

Storage Networking Industry Association (SNIA)

Technical Activities Update

August 2019

T11-2019-00248-v000

➤ **SNIA Emerald™ Power Efficiency Measurement Specification v3.0.3**

- ◆ Approved as ISO/IEC 24091:2019
- ◆ Currently in the process of being published

- **NVM PM Remote Access for High Availability Technical White Paper**
 - ◆ This paper explores the requirements and desirable design characteristics that High Availability extensions to the NVM.PM.FILE mode of the SNIA NVM Programming Model might impose on high speed networking.

<http://www.snia.org/whitepapers>

➤ Swordfish EnergyStar for Storage Profile Bundle v0.9

- ◆ This Swordfish profile has been created to formalize the requirements from the ENERGY STAR Data Center Storage Version 1.1 Updated Program Requirements – April 1, 2019 on storage products. The profile indicates what properties Swordfish implementations need to support in order to properly instrument EnergyStar reporting capability. This functionality is intended to support EnergyStar data gathering requirements as part of the EnergyStar certification process..

<http://www.snia.org/publicreview>

➤ Swordfish Profile Core Bundle Working Draft version v0.9

- ◆ The Swordfish Profile Core Bundle contains the definition of the set of features and the corresponding detailed profiles required to implement Swordfish. Swordfish uses advertised Features and corresponding Profile definitions to clearly define what functionality an implementation supports, and to assure interoperability. For example, the IOPerformance Feature and corresponding profile together specify that when an implementation advertises SNIA.Swordfish.Block.IOPerformance, any instances of Volumes and StoragePools will implement a fully populate IOStatistics object.

<http://www.snia.org/publicreview>

- **Persistent Memory Performance Test Specification v1.0 rev 0.02 Preamble**
 - ◆ This document is the initial preamble that describes the plan to develop a specification that describes best practices for Persistent Memory Storage Performance Test and sets forth a performance test methodology, PM storage platform set up, test settings, synthetic benchmark workloads, real-world application workloads and test results reporting format. It is intended to provide accurate, repeatable and reliable comparison of Block IO and In-Memory byte addressable test results used in traditional and PM aware applications under various PM Storage configurations.

<http://www.snia.org/publicreview>

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- Swordfish EnergyStar for Storage Profile Bundle v0.9
- Persistent Memory (PM) PTS v1.0 rev 0.02 Preamble
- Swordfish Profile Core Bundle Working Draft version v0.9
- Swordfish Non-Service Based Task force Working Draft
- DRAFT CDMI Extensions and Profiles

Check them out! - Provide Feedback!
Participate in their development!

Storage Developer Podcast: Latest Episode



This week's highlighted Podcast:

#105: Dual-Mode SSD Architecture for Next-Generation Hyperscale Data Centers: A Software/Hardware Co-Optimization Approach by Feng Zhu, Staff Engineer, Alibaba Group

Increasing proliferation of Artificial Intelligence, E-commerce, Big Data and Cloud applications is leading to highly diversified workloads and use cases in hyperscale data centers, which poses new challenges to solid state storage in terms of performance, flexibility and TCO optimizations. Moreover, there are increasing demands for software/hardware co-optimization and more control over I/O path from applications. Standard SSDs that are tuned for a few generic workloads cannot meet these challenges, resulting in suboptimal performance and TCO. We present our Dual-Mode SSD Architecture, a new storage architecture designed for our next-generation hyperscale data centers. We define our Open Channel SSD specification and build a Dual-Mode SSD platform that supports both Open Channel mode and standard NVMe mode. We develop our Open Channel software stack in full user space as well as in kernel space. Working seamlessly with our storage engine software, we build customized FTL solutions for different business applications. Our software/hardware co-optimization solutions is leading to significant benefits in performance, Quality-of-Service and TCO.

Learning Objectives: 1) Challenges to solid storage systems in next-generation hyperscale data centers; 2) Dual-Mode SSD architecture; 3) Full user space Open Channel software stack, and software/hardware co-optimization solutions..

Storage Developer Podcast: Upcoming Episodes



- Container Attached Storage (CAS) with openEBS
- The Long & Winding Road to Persistent Memories
- SPDK NVMe: An In-depth Look at its Architecture and Design
- Real-world Performance Advantages of NVDIMM and NVMe: A Case Study with OpenZFS
- Datacenter Management of NVMe Drives
- SMB3 Landscape and Directions
- Adding Your Own Secret Sauce to SPDK!
- Catching Up With Container Storage
- Synchronous DR over IP fabrics with NetApp MetroCluster-IP

<http://www.snia.org/podcasts>

Upcoming Storage Developer Event



Taking place on **September 23-26, 2019** in Santa Clara, CA, SNIA's Storage Developer Conference (SDC) is the destination for technical discussions and education on the latest storage technologies and standards

The SDC 2019 agenda is live! Check out the 100+ presentations that will be presented by developers at companies like DreamWorks and eBay, on topics including Computational Storage, Persistent Memory, NVM Express, and more.

Early Bird Discount ends August 24th!

www.storagedeveloper.org

Important SNIA Links

- <http://www.snia.org/standards/>
- <http://www.snia.org/software/>
- <http://www.snia.org/publicreview/>
- <http://www.snia.org/feedback/>
 - ◆ Public feedback submission form for draft SNIA Technical Work
- <http://www.snia.org/dictionary/>
 - ◆ Current SNIA Dictionary
- <http://www.sniacloud.org>
 - ◆ Latest news on SNIA Cloud activities
- <http://www.storagedeveloper.org>
 - ◆ SNIA Storage Developer Conference (SDC)
- <http://www.snia.org/podcasts/>
 - ◆ SDC Podcasts