REGIONAL SDC 25

BY Developers FOR Developers

Regional SDC Denver
April 30, 2025

SNIA Cloud Object Storage Test Tools (Open-Source Software Project)

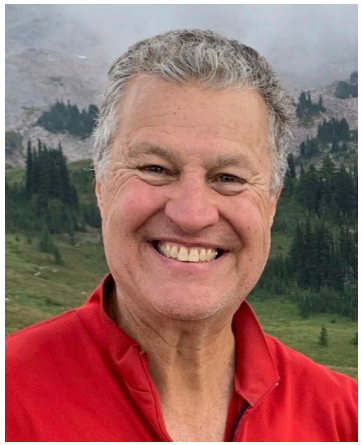
Adam Gray, Principal Software Engineer, IBM and Chair Cloud Object Storage (COS) Test Tools Provisional TWG, SNIA

Michael Hoard, Chair Cloud Storage Technologies (CST) Community, SNIA

SNIA

Presenters

Adam Gray
Principal Software Engineer, IBM
Chair Cloud Object Storage (COS) Test Tools Provisional TWG, SNIA



Michael Hoard
Chair Cloud Storage Technologies (CST) Community, SNIA

Problem Statement

What is Cloud Object Storage (COS) and why is it important?

- Cloud object storage is an ecosystem of commonly available RESTful APIs that provide methods for storing and retrieving data
- Most common COS API is AWS's S3, but other APIs exist with extensive user-bases (Google Cloud Storage, Azure Blob Storage, OpenStack Swift, etc.)
- Although 'Cloud' is in the name, many APIs are available as products for on-prem storage or in hybrid or containerized environments
- COS usage is expanding and evolving with other technology (IOT, containerization, data science and AI)

Industry Pain Points

- No independent, vendor-neutral forum to gain industry consensus on third-party developer interoperability
- Problematic compatibility between vendors, clients, and SDKs
- Lack of published API documents (such as specifications, roadmap, best practices) lead to inconsistent behavior and support

What is SNIA COS Test Tools Provisional Technical Work Group (TWG)?

We drive collaboration to reduce duplicate effort, reduce time to market and improve end-user experience regardless of provider

- Research, document and promote industry behavioral and interoperability consensus on widely popular industry COS APIs

Big picture, what we will be working on…

- Engage with industry leaders to collect/catalog API test suite specifications and test traces from a wide array of client and server vendors, as well as conduct ongoing research to seek out, identify and resolve specific API issues
- Act as a community driven vendor-neutral forum to proactively define and publish baseline sets of operations and responses (common command set) in the form of best practice reference guides
- Collaboratively drive industry test consensus and resolution in the form of published interoperability test tool software suites available via BSD 3-clause license

REGIONAL SDC

Let's Define Some Things…

Heterogeneous Multi-Vendor Compatibility
Problematic, what is "compatible API"
Who defines compatible?
Relies on behavior similarity
How much behavior similarity is needed
Current practice, eventual consistency
Constantly changing, how to maintain

