



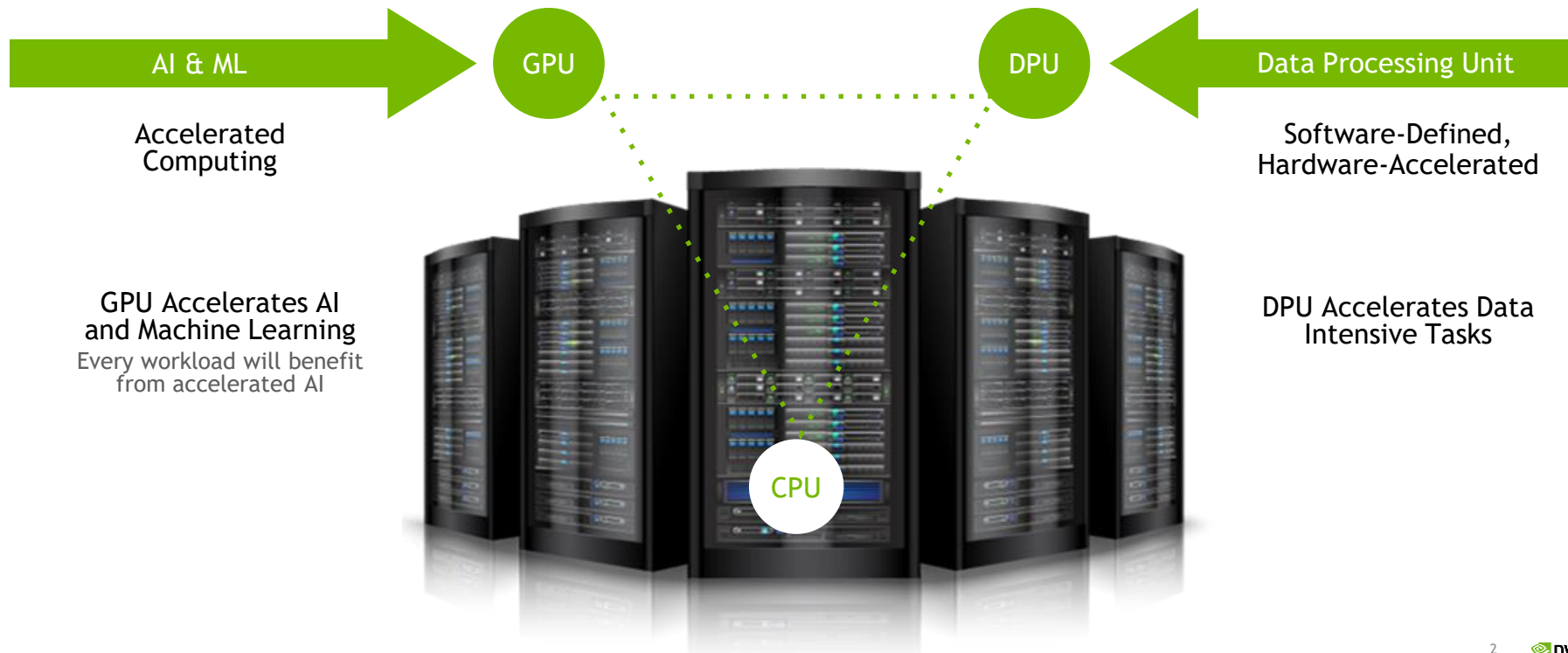
DATA PROCESSING UNIT THE THIRD PILLAR OF THE ACCELERATED DATA CENTER

SNIA SDC BoF- September 28, 2021



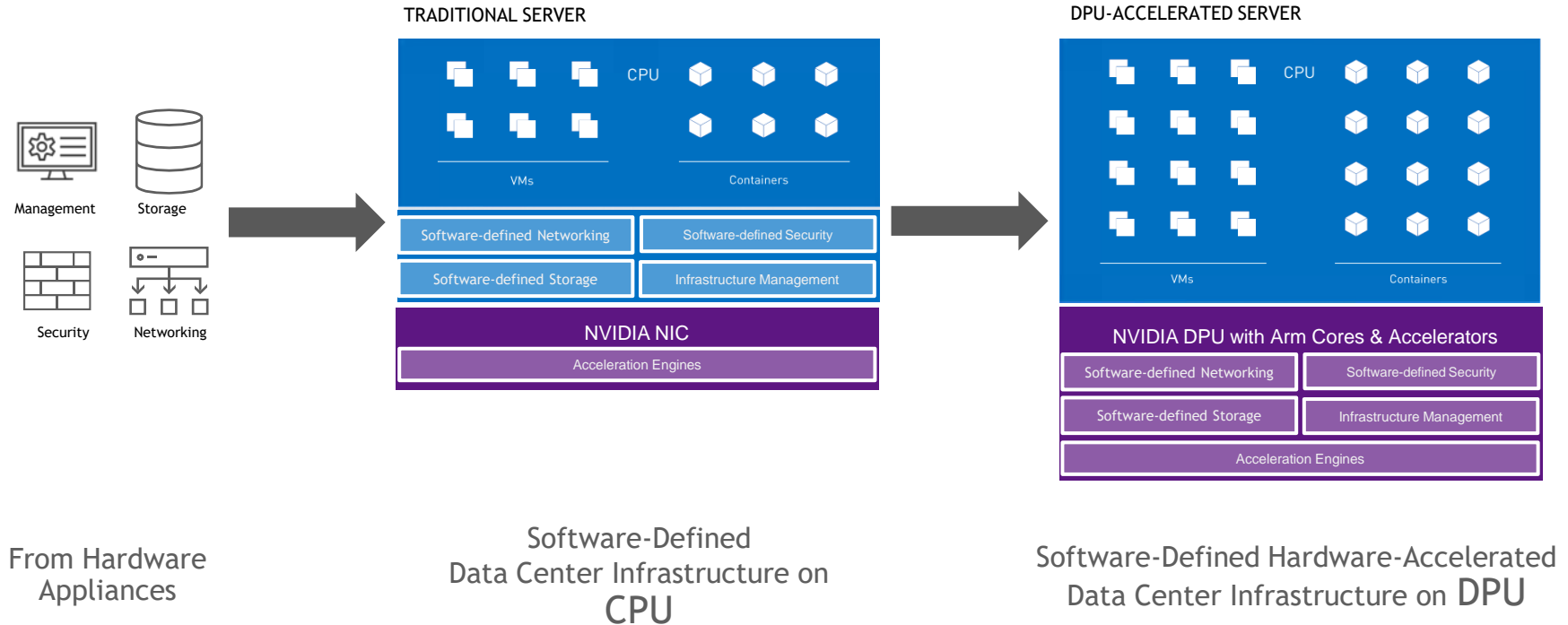
THE Third Pillar of the Data Center

The Accelerated Data Center Is the New Unit of Computing



THE DATA PROCESSING UNIT

Offload, Accelerate, Isolate



NVIDIA BLUEFIELD-3

First 400Gb/s Data Processing Unit

22 Billion Transistors

400Gb/s Ethernet & InfiniBand Connectivity (1-4 Ports)

