

Welcome to the

Storage Networking Industry Association
(SNIA) Annual Members Symposium
and
Persistent Memory Summit

Welcome



Jim Pappas

SNIA Board of Directors

Director of Technology Initiatives, Data Center Group

Intel Corporation

jim@intel.com

SNIA-at-a-Glance



185
industry leading
organizations



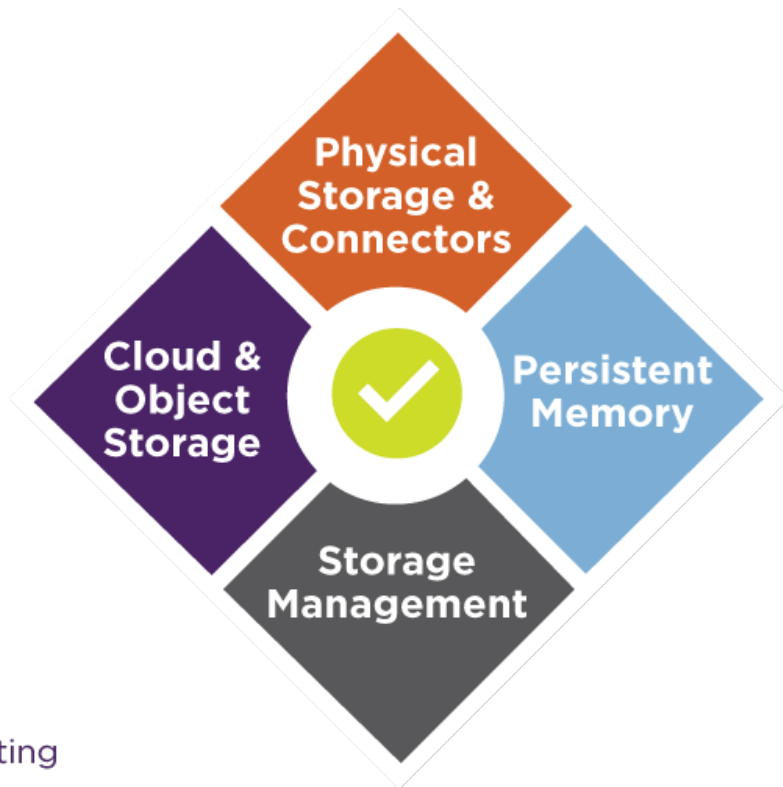
2,000
active contributing
members



50,000
IT end users & storage
pros worldwide

20+ YEARS of Standards Development

- ✓ ISO & ANSI Standards
- ✓ Storage Standards
- ✓ Best Practices & Security
- ✓ Interoperability & Conformance Testing





