NVMe Computational Storage: A New Hope for Accelerators and DPUs

Stephen Bates, CTO, Eideticom
NVMe is a transport

Michael Cornwell, Microsoft.
The future of storage is offload™

Sean Lundy, Eideticom.
Dare to imagine
(BN) Before NVMe

Applications

Libraries

Drivers

Hardware

Customer is sad

(AN) After NVMe

Applications

Libraries

NVMe

Hardware

Customer is happy
The Three Cs
Compatibility

• Interop between vendors
  • One software stack

Consumability

• Upstream driver support
  • FOSS libraries

Composability

• Direct attach (PCIe)
  • Fabric attach (TCP or RDMA)
  • CXL in the future?

Customer is happy
Eideticom
NoLoad Production Solutions

World’s First Computational Storage Processor

Transparent Compression  Database Acceleration  Data Analytics

NoLoad U50
NoLoad SmartSSD
NoLoad U2
Acceleration without Application Changes

Software

Userspace

Kernelspace

Hardware

NoLoad Alveo U50 + 254-U2 CSPs + NVMe SSDs

NoLoad SmartSSD CSD

Userspace

Hadoop

NoLoad FS

Filesystems (Ext4., XFS)

NVMe Driver

Software

Userspace

MariaDB

NoLoad FS

Filesystems (Ext4., XFS)

NVMe Driver

Hardware
"The Eideticom NoLoad devices have demonstrated that we can offload storage functions onto accelerators enabling line-rate compression, improving CPU utilization, and reducing memory bandwidth pressure."

Brad Settlemyer, Senior Scientist, Los Alamos National Laboratory

"Eideticom’s NoLoad provides hardware-based compression that enables increased storage capacity (lower $/TB) without sacrificing performance"

Reduced Cost  Higher Performance  Lower Power
The future of storage is NoLoad®
Thank you

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