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Storage Networking Industry Association (SNIA)

Technical Activities Update

February 2020

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

- ◆ ISO publication complete, available now as ISO/IEC 24091:2019

➤ **Swordfish Scalable Storage Management API v1.1.0a**

- ◆ The Swordfish Scalable Storage Management API ("Swordfish") uses RESTful interface semantics and a standardized data model to provide a scalable, customer-centric interface for managing storage and related data services.

- **Storage Management Initiative Specification (SMI-S)
v1.8.0 rev 4**
 - ◆ SMI-S defines a method for the interoperable management of a heterogeneous Storage Area Network (SAN) and describes the information available to a WBEM Client from an SMI-S compliant CIM Server and an object-oriented, XML-based, messaging-based interface designed to support the specific requirements of managing devices in and through SANs.

- **Computational Storage Architecture and Programming Model v0.3 rev 1**
 - ◆ This SNIA document defines recommended behavior for hardware and software that supports Computational Storage.

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

➤ SNIA Emerald™ Power Efficiency Measurement Specification v4 draft 22

- ◆ This document describes a standardized method to assess the energy efficiency of commercial storage products in both active and idle states of operation. A taxonomy is defined that classifies storage products in terms of operational profiles and supported features. Test definition and execution rules for measuring the power efficiency of each taxonomy category are described; these include test sequence, test configuration, instrumentation, benchmark driver, IO profiles, measurement interval, and metric stability assessment. Qualitative heuristic tests are defined to verify the existence of several capacity optimization methods. Resulting power efficiency metrics are defined as ratios of idle capacity or active operations during a selected stable measurement interval to the average measured power.

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

- **Native NVMe-oF Drive™ Specification Version 1.0k**
 - ◆ This document describes the features and functions of a storage device class known as Native NVMe-oF Drives. It includes a taxonomy covering the scope of involved device capabilities.

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

➤ Swordfish Storage Profiles Bundle v1

- ◆ This bundle contains all the Swordfish profiles. The Swordfish Core Profiles define 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.
- ◆ The EnergyStar for Storage Profile formalizes 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.

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- ▶ Computational Storage Architecture and Programming Model v0.3 rev 1
- ▶ SNIA Emerald™ Power Efficiency Measurement Specification v4 draft 22
- ▶ Native NVMe-oF Drive™ Specification Version 1.0k
- ▶ Swordfish Storage Profiles Bundle v1
- ▶ Persistent Memory (PM) PTS v1.0 rev 0.02 Preamble
- ▶ DRAFT CDMI Extensions and Profiles

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

Storage Developer Podcast: Latest Episode



This week's highlighted Podcast:

#118: Linux NVMe and Block Layer Status Update by Christoph Hellwig,
Kernel Hacker

This talk explains the exciting new features in the Linux NVMe driver and software target in the last two years, as well as the relevant block layer changes to support these features.

Learning Objectives:

1. Learn about new Linux features
2. Learn about new NVMe features
3. Have fun!

Storage Developer Podcast: Upcoming Episodes



- Squeezing Compression into SPDK
- What Happens when Compute meets Storage?
- Storage Applications in Blockchain
- 10 Million I/Ops From a Single Thread
- The NVRAM Standard, Bringing Coherence to the Crazy World of Persistent Memory
- Standardization for a Key-Value Interface underway at SNIA and NVM Express

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



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

Check out the **100+ presentations** that were presented by developers at companies like eBay, on topics including Computational Storage, Persistent Memory, NVM Express, and more. Presentations available for download.

Videos now live!

www.storagedeveloper.org

SNIA Persistent Memory Summit



Summit included sessions on emerging medias, interconnects, applications, why companies are excited about working with PM, and how PM is changing the infrastructure for cloud, orchestration, micro services, and serverless environments.

Video recordings now live!

<https://www.snia.org/pm-summit>

Upcoming SNIA Meetings and Events



- **SNIA Technical Symposium**
 - ◆ April 20-24, 2020; Fremont, CA
- **SNIA Technical Symposium & DMTF APTS**
 - ◆ July 20-24, 2020; Portland, OR
- **SNIA SDC SMB3 Interoperability Lab**
 - ◆ September 20-23, 2020; Santa Clara, CA
- **Storage Developer Conference**
 - ◆ September 21-24, 2020; Santa Clara, CA

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