Trends in Storage and Data: New Directions for Industry Standards

SNIA @ FMS 2023

Presented by Richelle Ahlvers, SNIA Vice-Chair

About the Presenter

Richelle Ahlvers

Storage Technology Enablement Architect, Intel

Richelle is a Storage Technology Enablement Architect at Intel, where she promotes and drives enablement of new technologies and standards strategies. Richelle has spent over 25 years in Enterprise R&D teams in a variety of technical roles, leading the architecture, design and development of storage array software, storage management software user experience projects including mobility, developing new storage industry categories including SAN management, storage grid and cloud, and storage technology portfolio solutions.

Richelle has been engaged with industry standards initiatives for many years and is actively engaged with many groups supporting manageability including SNIA, DMTF, NVMe, OFA and UCIe. She is Vice-Chair of the SNIA Board of Directors, Chair of the Storage Management Initiative, leads the SSM Technical Work Group developing the Swordfish Scalable Storage Management API, and has also served as the SNIA Technical Council Chair and been engaged across a breadth of technologies ranging from storage management, to solid state storage, to cloud, to green storage. She also serves on the DMTF Board of Directors as the VP of Finance and Treasurer.

SNIA

Standards-based Technology Trends in Storage and Data
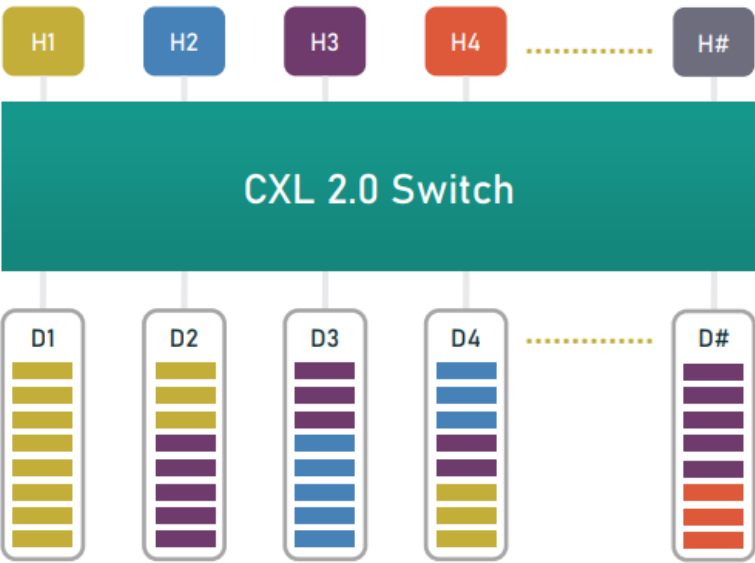
Cloud: Expanding from hybrid to multi-cloud
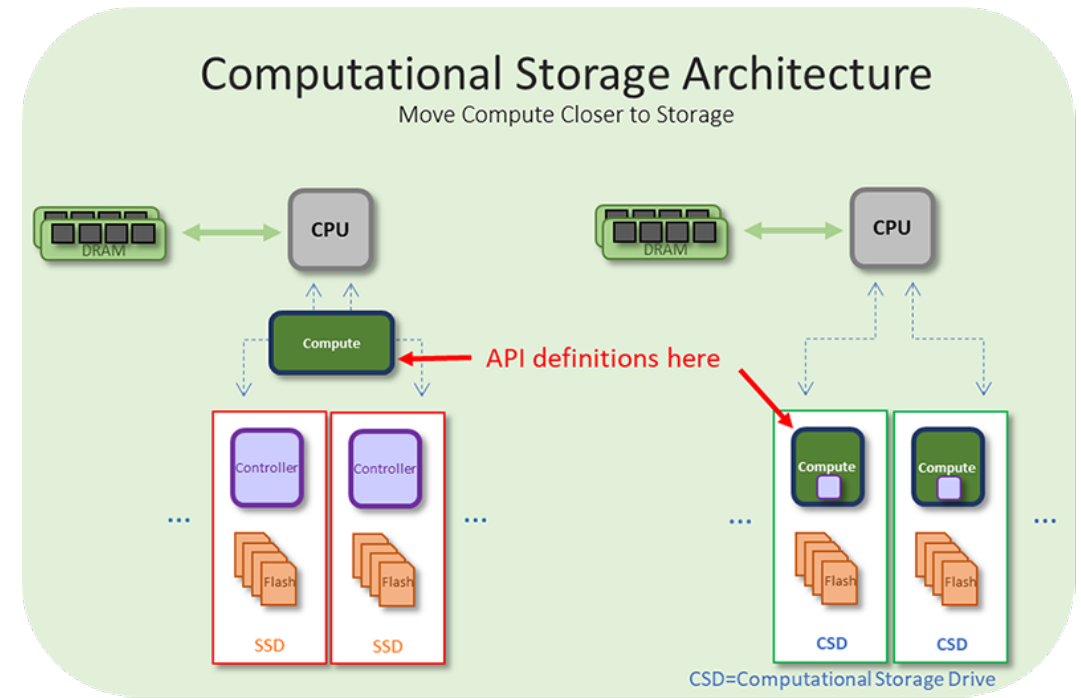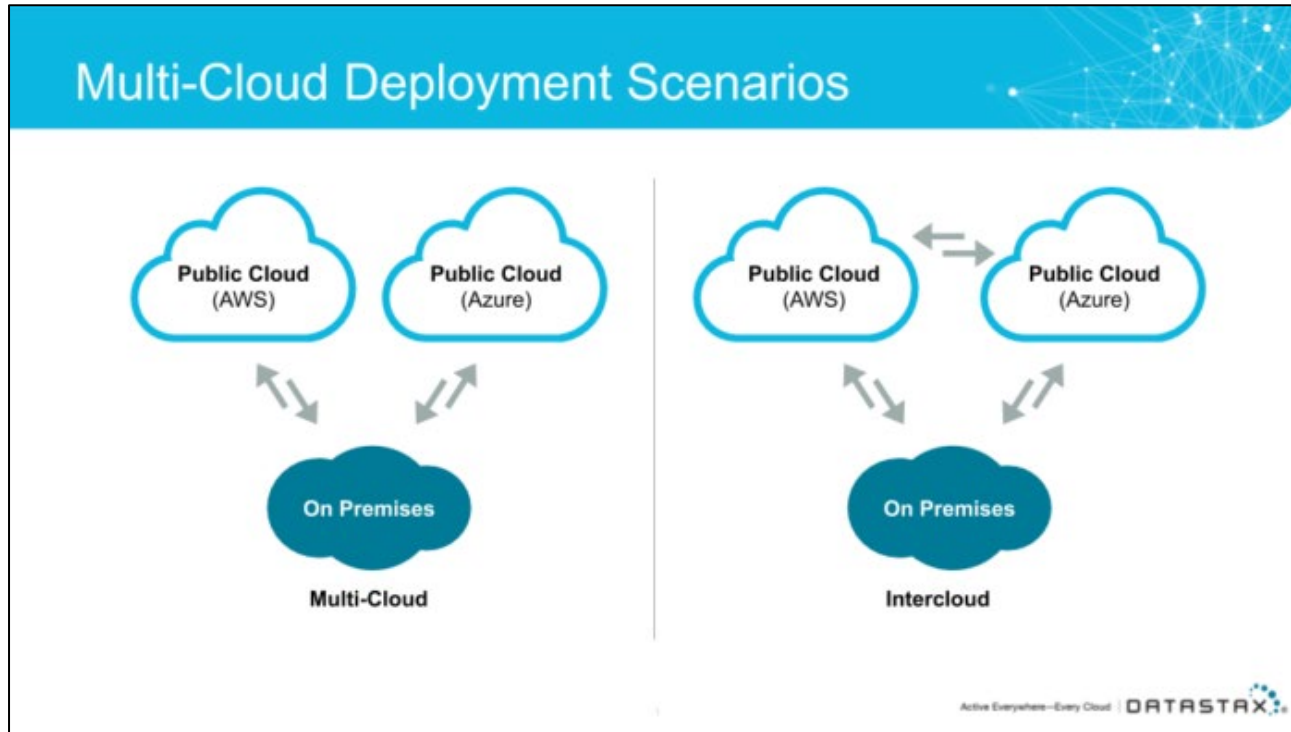
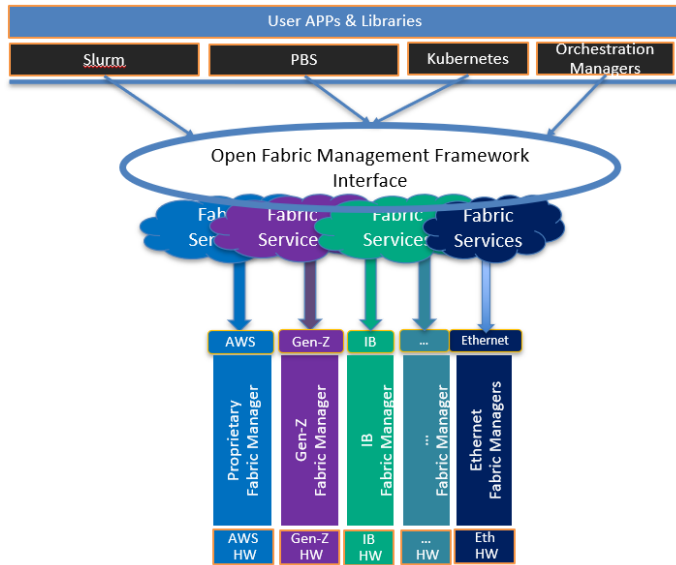# Standards-based Technology Trends in Storage and Data

