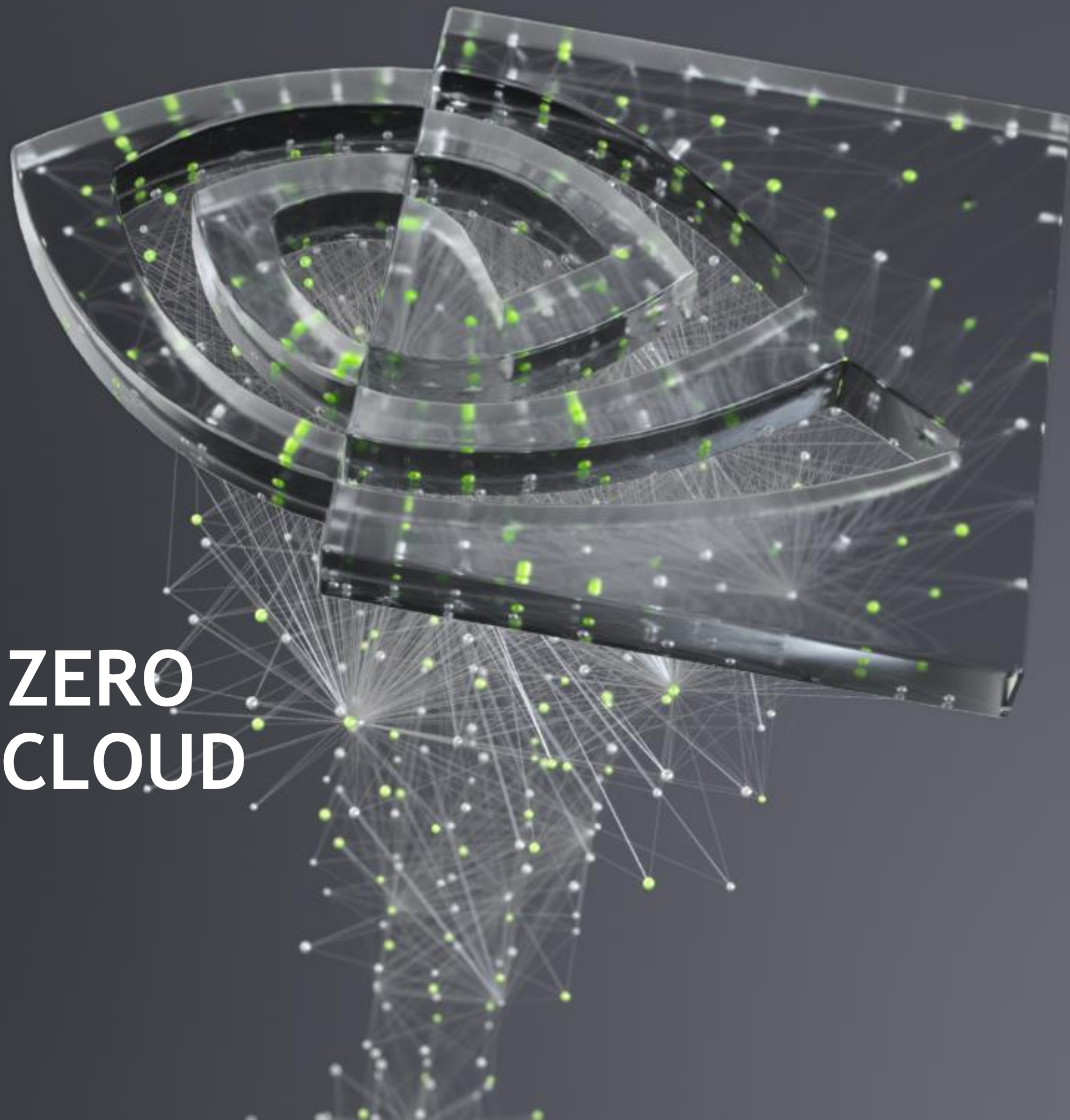


**nVIDIA**

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

Rony Efraim Principal Architect,

Dec 2021



# OUR OVS HISTORY

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

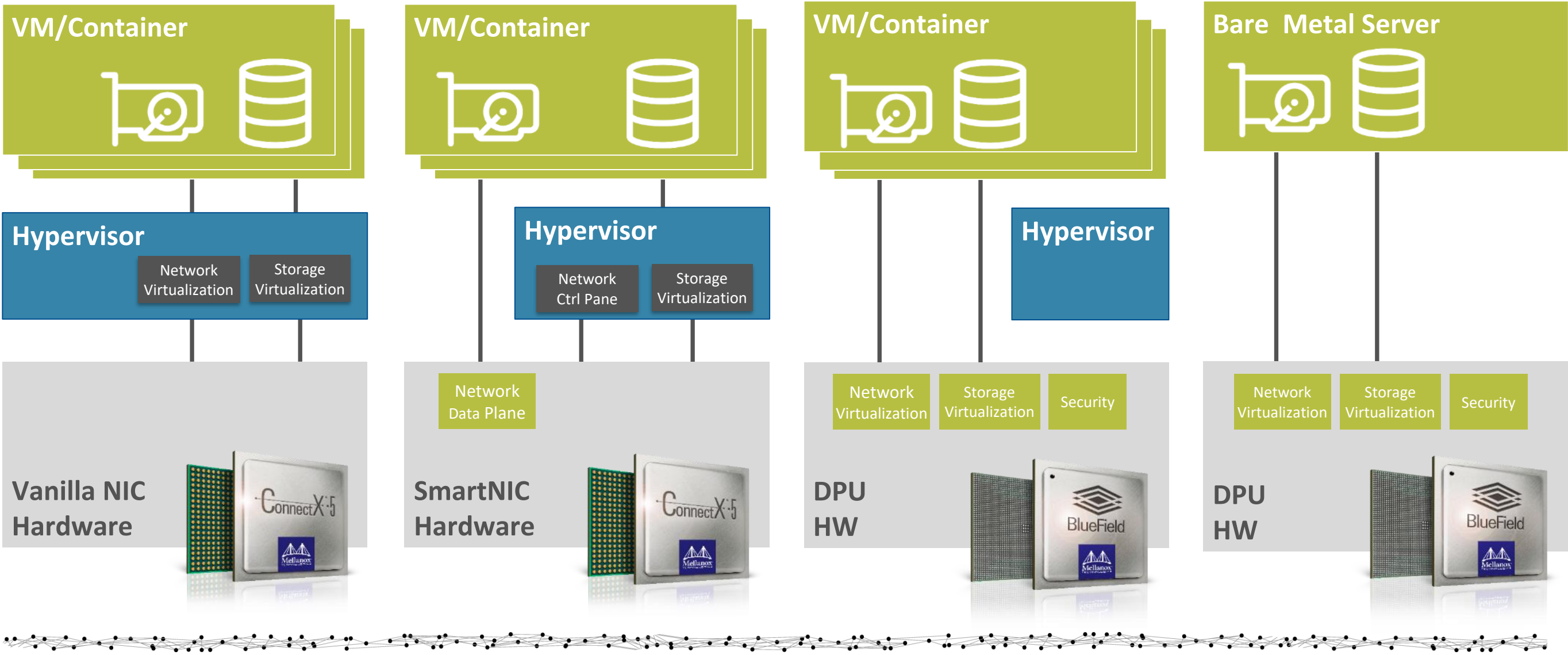
Now at NVIDIA we continue improving HW capabilities like:

GENEVE, CT& NAT, meters, DPDK support

And fully support K8s networking offload



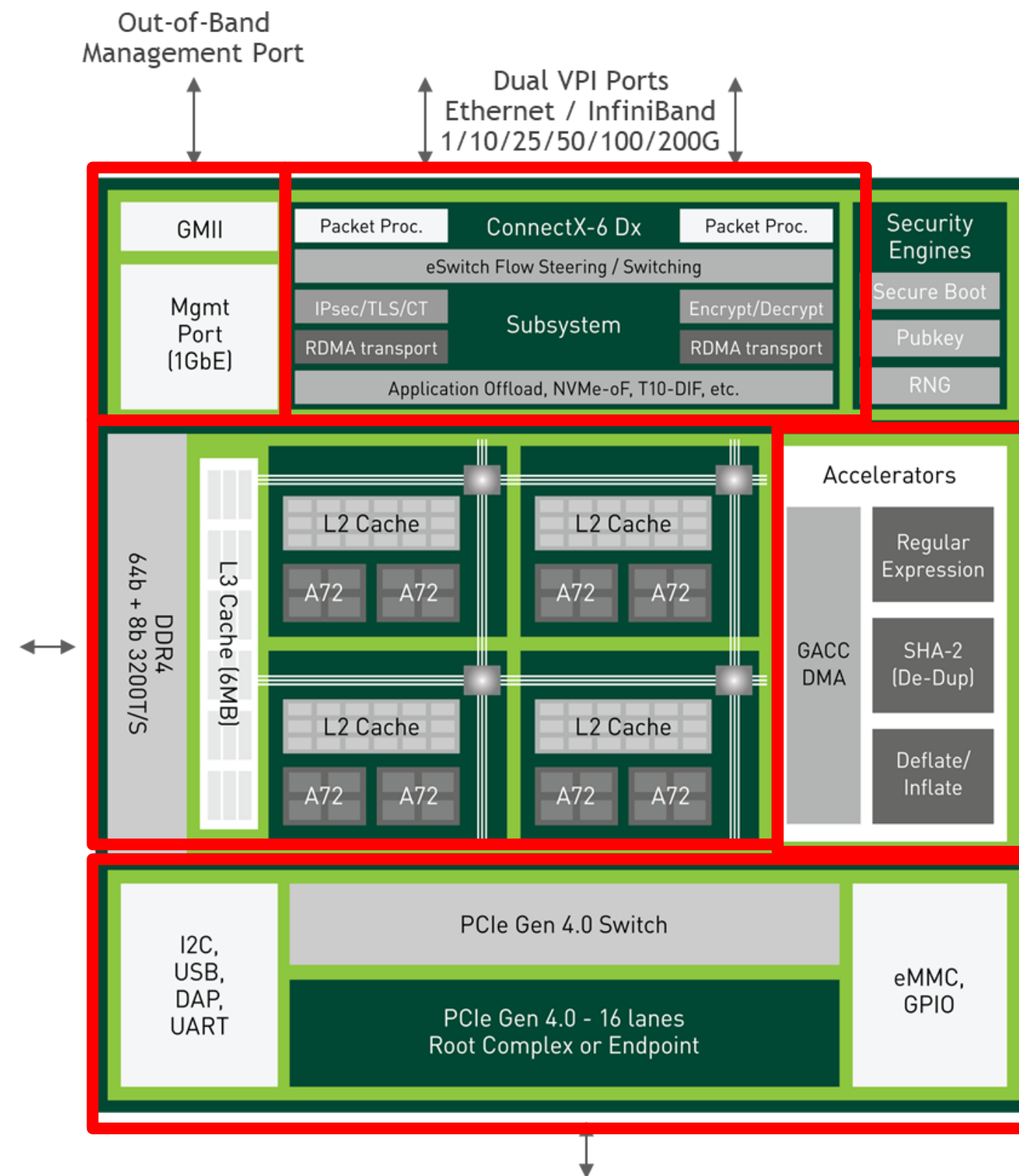
# SDN, STORAGE AND SECURITY TRANSITION



# NVIDIA BLUEFIELD-2

## The World's Most Advanced