PCIe Switch Gen 3/4/5 x32+x4

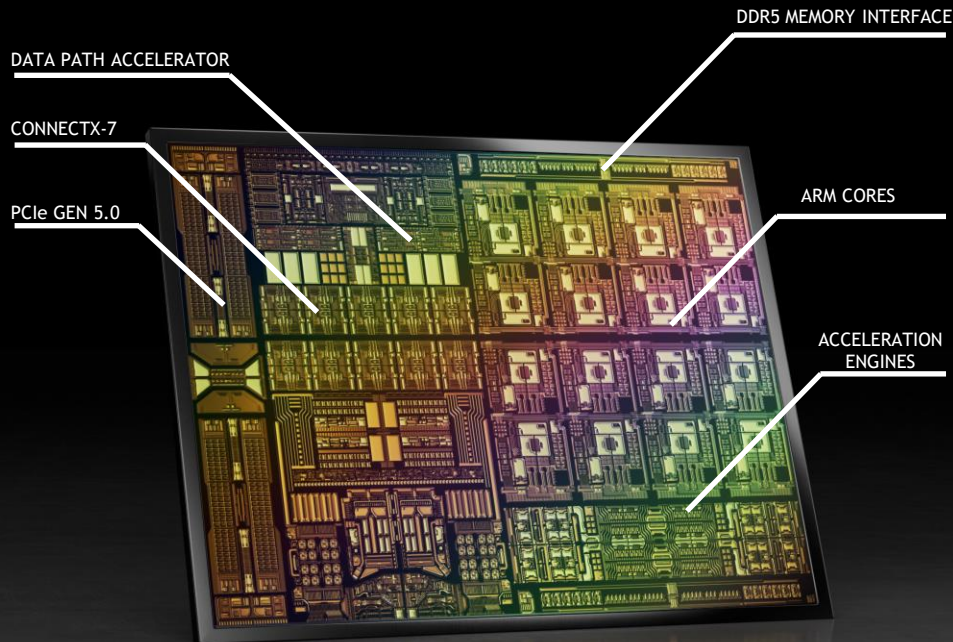
400Gb/s Crypto / Security Acceleration

18M IOP/s Elastic Block Storage

300 Equivalent x86 Cores

Arm A78 16-cores

DDR5-5600 memory controllers



INTRODUCING DOCA

Software Application Framework for BlueField DPUs

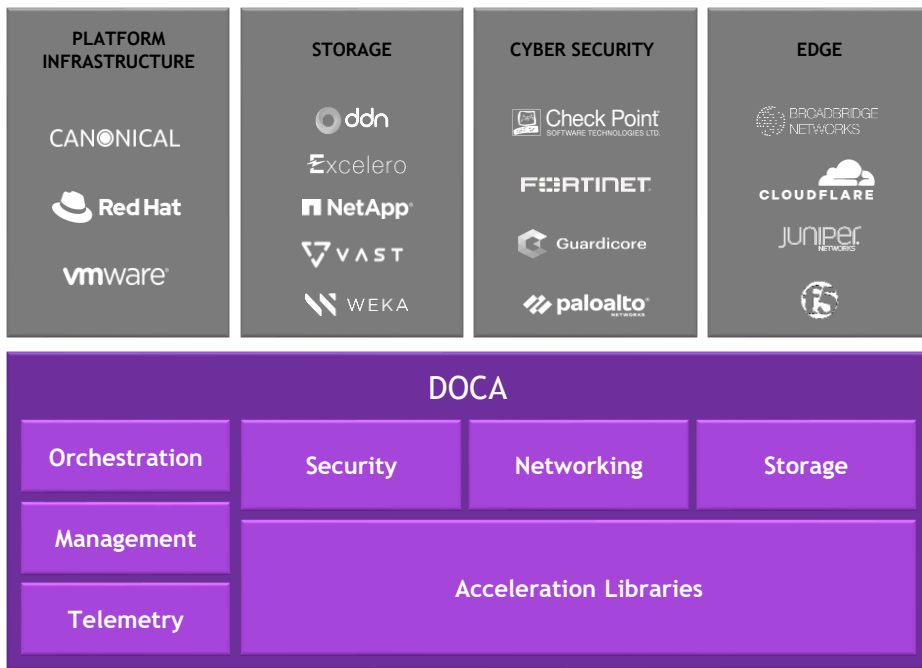
DOCA enables developers to rapidly create applications and services on top of NVIDIA DPUs

