Multi-Cloud Storage:
Addressing the Need for Portability and Interoperability

Live Webcast

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Agenda

- Evaluator Group Enterprise Hybrid Cloud Survey results
- Hybrid cloud use cases, objectives, barriers
- Hybrid cloud storage
- Managing data
- How can standards help
Infrastructure & Data Storage Analysts

Helping IT professionals create and implement strategies that maximize value and efficiency from their information technologies

SERVING CLIENTS SINCE 1997
Research Studies, 2017

▷ Hybrid Cloud IT in the Enterprise- released Aug 2017
▷ Hyperconverged and the Enterprise User Adoption - Oct
▷ Changes in Solid State Adoption – Q1 2018
▷ High Performance Computing in the Enterprise - Q1 2018
EGI Enterprise Hybrid Cloud Survey

- 62% that have deployed hybrid cloud say it is their long-term future
  - Most large enterprise IT organizations now strive to become a more agile IT service delivery center (65%)
- 30% say they are “just getting started” although many have been engaged in hybrid cloud projects for more than a year
- 58% say they will increase their hybrid cloud workloads in 2017
- “Getting APIs to work out of the box is a myth”
Current Use Cases

- Disaster recovery/business continuance
- Application development
- Application mobility
- Data sharing with others outside the organization
- Archive
- Analytics and/or Internet of Things
- Workload migration during periods of peak load
Hybrid Cloud Objectives

- Enhance our disaster recovery and data protection capabilities
- Integrate legacy applications and data with cloud-based applications
- Better control cloud computing costs
- Develop and deploy “cloud-native” applications
- Deliver a public cloud “experience” using on-premise IT resources
- Implement DevOps
Barriers to Overcome

- Lack of interoperability
- External network security
- Lack of communication among vendors
- Product Immaturity
- Public cloud security
- Lack of adequate staffing
- Inadequate networking bandwidth

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Our hybrid cloud storage environment includes (select all that apply):

- Disaster Recovery/Business Continuance
- Storage Tiering
- Off-premises Archiving
- Data Sharing Across Cloud Boundaries
- Big Data Analytics
- On-premises Archiving
- Multiple Copies of the Same Data Across Cloud Boundaries
Take-Aways

- Hybrid clouds are multi-clouds with lots of moving parts
- Data protection, disaster recovery and business continuance are critical capabilities
- Interoperability at the data layer is key
- Up to now, open source BIY cloud projects have had an 80% failure rate among enterprise users
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- How can standards help
How do you manage the data?

- Local data managed by proprietary interfaces?
  - Primary location protection, backup, retention
  - Policies on when to move local data to the cloud
  - Multiple tiers locally

- Cloud data managed by different interfaces?
  - Number of copies in the cloud
  - How long to retain
  - Multiple cloud tiers
Data management automation

- Ideal situation would be comprehensive management of data no matter where it lives
  - What tier should host it at this point in its lifecycle?
  - How much protection should it get at this point in its lifecycle?
  - What are the QoS requirements now?
  - Does it need long term retention and archiving?
  - When should it be deleted?

- Look to vendors to solve this problem – ask the right questions
- Solve the problem short term with comprehensive automation in house
How can standards help?

- The SNIA Cloud Data Management Interface (CDMI) has standardized a scheme to manage data in public and private clouds
  - The approach is to use metadata to describe the requirements for the data at this point in its lifecycle
  - The metadata may be set on individual data objects or on containers of objects
  - The metadata requirements on a container are inherited by any containers and objects contained
Standards enable automation

- CDMI metadata forms a “contract” between the data owner and the underlying cloud systems
  - Cloud implementation can now understand the requirements in an interoperable and portable manner
  - Automation software can properly invoke data services to attempt to meet those requirements
  - When data is moved between private and public clouds, the metadata goes with it (like a configuration file)
  - Same metadata is interpreted locally and remotely
Some examples

- Access hints: latency, bandwidth <- QoS for access
  - Drives staging in different tiers
- Protection settings: RPO, RTO
- Redundancy: number of copies geographically distributed
- Geographic location: which countries may host the data, which may not
- Retention time, Administrative holds, auto deletion
Public cloud providers still lacking in data management features
  - Still managing data services directly instead of managing the data
But you don’t need the cloud providers to implement CDMI directly in order to benefit
You can add CDMI metadata to your files and directories and use this to drive your own automation
  - Public Cloud Automation – invoking data services as they become available
  - Own local automation – invoking local data services to meet the specified requirements
As a result you can start to get a handle on comprehensive hybrid cloud data management
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- A Q&A from this webcast, including answers to questions we couldn't get to today, will be on the SNIACloud blog [http://www.sniacloud.com/](http://www.sniacloud.com/)
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