DPU

- Tile architecture running 8 x Arm<sup>®</sup> 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

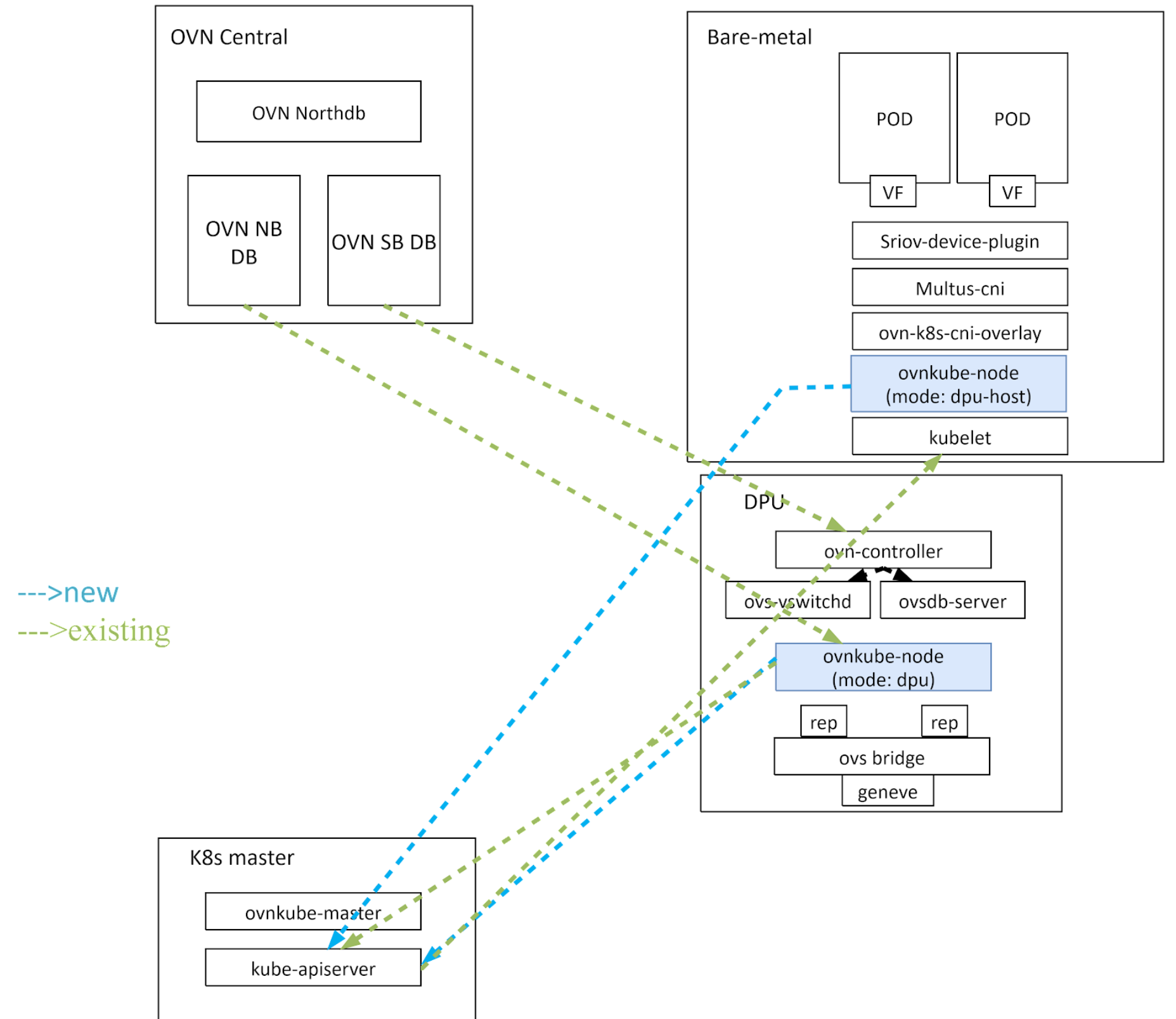
Fully OVN offload and acceleration as a primary network CNI

