Accelerate Everything

NVMe Computational Storage
Stephen Bates, CTO, Eideticom
Exploding Storage Demands & Increasing Storage IO Performance

Unprecedented data growth driven by IoT, 5G, AI/ML, etc
SSD IO rates dramatically increasing

Moore’s Law dramatically slowing
CPU processor core performance now forecasted to double every 20 years
NoLoad® Computational Storage Processor

Eideticom’s NoLoad®
Purpose built for acceleration of storage and compute-intensive workloads

1) NoLoad Software Stack
• End-to-end computational storage solution providing transparent computational offload
• Complete Software and IP core stack

2) NoLoad NVMe Front End
• NVMe compliant, standards-based interface
• High performance interface tuned for computation

3) NoLoad Computational Accelerators
• Storage Accelerators: Compression, Encryption, Erasure Coding, Deduplication
• Compute Accelerators: Data Analytics, AI and ML
NoLoad® Software Stack: Transparent Computation

**libnoload: Userspace**
- Zero Operating System changes

**OR**

**NoLoad FS: Kernelspace**
- Zero Application changes
- Ties directly into existing production filesystems
- Transparent to applications with no userspace modifications
“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

Recent Press:
- LANL Eideticom PR
- The NEXT Platform Review

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

- Reduced Cost
- Higher Performance
- Lower Power
Driving the future

We are driving NVMe standardization

- **What** - Amazon Web Services (AWS) and Intel announced their intent to standardize NVMe-based computation (NVMe 4091)
- **Why** - AWS want to see an eco-system of NVMe devices that can run computation on them
- **When** - Standard in 2022. Pre-standard products now
- **Benefits**:  
  1) A roadmap for an ecosystem  
  2) Collaboration on open-source software  
  3) Multi-vendor interoperability