Opening Remarks and State of the Event

Scott Shadley
SNIA Board of Directors
VP of Marketing, NGD Systems
Welcome to our 9th annual Summit – and a 1st in several areas!
Thanks To Our Sponsors

**Underwriter**

**Platinum**

**Gold**

**Demonstration**

Tour our exhibitor virtual booths throughout the Summit. Chat with them via our Slack channels.
<table>
<thead>
<tr>
<th>Time (PST)</th>
<th>Title</th>
<th>PM-focused</th>
<th>CS-focused</th>
<th>Both</th>
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</thead>
<tbody>
<tr>
<td>9:00 a.m. – 9:30 a.m.</td>
<td>Summit Opening Remarks and State of the Union</td>
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<tr>
<td>9:30 a.m. - 10:00 a.m.</td>
<td>Future of Persistent Memory, DRAM, and SSD Form Factors Aligned with New System Architectures</td>
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<tr>
<td>10:05 a.m. - 10:35 a.m.</td>
<td>The Persistent Memory Connection - How to Attach PM in Computing Systems?</td>
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<tr>
<td>10:40 a.m. - 11:10 a.m.</td>
<td>NVMe Computational Storage: A New Hope for Accelerators and DPUs</td>
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<td>11:15 a.m. - 11:45 a.m.</td>
<td>Dynamic Trends in Non-Volatile Memory Technologies</td>
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<tr>
<td>11:45 a.m. - 12:30 p.m.</td>
<td>What Does the Future Hold for Persistent Memory? A Panel Discussion</td>
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<td>12:35 p.m. - 1:05 p.m.</td>
<td>CXL 2.0 - Architecture and Benefits for Computational Storage</td>
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<tr>
<td>1:10 p.m. – 1:40 p.m.</td>
<td>Security in Computational Storage Drives</td>
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<td>1:45 p.m. - 2:45 p.m.</td>
<td>Benefits of Computation in CSD, CSA, CSP - A Panel Discussion</td>
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<td>1:45 p.m. – 2:15 p.m.</td>
<td>The Challenges of Measuring Persistent Memory Performance</td>
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<tr>
<td>2:20 p.m. - 2:55 p.m.</td>
<td>How Computational Storage Can Become a New Standard for Cloud Architectures</td>
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<tr>
<td>2:50 p.m. – 3:00 p.m.</td>
<td>Recap of Day and Closing Remarks</td>
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<td>3:00 p.m. – 4:00 p.m.</td>
<td>Birds-of-a-Feather - Computational Storage</td>
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<td>4:00 p.m. – 5:30 p.m.</td>
<td>Networking Reception</td>
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## Summit Agenda – Thursday April 22

**Sessions Live at Listed Times – then On-Demand**

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<td>State of the Computational Storage Market – A Supplier’s View</td>
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<td>9:30 a.m. - 10:00 a.m.</td>
<td>Four Top Use Cases for Big Memory Today and Tomorrow</td>
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<td>10:05 a.m. - 10:35 a.m.</td>
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<td>Why Distributed AI Needs Computational Storage</td>
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<td>11:45 a.m. - 12:30 p.m.</td>
<td>Q&amp;A With Thursday Morning’s Presenters</td>
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<td>Beyond Zoned Named Spaces – What Do Applications Want?</td>
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<td>A New Path to Better Data Movement within System Memory, Computational Memory with SDXI</td>
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Enjoy and Socialize the Summit!

Check out the PM+CS Summit Slack Channels and network with your peers

Ask a question on Twitter – use #sniapmcs

mentioning @SNIA and @SNIACMSI
The Computational Storage Market

Scott Shadley, VP Marketing – NGD Systems
Board Member, SNIA Board of Directors
Driving from Nothing to Something

- Innovation is key to future technology development
- It cannot be done in a vacuum and requires:
  - Collaboration
  - Marketing
  - Products
- Computational Storage shares this Evolution
  - Products – Start-ups, R&D projects
  - Education – Marketing, Events, Customer Engagements
  - Collaboration – SNIA and NVMe
History – Getting the Word Out
Information Sharing is Key

• The challenge with information sharing can be the convolution of data
  • The ability to say the same thing with different words

• Computational Storage had many names – back as far as 2010
  • Scale-In
  • In-Situ Processing
  • Compute to Data
  • In-Data Processing

• A Change to the taxonomy model was needed and SNIA TWG was formed
Getting the Industry Involved