DOCA is for DPUs what CUDA is for GPUs

Certified reference applications, APIs, & partner solutions

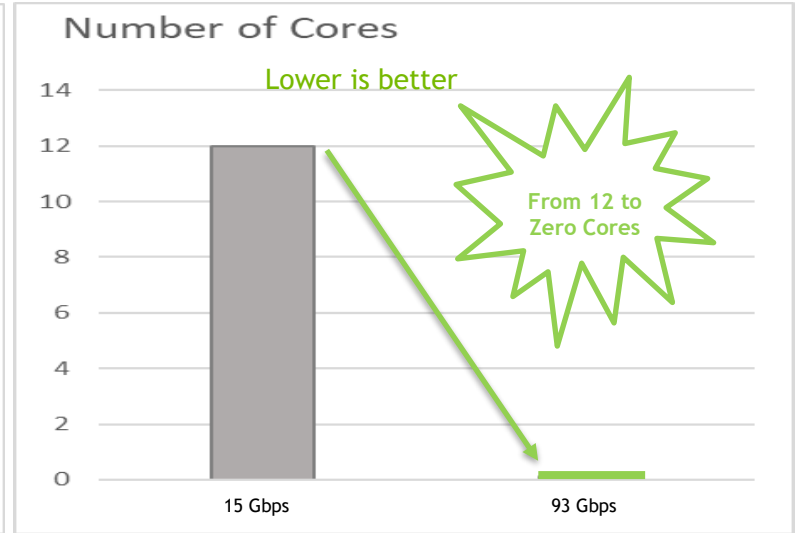
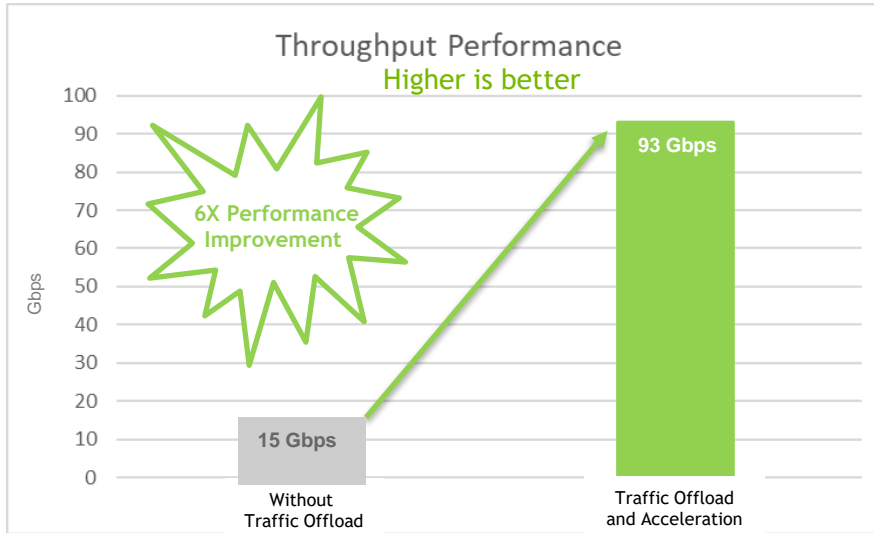
Protects developer investment for future DPUs

Rich partner ecosystem



PALO ALTO NETWORKS / BLUEFIELD INTEGRATION

NGFW ITO Accelerates Performance and Efficiency!