PERSISTENT MEMORY

PM SUMMIT

JANUARY 23, 2020 | SANTA CLARA, CA

Opening Remarks – State of the Union in Persistent Memory

Thanks To Our Sponsors

Underwriters



Platinum

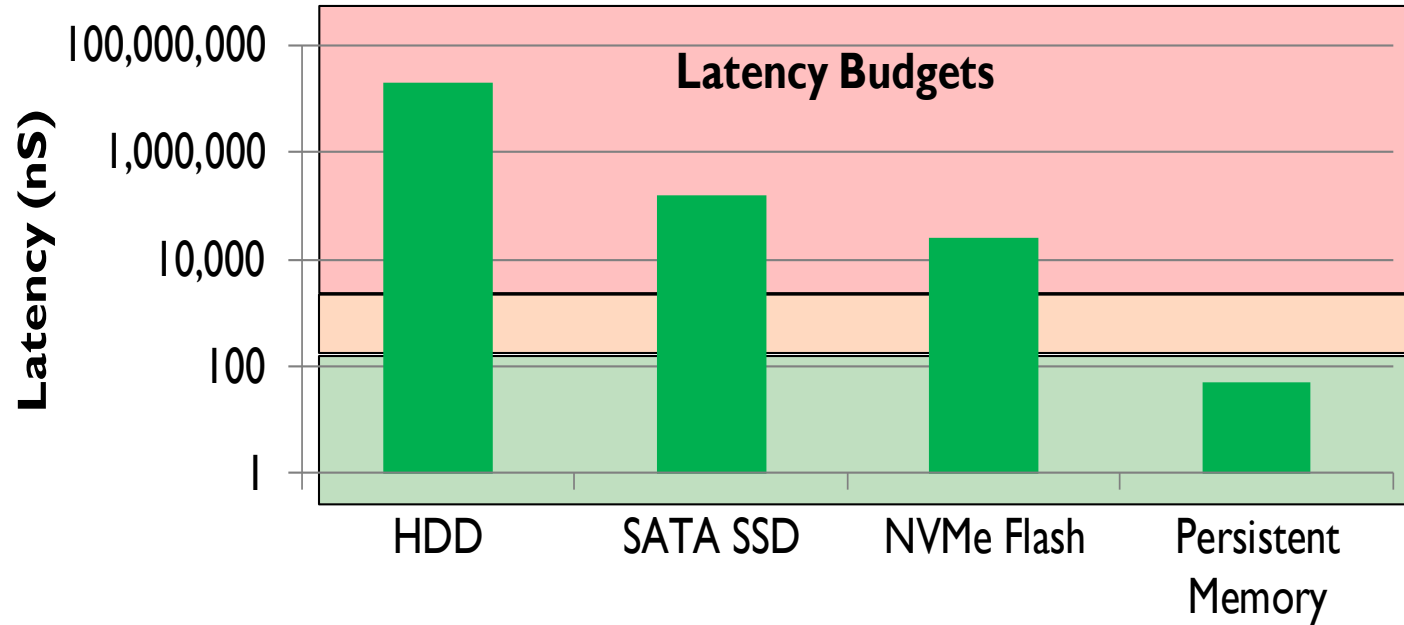


Demonstration

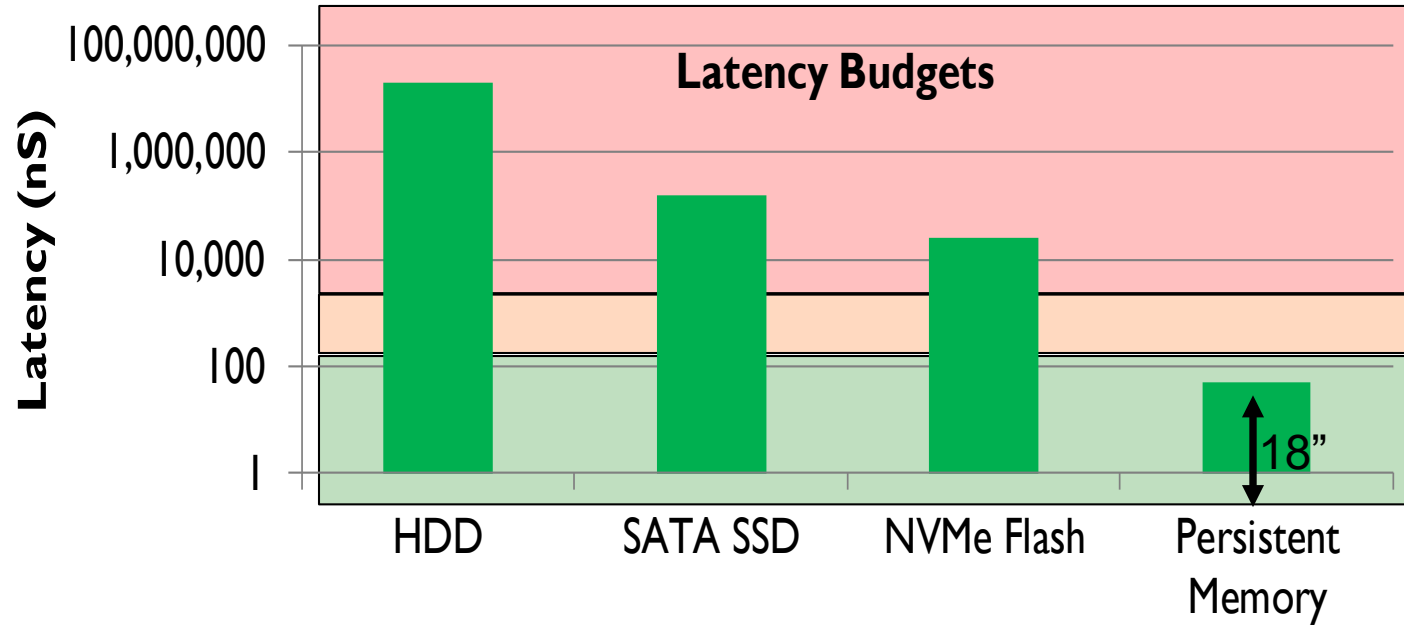


Tour
demos
throughout
the day
and at the
evening
Networking
Reception

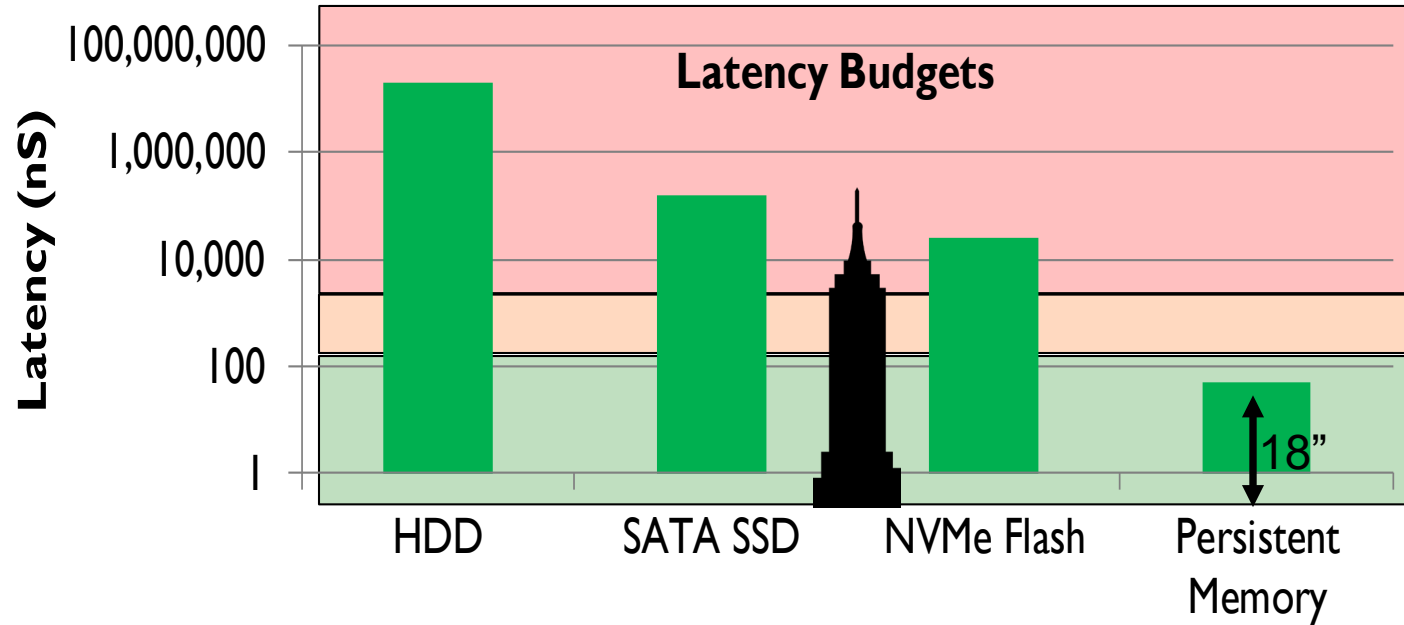