Data Accelerators
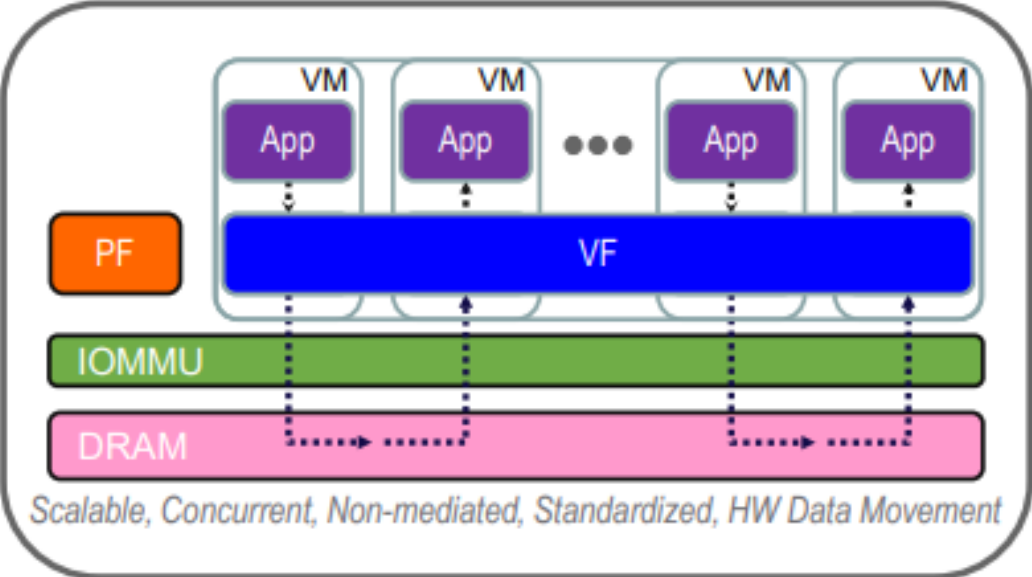
Cache coherent
disaggregation:
Memory, Accelerators,
memory-based storage