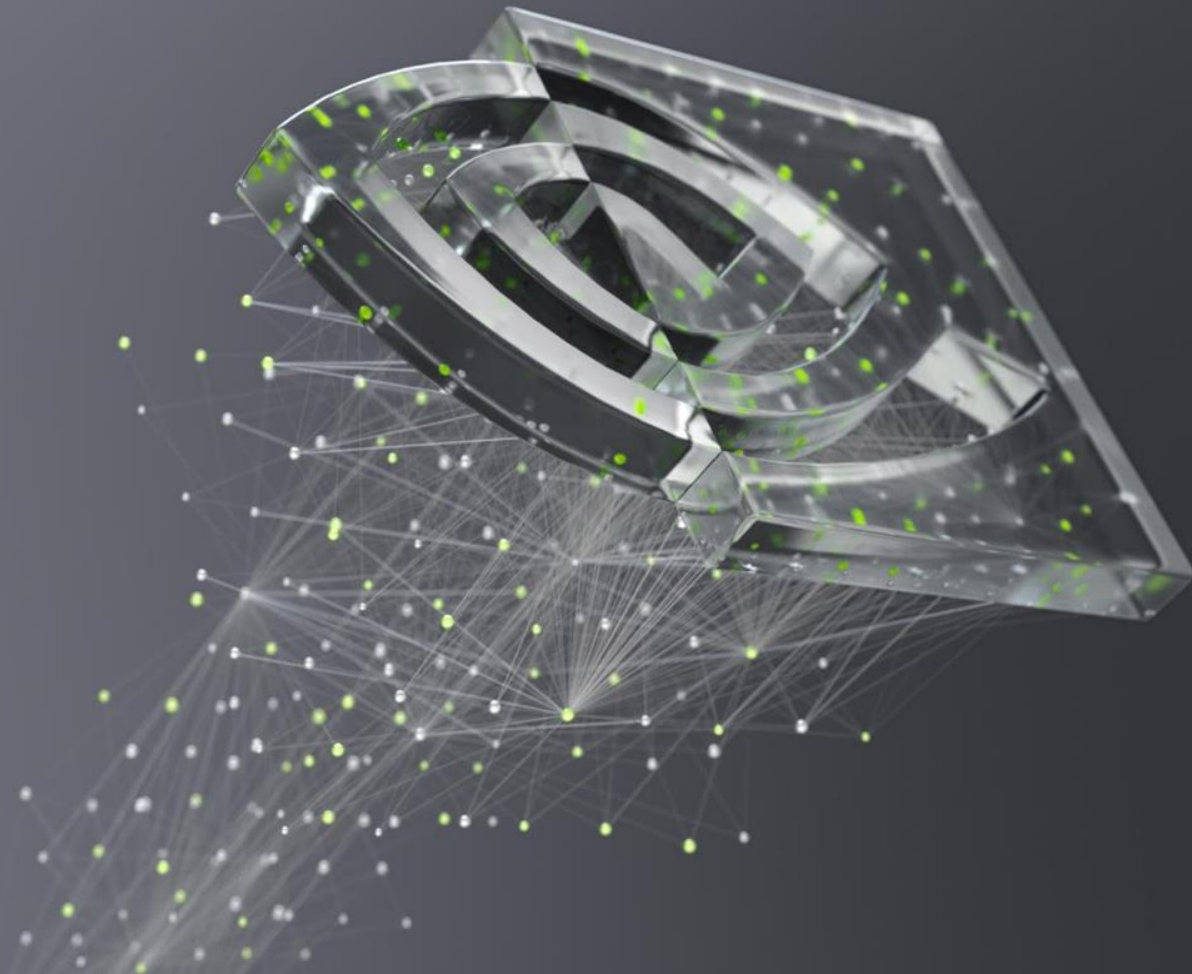


- **Near Line-rate Performance:** Protect network traffic at speeds up to 100Gb/s
- **Amazing Acceleration:** 6x throughput improvement (15G to 93G)
- **Infinite Efficiency:** Drop CPU consumption from 12 cores to zero cores
- **Substantial TCO Savings:** Up to 150% CapEx Savings compared to legacy hardware

SUMMARY

NVIDIA DPU Enables the Data Center as the New Unit of Computing

- ▶ The CPU can no longer do it all
- ▶ Must offload & isolate server infrastructure tasks by using a DPU - networking, storage, security
- ▶ Effective DPU must offer hardware acceleration and security isolation
- ▶ DPU can accelerate storage networking, NVMe-oF, storage virtualization, encryption, compression, etc.
- ▶ To be effective, a DPU must support a broad software eco-system - to simplify that, NVIDIA offers DOCA
- ▶ NVIDIA is committed to line rate performance with forward and backward compatibility between generations of BlueField DPU's



nVIDIA