Retrospect 2016



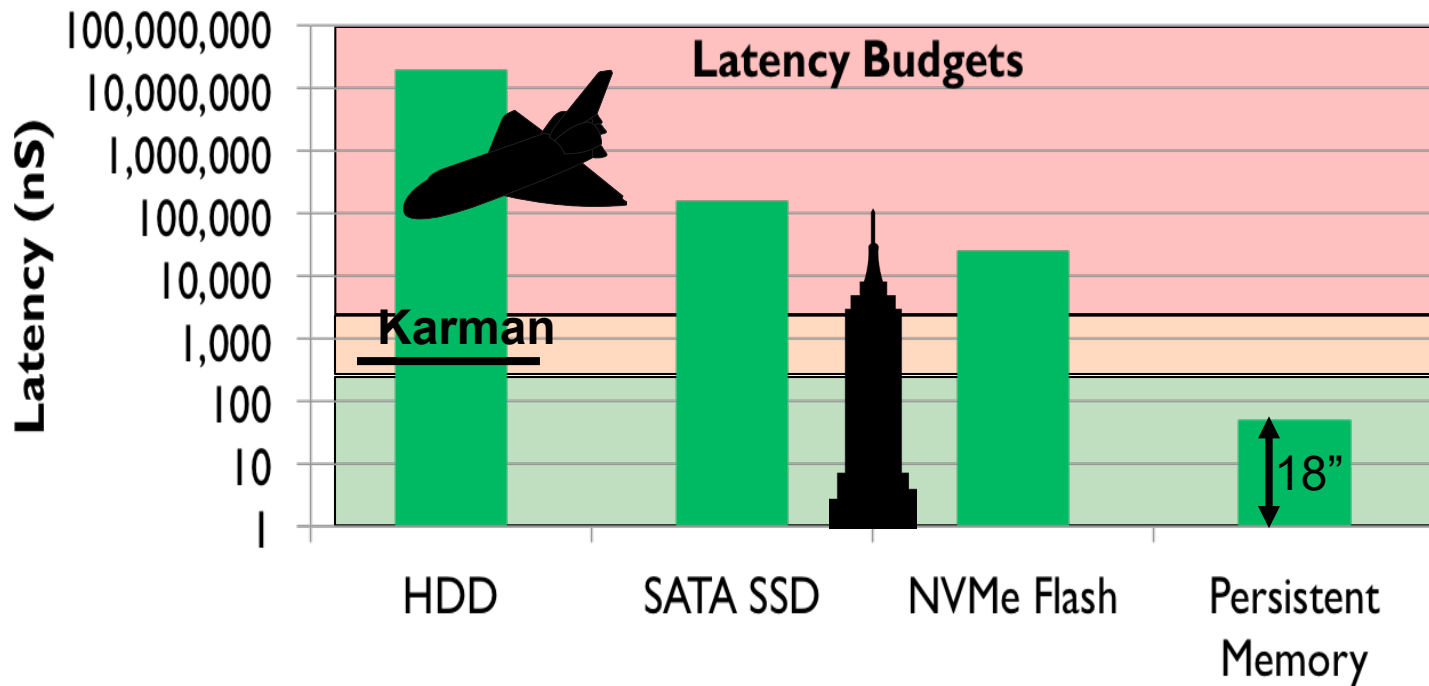
Retrospect 2016



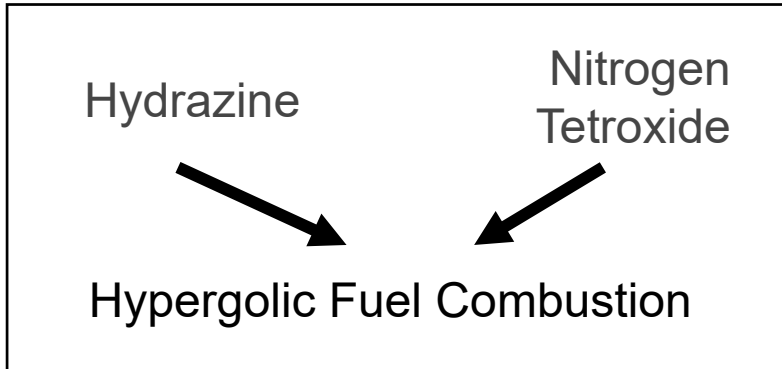
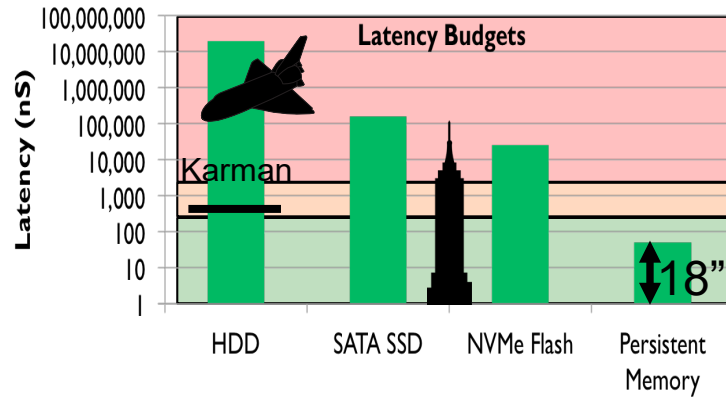
Retrospect 2016



