HITACHI
Inspire the Next

Hitachi Data Systems and the Evolving eXtensible Access Method (XAM) for Fixed Content Data

What is the XAM Initiative?

HITACHI
Inspire the Next

- **The XAM initiative is:**
  - A SNIA initiative driven by the storage industry to define and promote adoption of a standard application programming interface (the XAM API)
  - A proposed standard API used between “Consumers” (application and management software and “Providers” (storage systems)
  - Storage services for *Fixed Content data*

- **The intended benefit is to standardize access method to Fixed Content and associated metadata**

About the SNIA. Incorporated in December 1997, the SNIA is a registered 501(c)6 non profit trade association. Their members are dedicated to developing and promoting standards, technologies, and educational services to empower organizations in the management of information. The SNIA works toward this goal by forming and sponsoring Technical Work Groups (TWGs), producing (with our strategic partner Computerworld) the Storage Networking World Conference series, building and maintaining a vendor neutral Technology Center in Colorado Springs, and promoting activities that expand the breadth and quality of the storage and information management market. The SNIA's ability to accomplish these goals is directly attributed to the dedication and hard work of hundreds of volunteers from our member companies. Headquartered in San Francisco, California, the SNIA also has offices in its Colorado Springs-based Technology Center. With seven regional affiliates spanning the globe, SNIA is truly the voice of the storage industry on a worldwide scale. http://www.snia.org

Hitachi Data Systems

What is Fixed Content and Metadata?

HITACHI
Inspire the Next

- **Fixed Content** is a type of data classification that indicates data is in final format
  - Enables storage systems to meet the requirements of this type of data
  - Many data is created “fixed”
    - Photos, videos, published/e-mailed documents, etc.
- **Metadata** allows the creation of self-describing objects
  - Provides for annotation of the fixed content object of which self-describing objects enable content portability across client applications
  - Metadata and location independence enable data lifecycle management across the managed storage resources

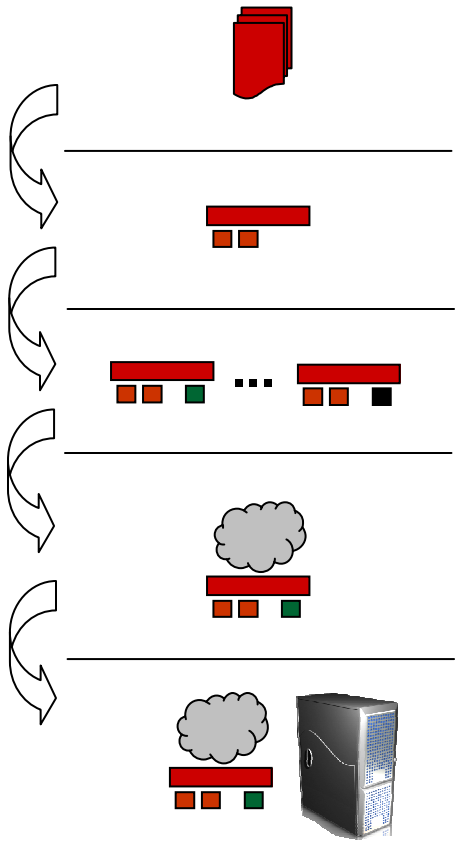
What is XAM?

HITACHI
Inspire the Next

- It is a SNIA Architecture
  - The XAM Architecture spec defines the normative semantics of the API for use by applications and implementation by storage systems
- It is an Application Programming Interface (API)
  - The XAM Java API spec defines the binding of the XAM Architecture to the Java Language
  - The XAM C API spec defines the binding of the XAM Architecture to the C Language
- It is SNIA Software
  - The XAM Software Developers Kit provides a common library and reference implementation to promote widespread adoption of the standard

XAM Software Developers Kit Projections

HITACHI
Inspire the Next



SNIA's "FCAS TWG" maintains and periodically publishes set of normative XAM standard specs

SNIA's "XAM Software TWG" Develops and Maintains beta-quality 'Gold' Distribution' of XAM SDK under BSD License

SNIA's Member Companies (e.g. EMC, Hitachi Data Systems, IBM, HP) derive their individual product-quality XAM SDK Derivatives from SNIA's 'Gold Distribution'

ISVs Integrate and certify their apps with a chosen Member Company's XAM SDK Distribution

ISVs, Member Companies ship their products to end users with certified interoperability guarantees

Hitachi Data Systems Supports Open Standards

HITACHI
Inspire the Next

- **Hitachi Data Systems participates in key open system committees including SNIA for existing standards and adoption of new standards**

- **Hitachi's Fixed Content solution – Hitachi Content Archive Platform utilizes only open standards interfaces**
  - **CIFS, HTTP, WebDAV, NFS, SMTP, NDMP, POSIX, PGP, SHA, etc.**
  - **Enables customers to leverage existing tools and expertise**
  - **Upon adoption of XAM, Hitachi Data Systems intends to support the standard in line with the industry and other open standards**

