



SNIA and Data Storage Cloud Computing

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SNIA At A Glance

www.snia.org

Advancing storage & information



- Voice of the storage industry representing approximately \$50-60B in worldwide revenue for hardware and software
- Founded in 1997 as a non-profit trade association
- SNIA is an international consortia with affiliates world-wide
 - ◆ [ANZ](#), [Brazil](#), [China](#), [Europe](#), [India](#), [Japan Malaysia](#), [South Asia](#)
- Technology Center activities in Colorado and Beijing
- Focus on education, conferences, specifications / standards, software, industry alliances, best practices, plug-fests, and conformance testing for SNIA specifications
- Co-owner of Storage Networking World (SNW) conference with Computerworld/IDG Enterprise: USA, Europe, China
- Produces annual Storage Developer Conference and Cloud Burst Summit
- A collaborative environment and serves as global contributors toward the advancement of standards, education, and innovation in the storage and information management industry

SNIA Track Record on Technical Work

- CDMI Specification
- CDMI Reference Implementation
- SMI-S Specification - ANSI INCITS 388-2011, ISO/IEC 24775:2007
- MMA Specification - ANSI INCITS 412-2006, ISO/IEC 11002:2008
- IMA Specification - ANSI INCITS 411-2007)
- HBA API, transferred to T11
- XAM Specification - ANSI INCITS 464-2010
- XAM SDK, NDMP SDK
- DDF Specification
- Storage Security Best Practices, correlates to CISSP professional certification
- Solid State Storage Performance Measurement Specification, improves industry use case expectations
- Green Storage Energy Measurement Specification , input to upcoming EPA ENERGY STAR Specification

Cross Industry Collaboration for Technical Work



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- DMTF: management protocols - SMI, Cloud, Green
- TheGreenGrid: Green metrics
- OGF: Cloud, Grid Computing
- USENIX: filesystems
- T10/T11: storage protocols

Highlights

SNW April Audience Response Poll





USA, Q2 2011

SNW Santa Clara, CA

Co-owned by SNIA and Computerworld

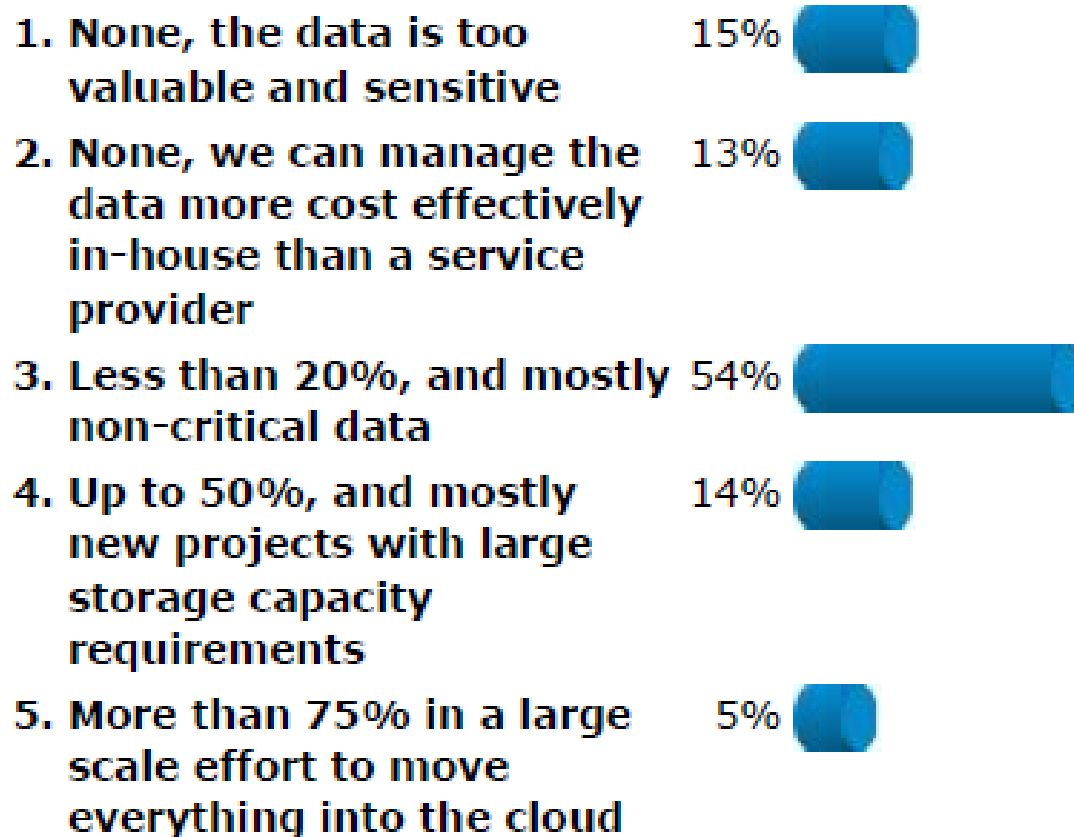
What's the primary reason your organization has implemented (or will implement) cloud computing?