• Don’t just listen to me, Ask the Experts
  • New technology requires understanding and backing
• Gaining the attention, insights and shared knowledge is invaluable
• So many technology advancements come and go without support
  • Who remembers the Betamax?
• Working as a collaborative industry, engaging the ‘Analysts’ was a key factor in driving awareness and adoption of the technology…
• Very few times has a technology crossed the Hype Cycles
• NVMe-oF and now Computational Storage
• 2020 was the year for Gartner to drive Computational Storage
Continued Engagement – Beyond Press

• Gaining traction means gaining recognition as well

• Humble beginnings have garnered greater visibility, and traction

• More engagement, more points of view, more products come to market

Work smarter, work faster: Move the processing, not the data

MARCH 4 2019
By Tim Stammers

In the cloud world, the problem of data gravity is well known. But it also includes the performance-capping micro-gravity suffered by IO data movements between storage and server processors. Partners of computational storage are sidestepping that problem by moving the processing to the data.

IDC Innovators: Computational Storage, 2019
Jeff Janukowicz

IDC INNOVATORS IN COMPUTATIONAL STORAGE
Don’t Just Take “Our Word” For It

Computational storage terminology explained

Computational and edge storage are changing the way we manage data at the network edge. Understanding the terminology around this technology can help clarify how it works.

By Mark Peterson, Senior Storage Editor
Published: 26 May 2020

What’s up with computational storage

What is computational storage? Everything you need to know

Computational storage is rapidly evolving and creating value across the IoT, ML, edge computing and more

What's with computational storage

EMC3

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What is Going on in SNIA - NVMe?

- Definition work – Getting on the same page
- Architectural work – Providing direction
- Interface work – NVMe and more
- API work – How to program/deploy
- Security – Whole new threat modelling
Productization

What is available, what is possible
So Why is it Needed?

- IDC predicts we will churn out 175 zettabytes of data in 2025
- NVMe and PCIe Gen 3/4/5 are still just a Transport
- Moving Data has weight, Challenges
- A new way is Needed
Making a Product is ‘Easy’, Adoption???

• SATA – SAS – PCIe – NVMe - …
• Fusion-IO was a success, drove innovation from PCIe to NVMe
• It takes time, It takes collaboration, It takes ‘ease of Deployment’
What is Available Today – Graphically

- Different Ways to Look at a Product
- Implementation is Vendor Related
- Connectivity, Use – Standards
  - NVMe, SNIA, etc…
- Making it ‘Easy to Use’ is Key!!
  - API, Seamless Programming, Plug ‘n Play
Existing Solutions – Vendors Specific
Keys To Success

Driving Adoption while Driving Standards
What is the Next Step

• Making sure it is Easy to Use
  • Plug ‘n Play
  • Seamless Programming
  • Common Interface

• Making sure adoption is not cost prohibitive
  • Pricing drives adoption as much as ease of use
  • SSDs are Commodity Pricing today, need to ‘be aligned’

• Strong Roadmaps
  • For Both Vendors, Standards and Customers
  • If you Build it, they WILL NOT COME, unless you can make it the way they want it 😊
Customer Success is Key

• First Innovations don’t always win

• First Customer Introduction is key!
  • Fast Followers are Great!

• Flexibility of Designs is Mandatory
  • Vendor unique is great, Vendor collaboration is best
What Is Next?

Learn, Participate, Evangelize, Deploy
JOIN the Efforts!! SNIA and NVMe!!

Computational Storage

Today, Computational Storage is transforming enterprises worldwide. The SNIA Computational Storage Technical Work Group (TWG) is actively working on establishing hardware and software architectures to allow for compute to be more tightly coupled with storage at the system and drive level. In addition, the SNIA Compute, Memory, and Storage Initiative (CMSI) is focused on fostering the acceptance and growth of computational storage in the marketplace with the activities of the Computational Storage Special Interest Group. To achieve these goals, the CMSI provides education, performs market outreach, and influences and promotes standards.

NVMe Computational Storage Task Group

The charter of Computational Storage Task Group is to develop features associated with the concept of Computational Storage on NVMe Express devices. The scope of work encompasses how these features are discovered, configured and used inside an NVM Express framework. Examples of these features include general compute, compression, encryption, data filtering, image manipulation and database acceleration.

The target audience consists of the vendors and customers of NVMe Storage Devices that support computational features.
Join SNIA at SDC Events in 2021

To attend, or to speak or sponsor, visit:
https://www.snia.org/news-events/storage-developer-conference
Thank you

Scott Shadley, VP Marketing – NGD Systems, Computational Storage TWG Co-Chair and Board Member – SNIA
Twitter: @SMShadley, @NGDSystems

Please visit www.snia.org/pm-summit for presentations