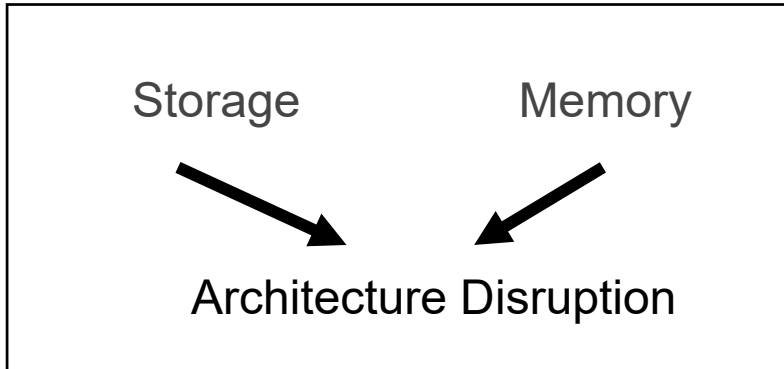
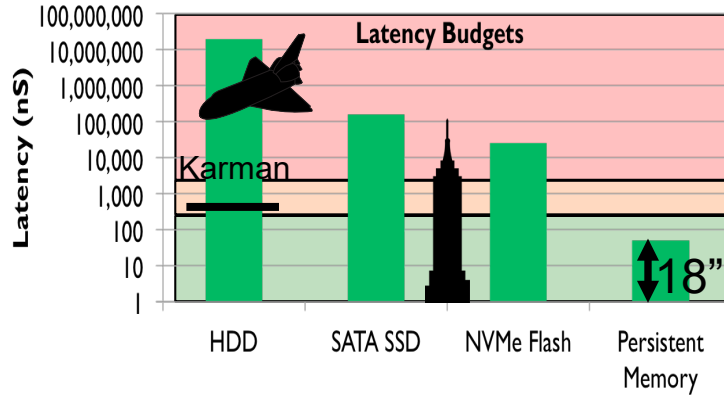
Retrospect 2016



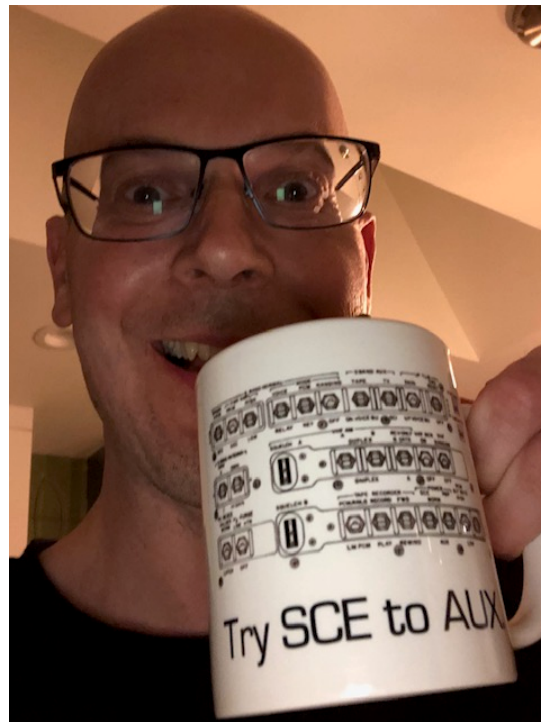
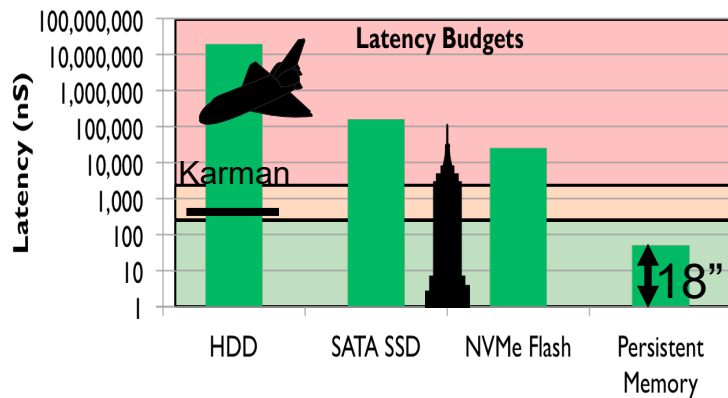
Retrospect 2017