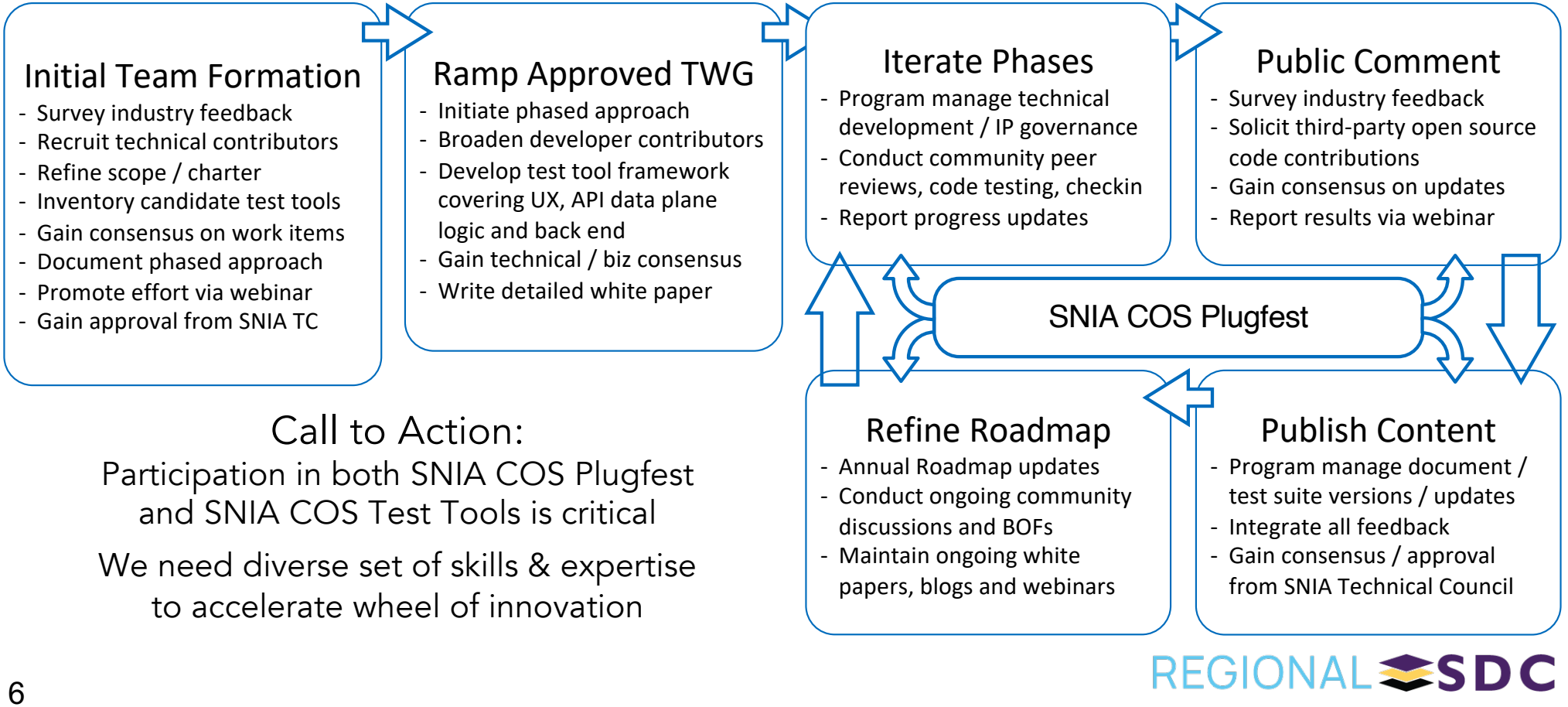
Heterogeneous Multi-Vendor Interoperability
Widely understood engineering term
Industry stakeholders define "standard"
Relies on testable specifications
Well established engineering methods
This is our goal, much collaboration needed
Designed to manage innovation and changes

What are our goals?

- Better customer experience, via heterogeneous multi-vendor interoperability
- Reduce frustrations for Quality Assurance (QA), support, DevOps, and developers
- Provide tooling for future SDC COS Plugfests and broader industry

REGIONAL SDC

SNIA COS Test Tools Process / Roadmap



Call to Action:

Participation in both SNIA COS Plugfest and SNIA COS Test Tools is critical

We need diverse set of skills & expertise to accelerate wheel of innovation

REGIONAL SDC

Exploratory Survey

Survey will "paint a picture" of COS ecosystem

Collect and organize information about:

- Cloud / On-prem / Hybrid Deployments
- Clients / Servers
- ISVs, Consulting, Open-source Developers
- End-user experience
- Struggles & Successes
- Perspectives from both individuals and organizations
- Compliance Testing / Interoperability

