



# Community Driven S3 Compatibility Testing

Live Webinar

May 20, 2025

10:00 am PT / 1:00 pm ET

# Today's Presenters



**Frank Borich**  
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Google



**Michael Hoard**  
Moderator  
SNIA  
CST Chair

# SNIA Cloud Object Storage Plugfests sponsored by CST



<https://snia.org/groups/cst>

Committed to the adoption, growth and standardization of **intelligent data storage usage** in cloud infrastructures

- New simplified SNIA Membership Model for FY'25
- Pay one fee for SNIA Membership – Participate in ANY group!
- Join SNIA groups at [https://www.snia.org/member\\_com](https://www.snia.org/member_com)

# The SNIA Community



**200**  
industry leading  
organizations



**2,000**  
active contributing  
members



**50,000**  
IT end users & storage  
pros worldwide

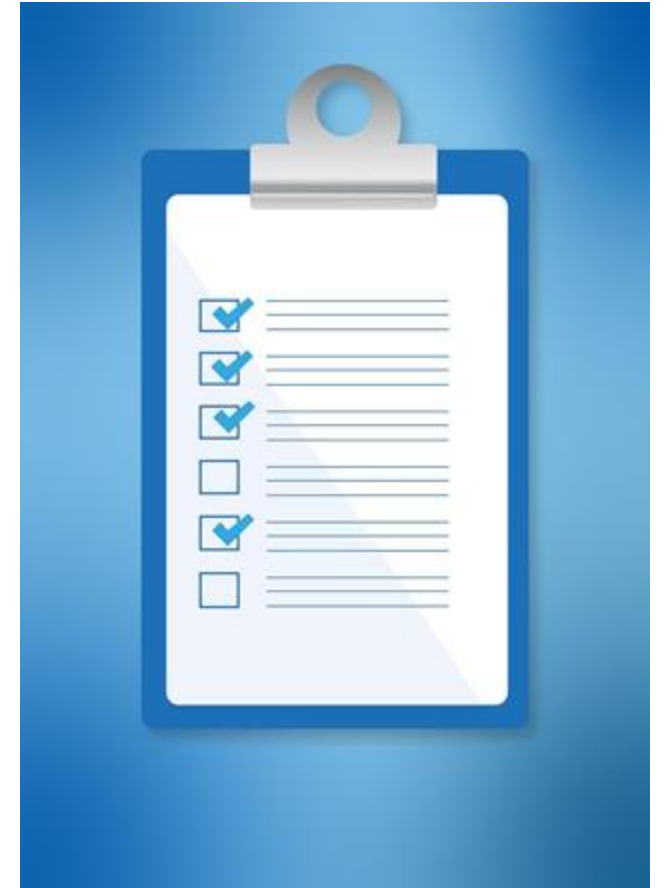
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# Agenda

- Cross Vendor Compatibility and S3 Ecosystem
- Problem Statement
- Multi-Vendor Community
- SNIA Cloud Object Storage (COS) Plugfest Community
- Panel insights on COS Plugfest
- COS Test Tools effort
- Q&A
- Call to action



# Cross-Vendor Compatibility – Why?

- Prevents vendor lock-in
  - Avoids single point of failure
  - Freedom to react to compliance changes
  - Cost reduction
  - Parallel capacity
  - Innovation
- SNIA Resources
    - [Webinar: Building Community to Tackle Cloud Object Storage Incompatibilities](#)
    - [Webinar: Navigating the Complexities of Object Storage Compatibility](#)
    - [Multi-cloud White Paper](#)

# S3 Ecosystem

- *De facto* standard REST XML API
- Robust AWS Service Deployment
- High Quality Documentation
- AWS wrapper APIs (SDKs)
- AWS client applications/tools
- Other S3-compatible object storage systems
- Applications - wide variety of use cases
- Large community
- Custom extensions and SDK/tool forks



# What's the Problem?

- User-facing compatibility issues around S3 ecosystem
  - Reliability suffers
  - Detection of problems is hard
  - Root causing problems is hard
  - Workarounds often hard or not possible
  - Costly to users and providers

# How Do Problems Happen?

- AWS S3 service deployment is continuously changing reference implementation
- Documentation not always accurate or complete
- Detailed testing is required to determine expectations
- Server side changes continually deployed
- SDKs/Clients continually updated assuming S3 deployment dependencies

# How Do Problems Happen?

- Versioning Strategies / backwards compatibility criteria
- Core I/O APIs continuously evolving
- Third party implementations typically support a subset
  - with new functionality iteratively added
- Applications often depend on subset based what's current at dev time
- Following best practices
  - e.g. ignoring unrecognized HTTP headers
  - e.g. rapid SDK updates

# Multi-Vendor Community – What Can We Do?

- [SNIA Cloud Object Storage Plugfests](#)
  - Compatibility Testing – ensure interoperability
  - SNIA provides vendor neutral space
    - [SNIA Membership not required](#)
  - Planning - define test matrix with clients and servers
  - Find, fix, and discuss issues before customers do
  - Protected by NDA to facilitate open communication
  - Don't need to bring a finished product
  - Testing of off-the-shelf open-source applications encouraged
  - Learn about the ecosystem together
  - Brainstorming
  - [SNIA SDC](#) conference included

# Cloud Object Storage (COS) Compatibility Test Progress

Completed two SNIA COS Plugfests and planning third...