1. The operational expense of a service is financially more attractive than investing capital in owning and operating infrastructure 22% 
2. With less worry about maintaining internal infrastructure, aligning IT to business needs 32% 
3. No near-term plans ... cloud services are not ready for our enterprise 33% 
4. No plan ... enterprise-class cloud services cost more than my in-house IT organization 14% 

Note: A related question revealed that Cloud deployments need to be ROI based

In the next 3 years, how much of your organization’s data and information is planned to be in the public cloud?



Highlights

Cloud Storage Adoption Study

USA, Q1 2011

Storage Strategies NOW

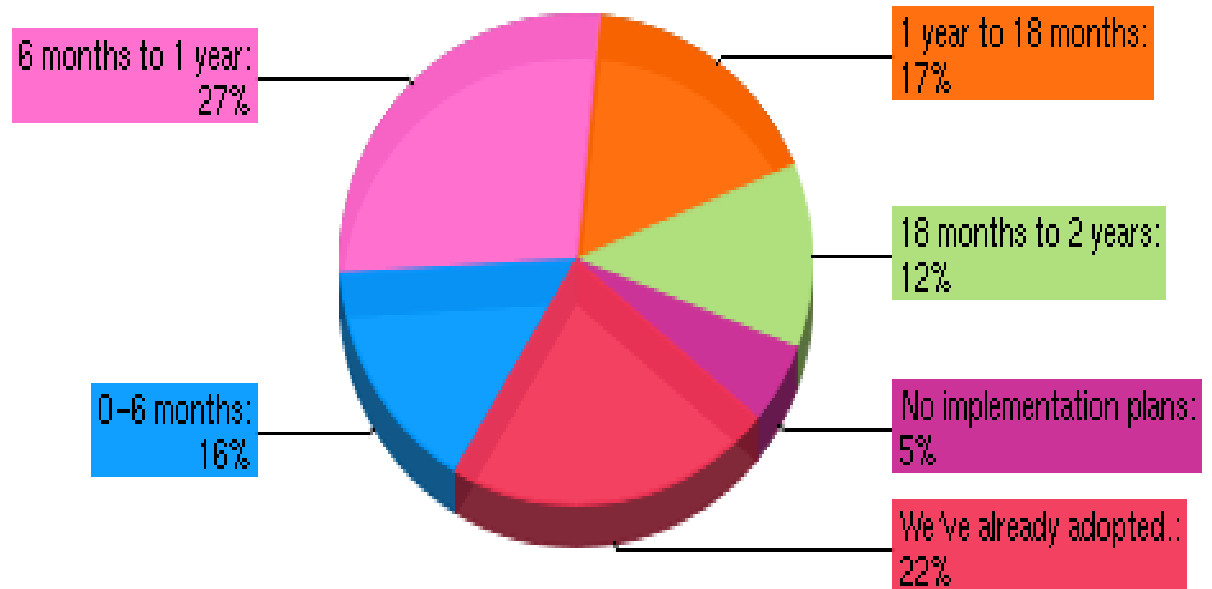
Sponsored by SNIA

Will you adopt cloud storage and when

Are you going to deploy cloud storage?