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

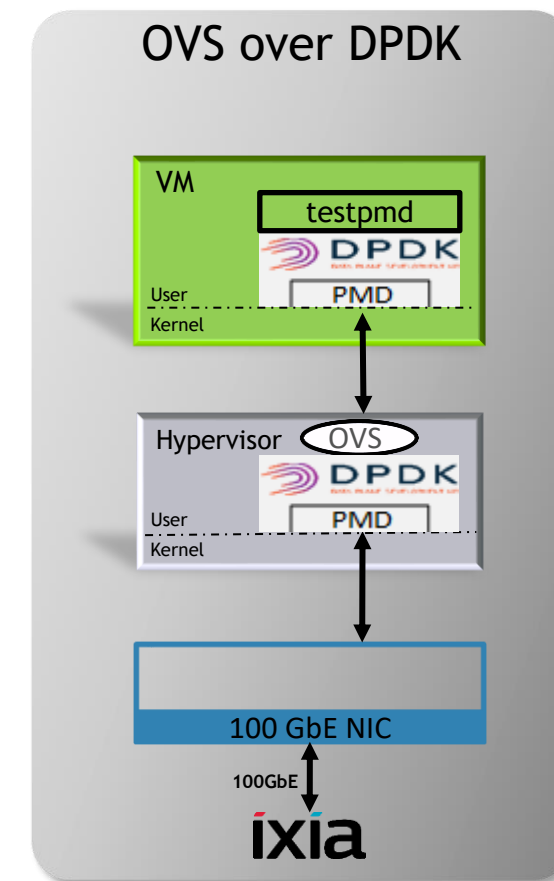
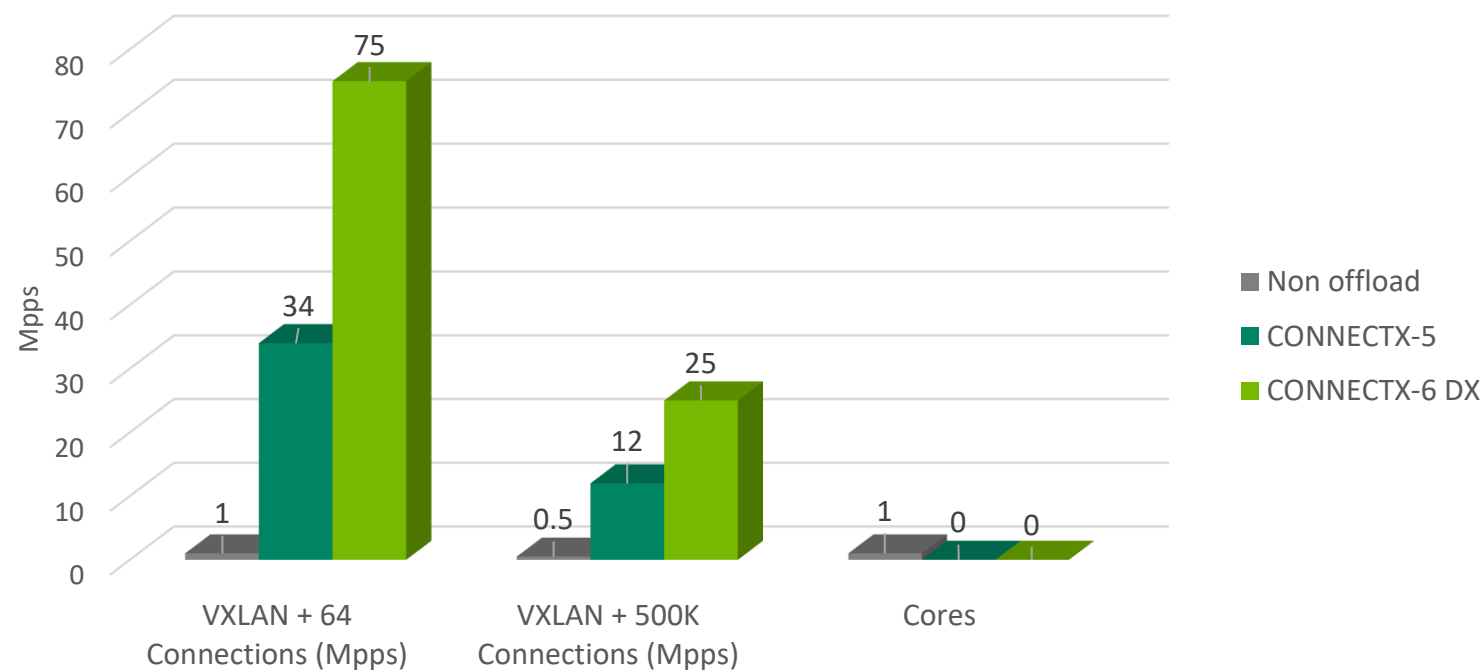


