SNIA Supports High-Speed Storage Interfaces Using DPUs and SmartNICs

Keynote presented at the 2023 SmartNIC Summit

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What Does SNIA Do?

- SNIA is a non-profit global organization dedicated to developing standards and education programs to advance storage and information technology.

Industry Leading Organizations

180

Active Contributing Members

2,500

IT End Users & Storage Pros Worldwide

50,000

Who is CMSI?

- Part of SNIA, the SNIA Compute, Memory, and Storage Initiative is a community of storage professionals and technical experts who support:
  - The industry drive to combine processing with memory and storage
  - The creation of new compute architectures and software to analyze and exploit the explosion of data creation over the next decade
- CMSI's four Special Interest Groups – Computational Storage, DPU, Persistent Memory, and Solid State Drives – evangelize and educate on these technologies to the industry.

www.snia.org/cmsi

SNIA DPU SIG (Special Interest Group)

Mission:

Accelerate the awareness of storage centric data processing unit (DPU) concepts and to influence industry adoption and implementation of the technical specifications and programming models when available.

Objectives:

- The DPU SIG will:
  - Communicate the DPU taxonomy and technical specifications
  - Communicate the DPU programming model and why there's a standard model
  - Educate on benefits, use models, and implementation of DPUs
  - Evangelize DPU work and recruit members to contribute to materials
  - Influence the industry to adopt programming model and uses when available
  - Coordinate marketing across industry standards groups in conjunction with SNIA Strategic Alliance Committee including the Open Programmable Interface (OPI) Project

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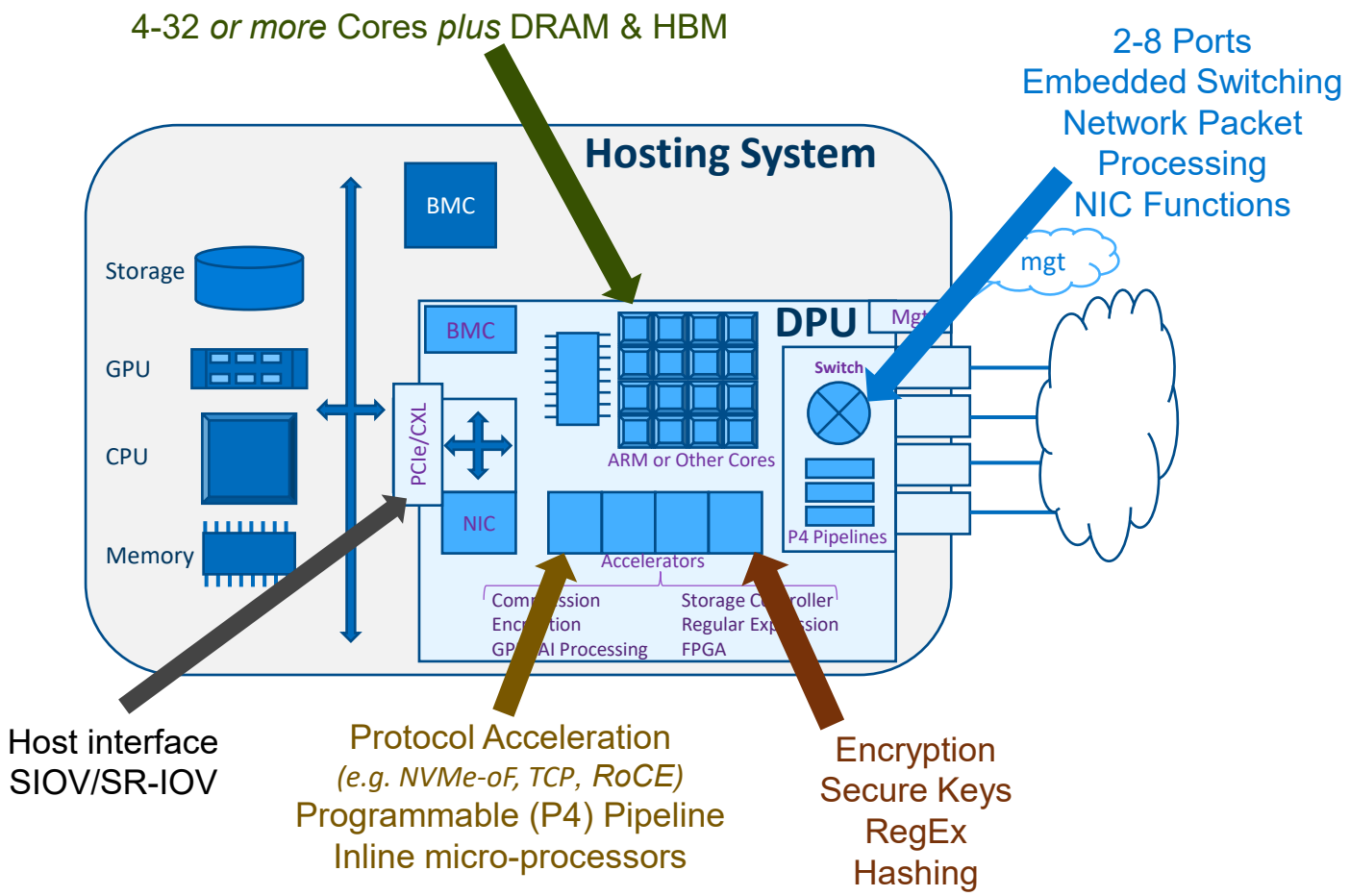
A DPU is an interesting piece of Infrastructure