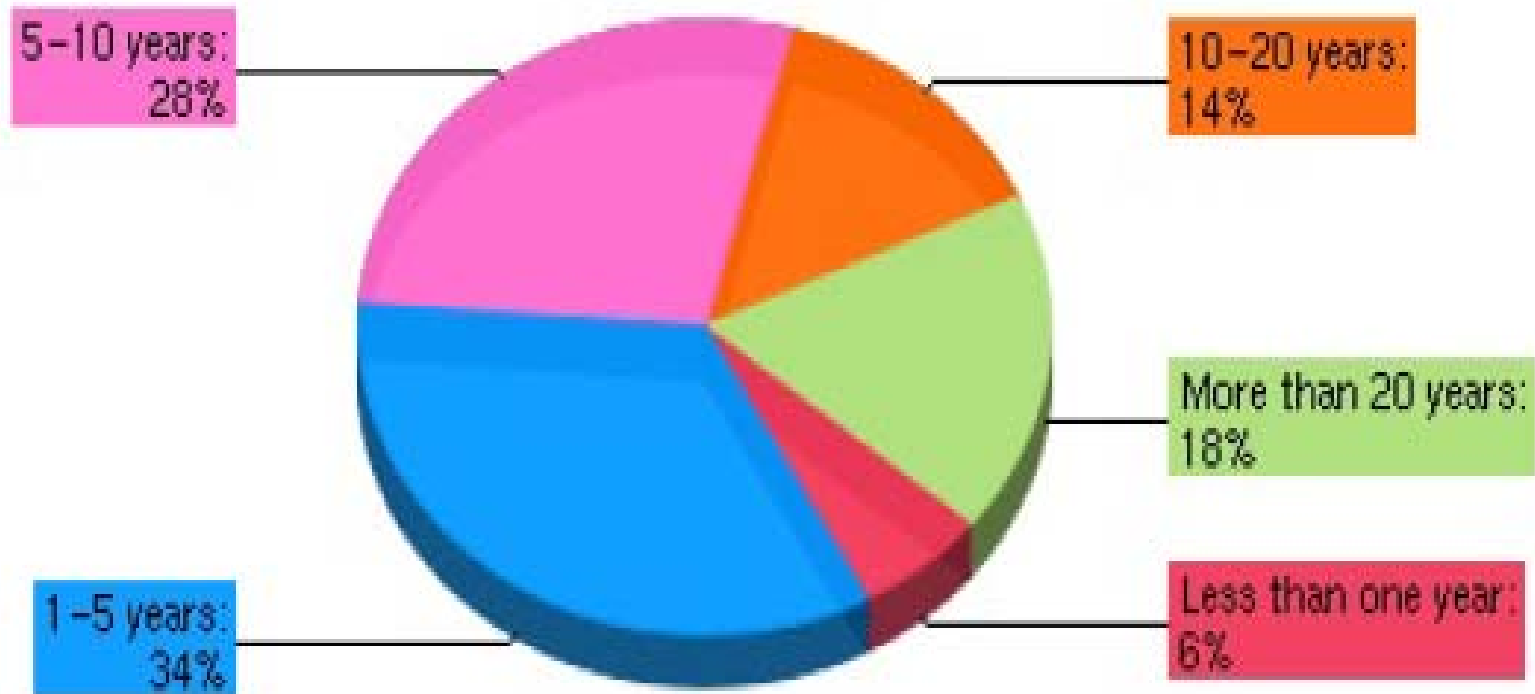
When will you adopt cloud storage?