Memory Pooling with
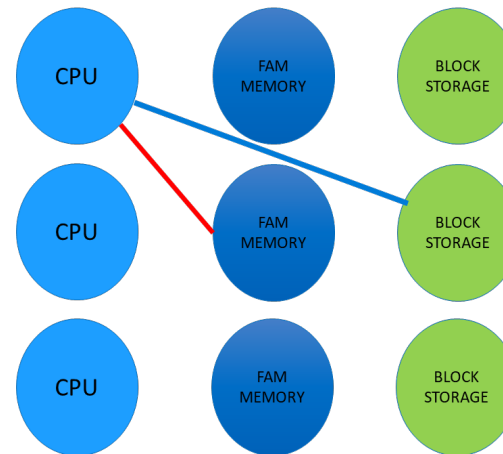Multiple Logical Devices

SNIA®

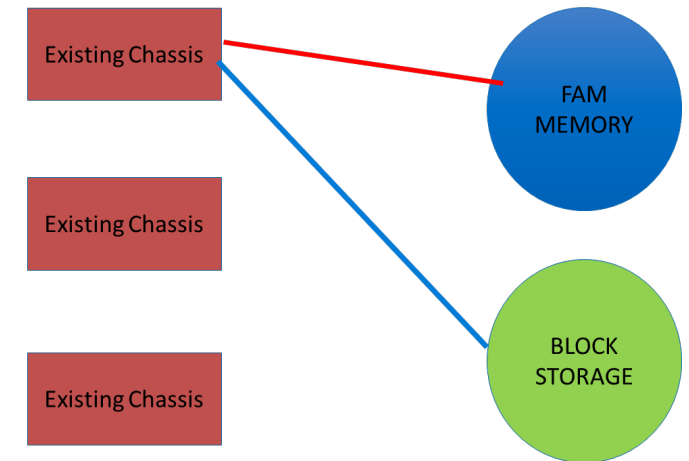# Manageability Standards-based Technology Trends

Expanding storage fabric technologies:
Dedicated fabrics to shared fabrics
AND
Managing heterogeneous fabrics

Composable Disaggregated Infrastructures (CDI): Expanding pool-based resource management beyond storage

SPECIFIC OR CONSTRAINED COMPOSITION

EXPANDABLE COMPOSITION

SNIA

SNIA

- Founded 25 years ago with a focus on Storage Networking

- Evolved from Storage Networking to Storage

- DATA is now front and center

- Vision and mission reflects SNIA's expertise and technical work to:

  - Accelerate data

  - Format data

  - Transport data

  - Store data

  - Protect data

  - Optimize infrastructure for data

SNIA's Vision and Mission Reflect a Data-Centric Focus

VISION:

- Be the global experts and trusted authority for technologies related to handling and optimizing data.
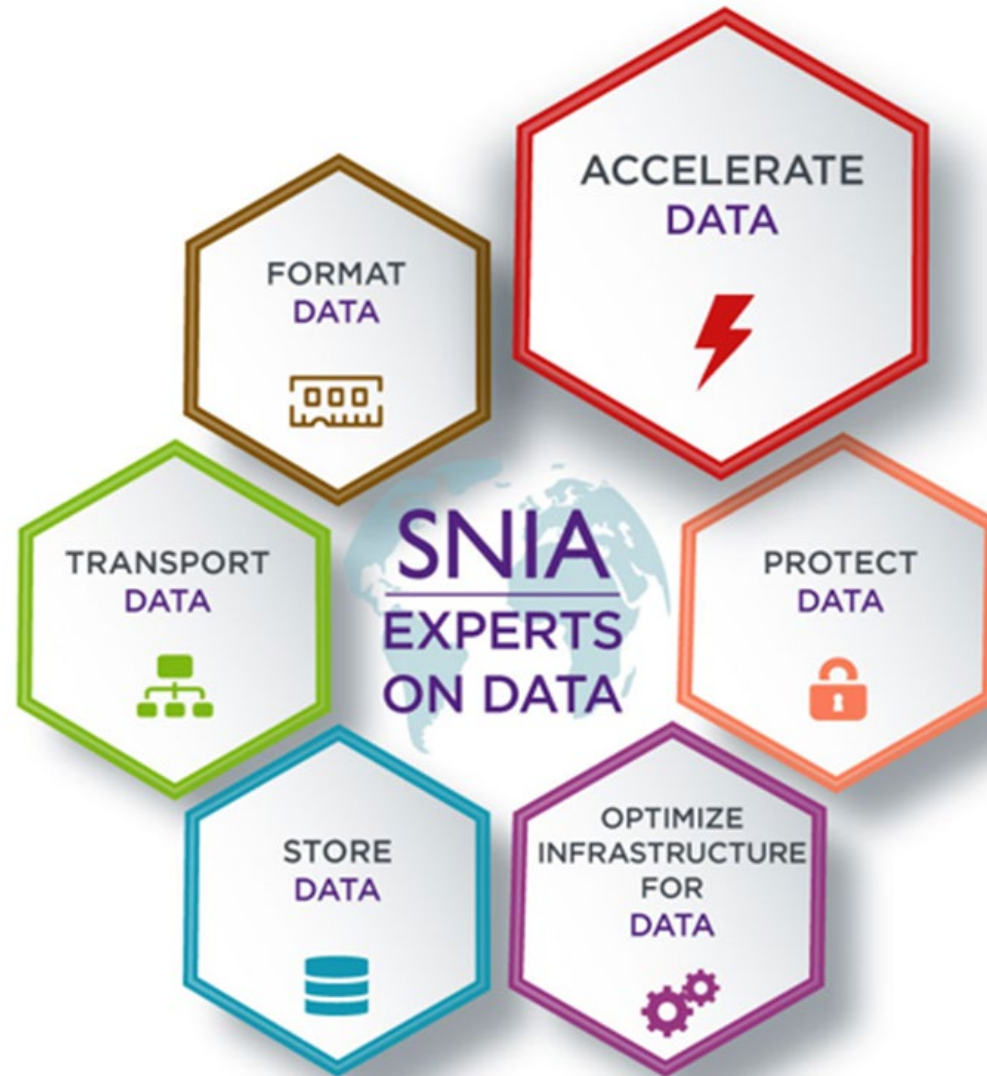
MISSION:

- Develop and promote architectures, standards, and education through vendor-neutral collaboration of experts on data technologies that lead the industry worldwide.