- Micro-Server Optimized for:
  - **dataflow** processing
  - **packet** processing
  - **control plane** Offloading
- Runs a General Purpose OS
  - Typically, a version of **Linux**
  - Can host **applications** and **containers**
- Fits within existing Server Architecture
  - PCIe/CXL Card
  - Presents **virtual functions** to hosting system
  - Can also be independently deployed…
- Multiple Efforts to Define Common Elements
  - OPI
  - DASH-SONiC
  - DMTF

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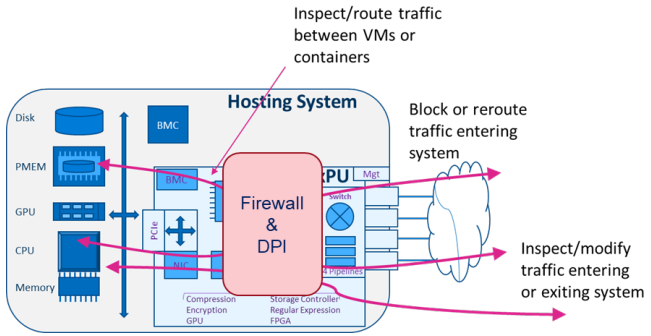
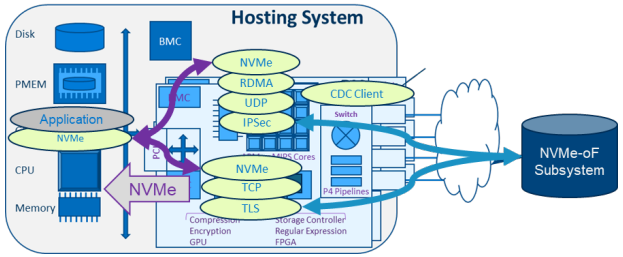
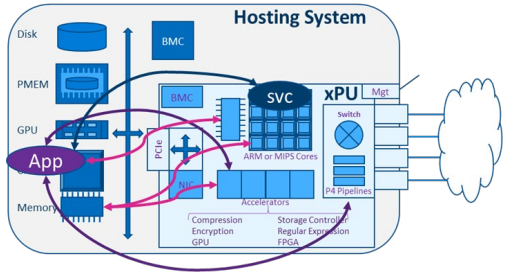
What can a DPU do? (*a **subset** of use cases*)



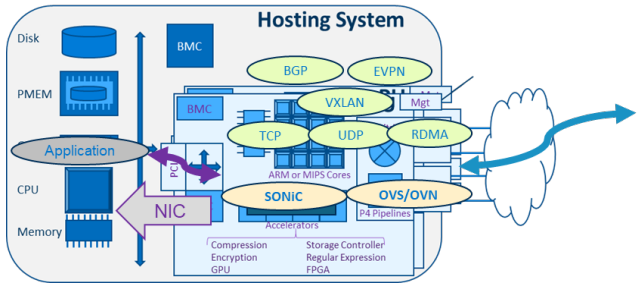
Security Isolation
Network Traffic Security
Load Balancing



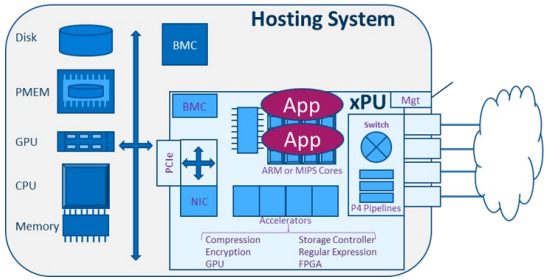
NVMe-oF acceleration with DPU offload



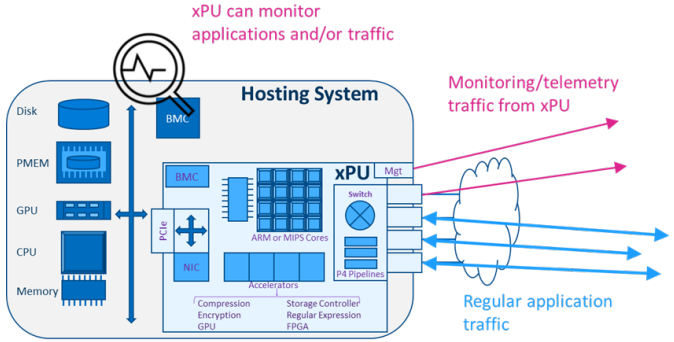
Host Application Support



Local and External Switching
Layer 3 Network Termination @ Host
Tunnels and Translations



Run Applications and Containers
Control Plane Offload



Enhanced Monitoring and Telemetry

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How does all of this fit within the SNIA universe?

SNIA has a broad Scope and Mandate

DPUs fit into these areas very nicely giving new areas of optimization

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Can I Participate?

YES!

You can!

The DPU SIG is brand new within SNIA, First Call was March 2023

You will have a large impact by joining up!

Participate!

- Learn more about the SNIA DPU SIG!

https://www.snia.org/dpu

- Not a SNIA Member? → Join SNIA and Get Involved!

https://www.snia.org/member_com/join-SNIA

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