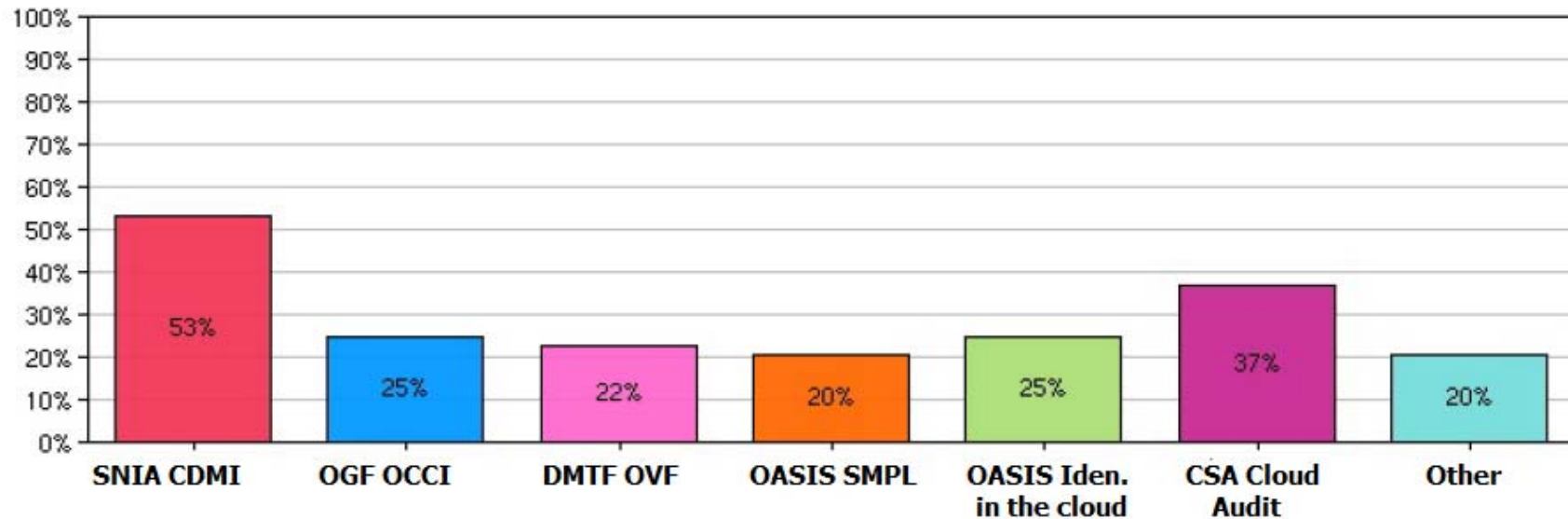
How long will you retain data in the cloud?



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What standards will you require being included in RFPs?



Note: Related question – how important are standards for cloud computing:

- Very Important - 47%
- Important - 31%
- Somewhat Important – 18%
- Not important – 4%

SNIA Cloud Computing and Storage

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Where Can a Cloud Storage Standard help?

- **Common method to instantiate and manage data storage resource**
 - ◆ Easier development, faster deployment
- **Common Cloud Storage metadata management**
 - ◆ Storage, System, Network, Application, Security, Privacy
- **Cloud-to-Cloud data portability**
 - ◆ Migrate not only data but also management requirements
- **Easier SLA/SLO management**
 - ◆ Requirements pushed down object-level
- **Easier integration in greater Cloud environments:**
 - ◆ Cloud Storage for Cloud Computing, Federated Services

- CDMI version 1.0 – SNIA Architecture, April 2010
 - ◆ Submit to ISO 2H 2011, ISO PAS Submitter
- SNIA Software CDMI Reference Implementation
 - ◆ Java based, uses any POSIX filesystem
 - ◆ Open Source License (BSD)
- SAJACC Use Case validation Q2 2011
- Standards membership: ISO JTC1 SC38, INCIST DAPS 38
- Plugfests Q2 and Q3 2011
- Marketplace awareness and validation
 - ◆ Important for public and hybrid cloud
 - ◆ To be part of RFPs in 2011 and thereafter
 - ◆ Commercial implementations
 - ◆ European Union FP7 Projects; SNIA-OGF Cloud API demonstrations

SNIA CDMI Scope

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- Data storage As a Service = DaaS, a subset of IaaS