SNIA

Data-Centric Focus Areas

Data-Centric Focus Areas

Accelerate: Move processing to the data

Areas of Interest:
- Data Accelerator (SDXI)
- Computational Storage
- DPU

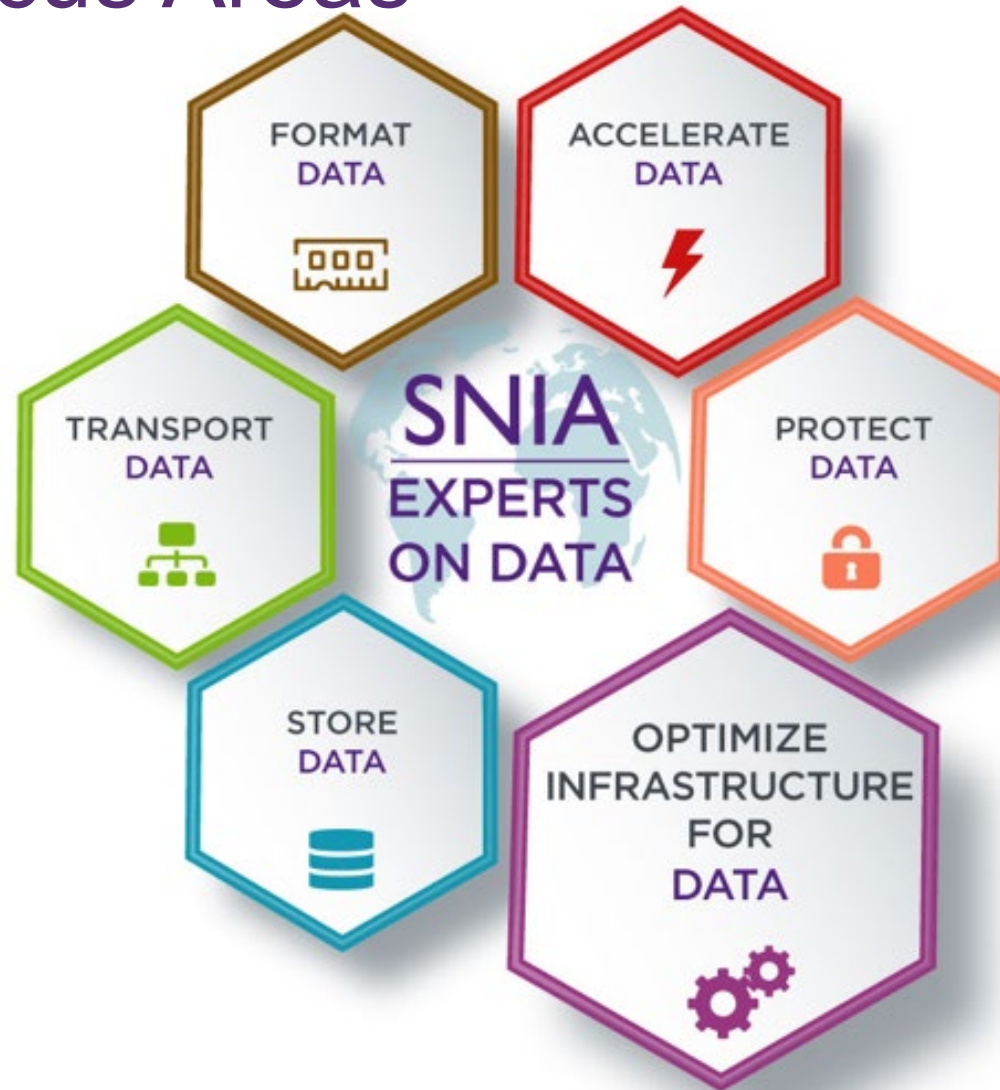# Data-Centric Focus Areas

Protect: Secure and protect data

Areas of Interest:
- Storage Security
- TLS for Storage Systems
- Encryption and Key Management
- Sanitization
- Privacy
- Storage Management Security
- Fibre Channel Security

Data-Centric Focus Areas

Optimize Infrastructure: Optimize how data environments are configured and managed.

Storage Management
- SNIA Swordfish™
- iSCSI Management, SMI-S
- IP Based Drive & Management