- First SNIA Cloud Object Storage Plugfest  
Santa Clara, CA - Sept 2024
  - [Summary webinar](#)
  - [Summary slides](#)
- Second SNIA Cloud Object Storage Plugfest  
Denver, CO - April 2025
- Third SNIA Cloud Object Storage Plugfest  
Santa Clara, CA - Sept 2025
  - [Pre-register here](#)



# SNIA Cloud Object Storage Plugfest – Denver, CO April 2025

- Reiterate from last
  - More productive, more issues found
  - More ISVs
- Missing functionality hinders x-vendor compat
- Defining "S3 compatibility" is challenging





# Will You Join Sept 2025 SNIA COS Plugfest, Santa Clara, CA?



past participants



Join us: [Pre-Register for September SNIA COS Plugfest @ SDC'25](#)

# Google Perspective



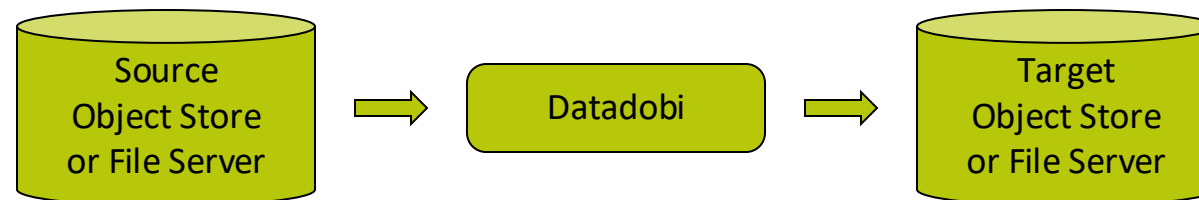
- Products
  - Google Cloud Storage (GCS)
  - Storage Transfer Service (STS)
- SNIA Cloud Object Storage Plugfest
  - Valuable opportunity to collaborate with industry experts
  - Test results from a wide range of clients and servers
- Future:
  - Integrate with testing tools
  - Extended protocol features



# Datadobi Perspective



- Datadobi's Expertise & Software:
  - File & Object Data Analytics
  - Cross-Vendor Data Mobility
  - Migration, Replication, Copy, Delete



- SNIA Cloud Object Storage Plugfest
  - Amazing opportunity for Datadobi
  - Deep technical conversations with leading Object Storage vendors
  - Compatibility & Bug Hunt (under NDA)
- Future: *"S3 cutover or failover should be nothing more than a DNS change..."*
  - Standardize S3 compatibility testing – client & server
    - Both documented and undocumented behavior
  - Standardize cross-vendor S3 interoperability and portability
    - System metadata (e.g. timestamps and version-ids), access keys, access & lifecycle policies
    - Tracking Data & Metadata changes

# IBM Perspective



IBM  
Storage Ceph

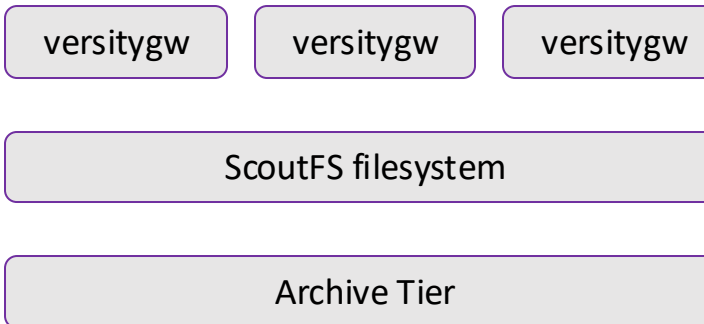


- Products
  - IBM COS
  - Ceph (IBM Ceph, Ceph S3-Tests)
- SNIA Cloud Object Storage Plugfest
  - Unique opportunity to collaborate
  - Productive Testing
  - Group Discussions
  - More Participants
  - Colocated w/SDC
- Future:
  - Build Community
  - Enhance interoperability

# Versity Perspective



- Products
  - VersityGW - opensource S3 gateway service
  - ScoutFS - scale out file system
  - ScoutAM - archive manager
- SNIA Cloud Object Storage Plugfest
  - Validate our test suite
  - Collaboration on important features
  - Remote conference access
- Future
  - Collaboration on open test suite



# SNIA COS Community - What else are we doing?

## SNIA COS Test Tools Provisional Technical Work Group (TWG)

- Develop open source automated COS test suites
  - Drive collaboration to reduce duplicate effort and improve end-user experience regardless of provider
  - Document industry behavioral and interoperability consensus on widely popular industry COS APIs
  - Watch Test Tool webinar: [SNIA Cloud Object Storage Test Tools \(Open-Source Software Project\)](#)
- COS Test Tool Survey: “paint a picture” of COS ecosystem
  - Establish and publish ‘minimum viable API’ baseline set of operations and responses (common command set)
  - Survey - Call to help formulate industry direction  
<https://snia.org/test-tool-survey>



### SNIA COS Test Tools Survey



# Q&A

# For More Information

- Join us: [Pre-Register for September SNIA COS Plugfest @ SDC'25](#)
- Learn More about the [SNIA Cloud Storage Technologies \(CST\) Community](#)
- Join SNIA groups at [https://www.snia.org/member\\_com](https://www.snia.org/member_com)

**SNIA COS Plugfest  
Pre-Registration**



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• Thank You