Retrospect 2017



Retrospect 2018



Storage

Memory



Architecture Disruption

2020

?



The NASA Library / Alamy Stock Photo

2020 Assessment

We have
cleared the
tower!



The NASA Library / Alamy Stock Photo

Proof Points

1. Standards - SNIA, JEDEC, others
2. PM media – Several w/more arriving
3. OEMs/ODMs – Most!
4. Native OS support – Yes, mature
5. Hypervisors – Yes, and maturing
6. Hyperscale Cloud – Yes, and growing
7. Applications – Several... but still nascent

Under Development

- More applications
- PM development community
- New media
- New HW interfaces

PM Development Community

Goal: Create a “community” which provides PM knowledge and education to the software development ecosystem.

- Key programs to-date:
 - Persistent Memory Development Kit (PMDK)
 - Hackathons
- Hackathon progress report:
 - 8 Hackathons (4 US, 4 International)
 - 325 participants in 2019
 - NVDIMM Programming Challenge (ends April '20)

New PM Interconnects

PM needs a better interconnect to flourish

- Issues:
 - PM comes at the expense of DRAM
 - Severe limitations on Form Factor & Power
- CXL is positioned to become the new interconnect for PM
 - Open industry standard w/native support for PM
 - Public support by nearly all CPU companies



Summit Morning Agenda

8:30 am – 9:00 am	Opening Remarks and the State of the Union – Persistent Memory
9:00 am – 9:30 am	Keynote: The Evolution of Cloud-scale Storage
9:30 am – 9:35 am	<i>Symposium Attendees Leave for Sessions</i>
9:35 am – 10:00 am	The Persistent Memory Programming Model
10:00 am – 10:25 am	PM in the Wild: VMware Experience and Future Expectations
10:25 am – 10:45 am	<i>Break and Demonstrations</i>
10:45 am – 11:10 am	Persistent Memory Use Cases in Modern Software Architectures
11:10 am – 11:40 am	Memory at Storage Scale, Storage at Memory Speed
11:40 am – 12:05 pm	Evolution of the Persistent Memory Development Kit
12:15 pm – 1:15 pm	<i>Lunch, Networking, and Demonstrations</i>

Summit Afternoon Agenda

1:15 pm – 1:40 pm	The Perfect Trifecta: NVMe, CXL, and Persistent Memory!
1:40 pm – 2:05 pm	Persistent Memory: Media, Attachment, and Usage
2:05 pm – 2:30 pm	Providing Native Support for Byte-Addressable Persistent Memory in Golang
2:30 pm – 3:00 pm	Oracle's Unique Implementation of Persistent Memory for Accelerating Database Workloads
3:00 pm - 3:20 pm	<i>Coffee, Networking, and Demo Tour Break on the Mezzanine</i>
3:20 pm – 3:50 pm	Using Persistent Memory with Pelikan
3:50 pm – 4:15 pm	Introduction to PM Hackathons
4:15 pm – 4:45 pm	Using Real World Workloads and Artificial Intelligence to Optimize NVMe SSD and PM Performance
4:45 pm – 5:00 pm	Recap of Day and Closing Remarks
Until 6:30 pm	Networking Reception and Demonstrations on the Mezzanine

Enjoy and Socialize the Summit!



Live stream the
Summit at
www.snia.org

Ask a question on
Twitter – use
#sniapm



mentioning @SNIA

The Evolution of Cloud-scale Storage from iSCSI to RoCE to NVMeexpress over Ethernet to NVMeexpress over TCP/IP

Andy Bechtolsheim

Chief Development Officer and Co-Founder, Arista Networks