- Applicable to three types of Cloud Storage:
 - ◆ Cloud Storage for Cloud Computing
 - Whitepaper at snia.org/cloud – the management interface for the lifecycle of storage in a compute cloud
 - ◆ Public Storage Cloud
 - Both a Data Path for the Cloud and a Management Path for the Cloud Data
 - ◆ Private Cloud Storage
 - As well as hybrid clouds
 - An API for Storage Vendors selling into Cloud based solutions

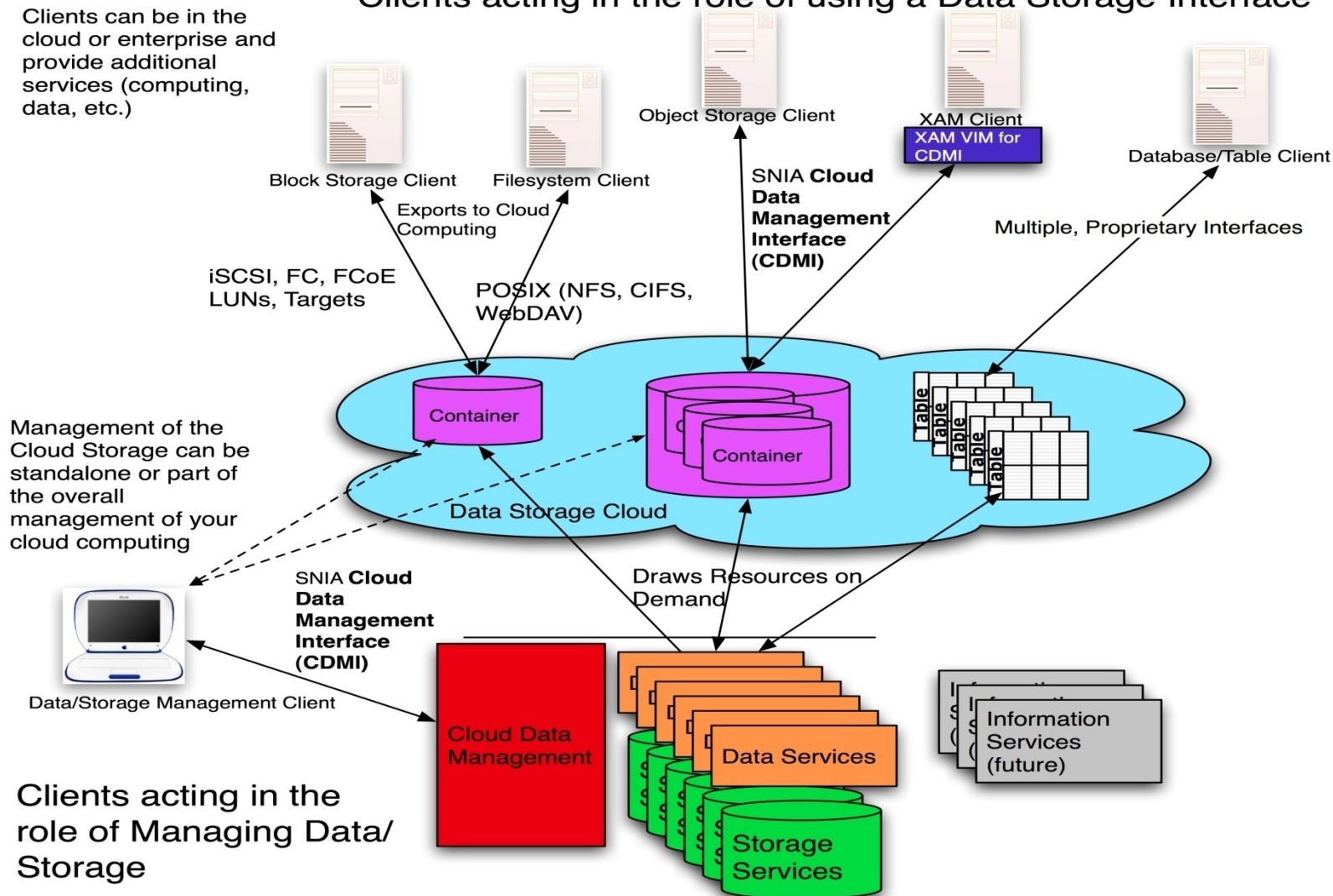
- Semantics
 - ◆ Simple Containers and Data Objects with tagged Metadata
 - ◆ Data System Metadata expresses the data requirements