REGIONAL SDC

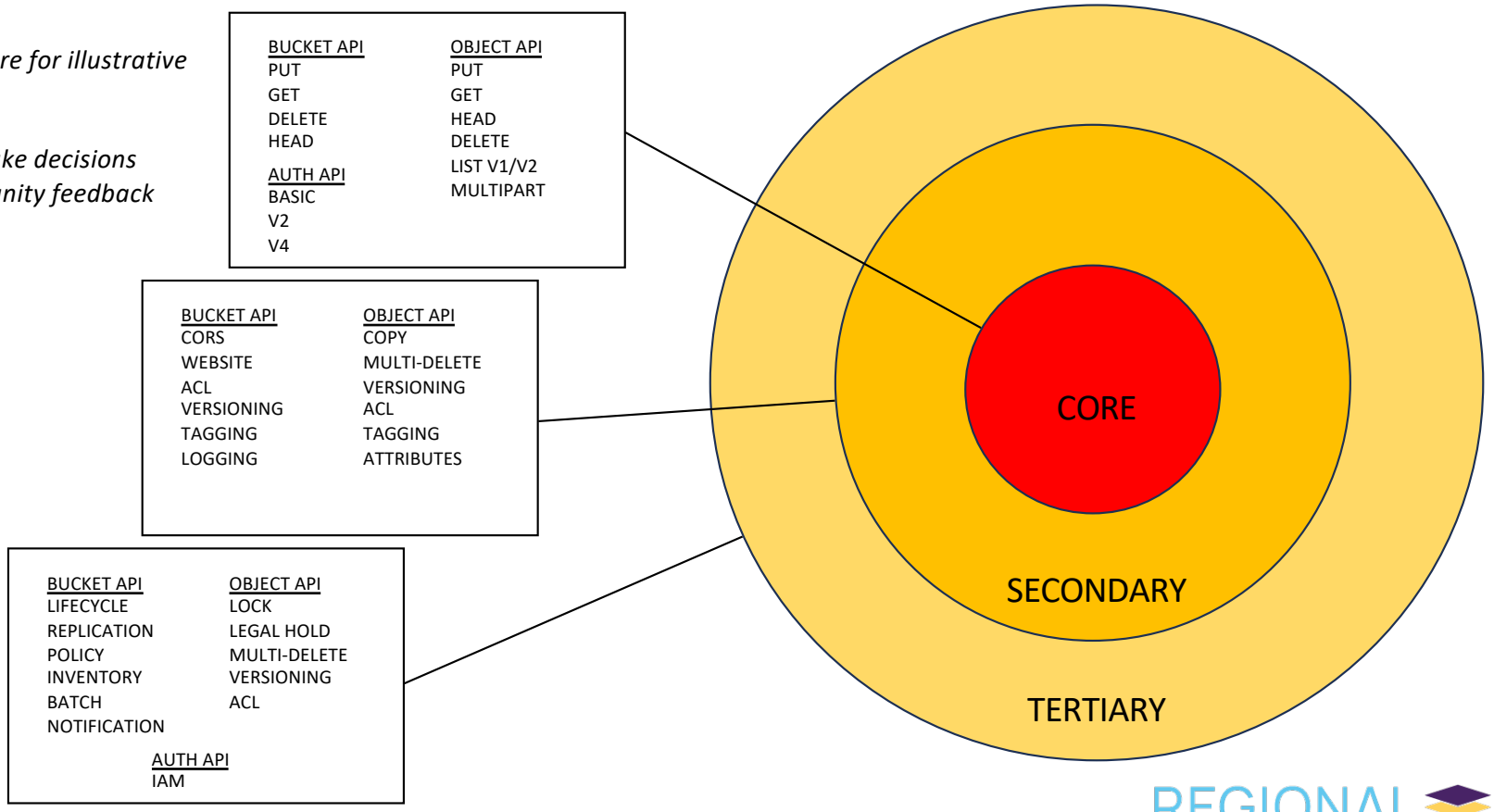
How “COS Test Tools” May Help

- Help the industry collaboratively shape what ‘API interoperability’ means via vendor neutral test suite creation and consensus building
- Establish and publish ‘minimum viable API’ baseline sets of operations and responses (common command set)
- Recommend best practices regarding compliance, interoperability, etc.
- Inspire confidence with developers, ISVs, and end users

Example Minimum Viable Interoperability: AWS S3 API

Example layers are for illustrative purposes only.

The TWG will make decisions based on community feedback and analysis.



REGIONAL SDC

Future Potential Example TWG Activities

- With AWS S3 help, utilize test suite to educate and provide regular updates on changes in AWS S3 behavior
- Build mock open source reference server to capture best known API behaviors for clients, applications and SDKs
- Broaden scope of interoperability among AWS S3 and other common object storage APIs such as Azure, GCS, Swift, etc…
- Engage with all SNIA members, CSPs and service providers to create a more harmonious object storage community!

Key Takeaways

- Participation in both SNIA COS Plugfest and SNIA COS Test Tools is critical
- Need diverse set of skills & expertise to accelerate wheel of innovation
- Goal: Improve user experience and drive collaboration via more harmonious COS ecosystem to reduce costs, redundant effort and time to market

For More Information

Visit SNIA Cloud Storage Technologies (CST) Community

Interested in September COS Plugfest @SDC'25 - email us at askcloudplugfest@snia.org

Pre-Register for September SNIA COS Plugfest @ SDC'25

Presentation: SNIA Cloud Object Storage Plugfest Update (Community Driven S3 Compatibility Testing)

Presentation: SNIA Cloud Object Storage Test Tools (Open-Source Software Project)

Please take: Survey for SNIA COS Test Tools Provisional TWG

SNIA COS Plugfest Pre-Registration

SNIA COS Test Tools Survey

REGIONAL SDC