# ASAP<sup>2</sup>: VXLAN + CONNECTION TRACKING

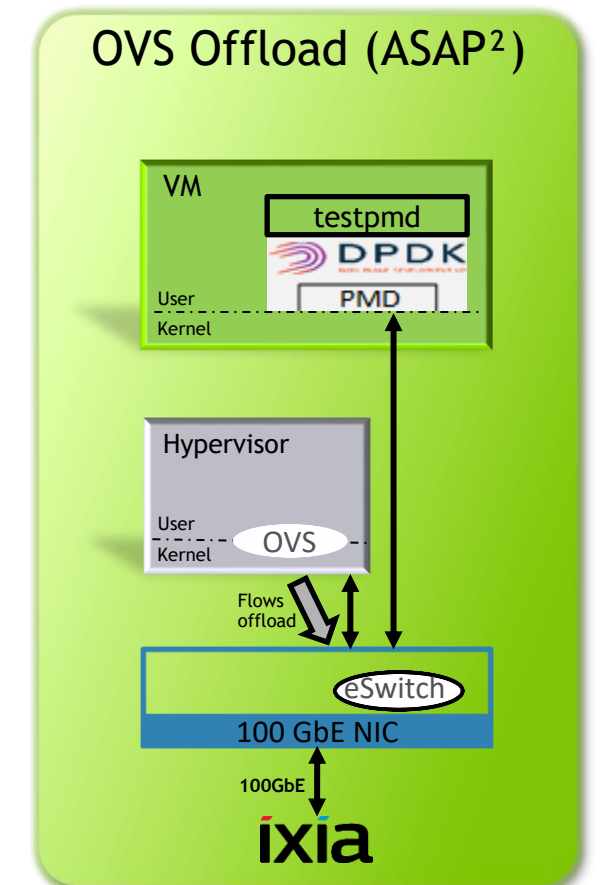
Non offload vs HW Acceleration

| Test                     | Non offload | CONNECTX-5        |         | BlueField2        |         |
|--------------------------|-------------|-------------------|---------|-------------------|---------|
|                          |             | ASAP <sup>2</sup> | Benefit | ASAP <sup>2</sup> | Benefit |
| VXLAN + 64 Connections   | 1M PPS      | 34M PPS           | 34X     | 75M PPS           | 75X     |
| VXLAN + 500K Connections | 0.5M PPS    | 12M PPS           | 24X     | 25M PPS           | 50X     |

ASAP<sup>2</sup> for Accelerated OVS (VXLAN + Connection Tracking)



VS.



50-75 Times Faster While Using Zero Cores



Q & A



**THANK YOU**