- Protocol
 - ◆ RESTful (Representational State Transfer) HTTP as “core” interface style
 - ◆ JSON (JavaScript Object Notation)– format of the representations are extensible

The Complete Picture

Clients acting in the role of using a Data Storage Interface

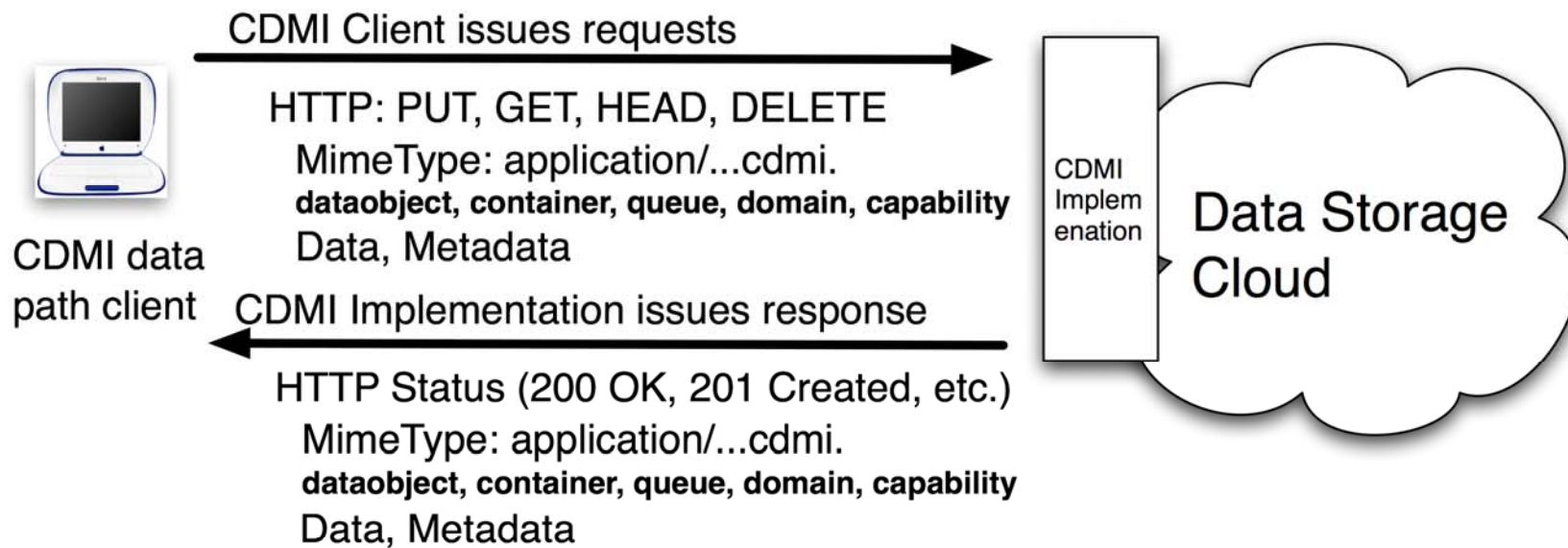
Clients can be in the cloud or enterprise and provide additional services (computing, data, etc.)



Clients acting in the role of Managing Data/Storage

CDMI Overview

CDMI Basic flow:



For More information

➤ One Web Site to Remember: <http://snia.org/cloud>

- ◆ [Specification](#)
- ◆ [Whitepapers](#)
- ◆ [Tutorials, webcasts, podcasts](#)

➤ Large Cloud Storage Community

- ◆ <http://groups.google.com/group/snia-cloud>
- ◆ <http://twitter.com/SNIAcloud> (@SNIAcloud)
- ◆ <http://www.google.com/profiles/SNIAcloud>

Google groups

twitter

Google buzz 



Thank You

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