Green Storage
- SNIA Emerald™, Power Efficiency

Containers

Performance
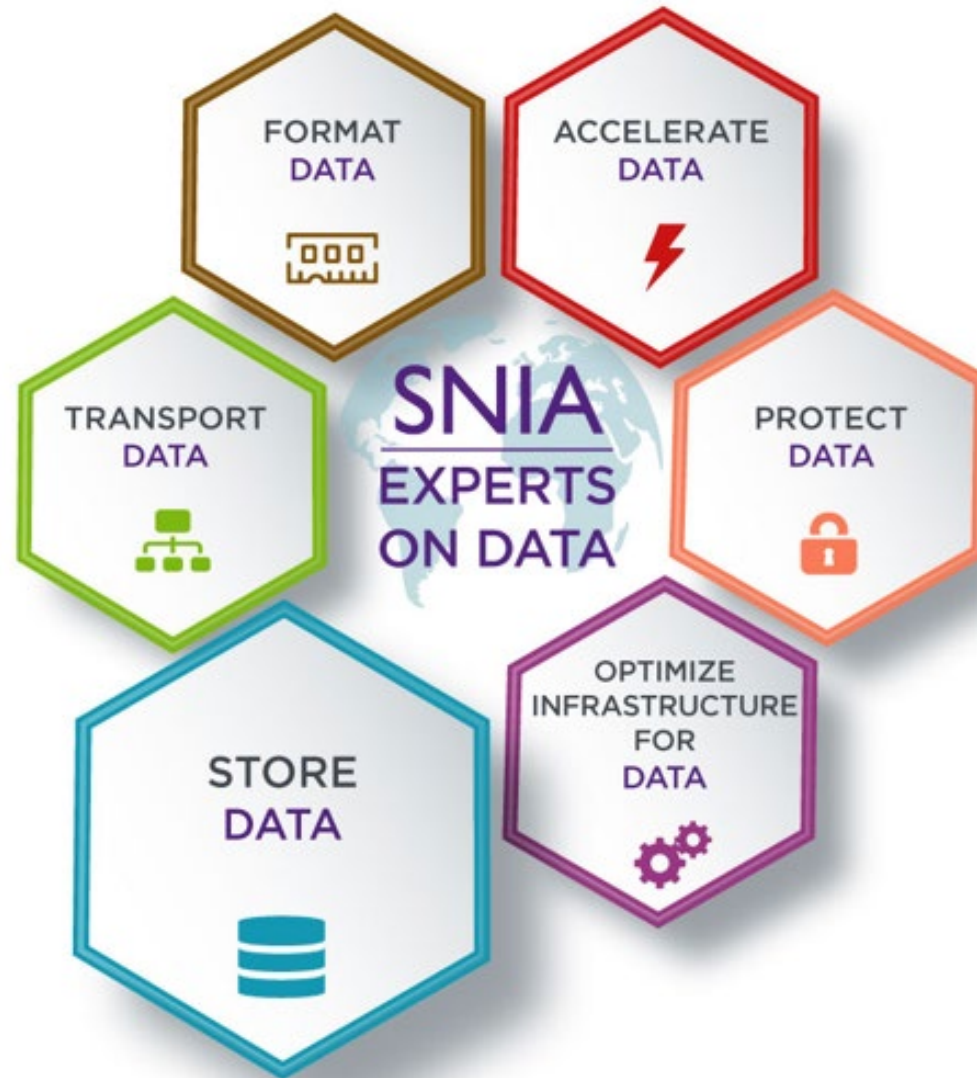- Real World Storage Workload, IO Capture and Test

IoT

Software Defined Storage

SNIA®

Data-Centric Focus Areas

Store: Representation of data on storage media.

Areas of Interest:
- Non-Volatile Memory
- Zoned Storage
- Cloud / Hyperscaler Storage
- Key Value
- DNA Data Storage
- Persistent Memory
- Serial Attached SCSI
- Automotive

FORMAT DATA

ACCELERATE DATA

TRANSPORT DATA

PROTECT DATA

SNIA EXPERTS ON DATA

STORE DATA

OPTIMIZE INFRASTRUCTURE FOR DATA

Data-Centric Focus Areas

Transport: Move data between physical locations.

Areas of Interest:
- Physical Connections and Transceiver Standards
  - SFF and EDSFF
- Native NVMe-oF™
- Memory Fabrics
  - CXL®
- Networked Storage Technologies
  - FC, iSCSI, SMB3
- Serial Attached SCSI

Data-Centric Focus Areas

Format: Different formats to access stored data.

Areas of Interest:
- Linear Tape Format Specification (LTFS)
- Filesystems
- Cloud Data Management Interface / Reference Implementation
- SIRF
- DDF – common RAID Disk Data Format

Standards Development, Consortiums, and Open Communities Work Together

Experts on Data