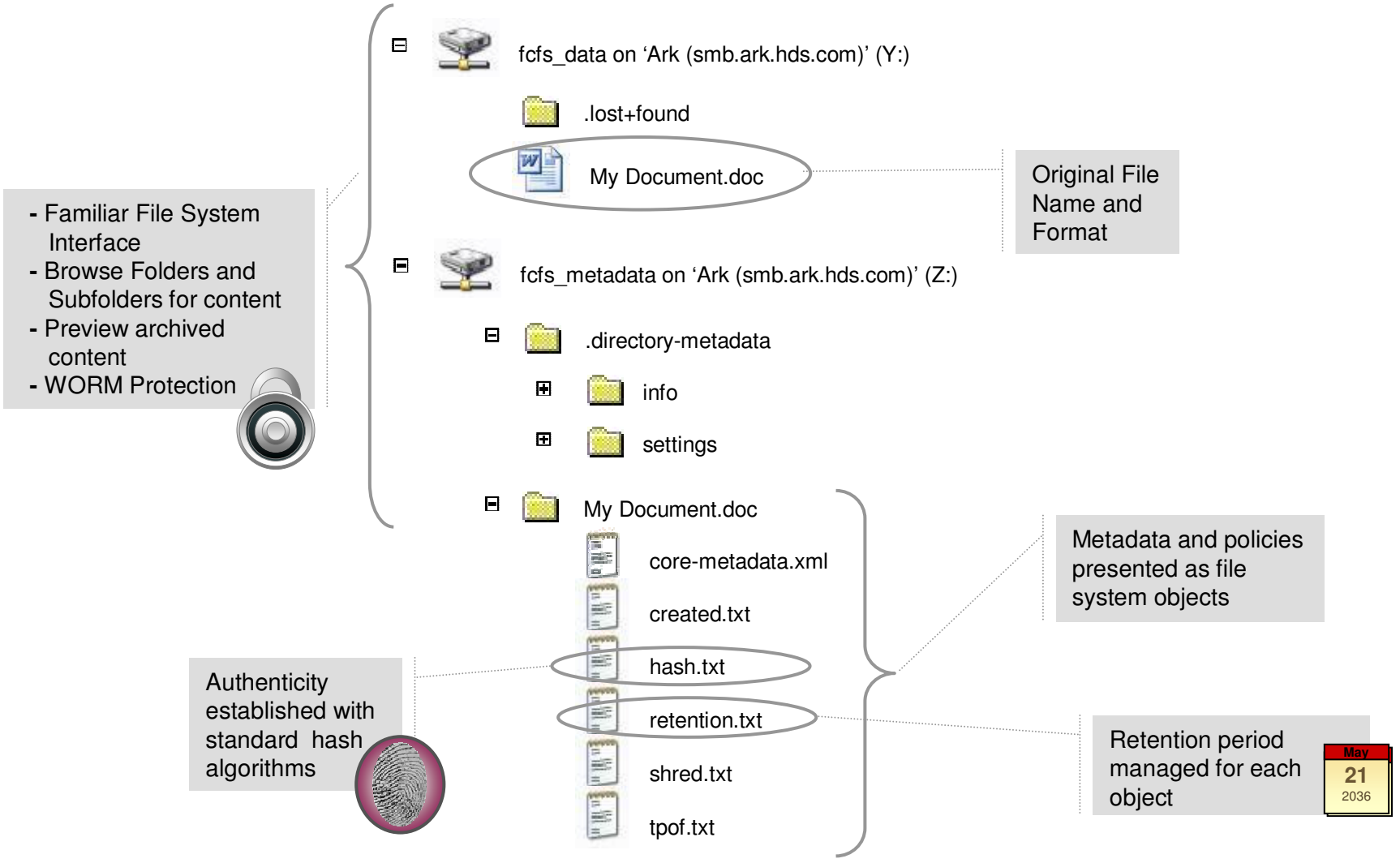
"We were particularly pleased that the ***Hitachi Content Archive Platform*** interfaces were defined as industry standard, public Internet protocols (HTTP, SMTP, CIFS and NFS) and not as program language-dependant libraries. This means that we could use available Internet analysis tools for performance optimization."

Michael Schierz
Technical Senior Consultant
Swiss Picture Bank

Hitachi Data Systems

Hitachi Content Archive Platform - Archive Interface and Formats - Open Standards Approach

HITACHI
Inspire the Next



Hitachi Data Systems

Hitachi Data Systems Support of XAM

HITACHI
Inspire the Next

- **Hitachi Data Systems is one of the founding SNIA sponsors of XAM specification**
- **Hitachi Data Systems continues to contribute to the development of XAM Specification and Software Developers Kit through active participation in the SNIA's Fixed Content Aware Storage Technical Working Group (FCAS-TWG) and XAM-SDK-TWG.**
- **Hitachi Data Systems will study and assess ongoing development of XAM and its applicability to our products, to our partners, and to our customers.**
- **Hitachi Data Systems is actively prototyping XAM, and as the standard solidifies Hitachi will participate in SNIA XAM plug-fests/interoperability events to ensure interoperability with ISV software vendors.**
- **Hitachi Data Systems is working closely with our extensive list of ISV partners to collaborate on the adoption of XAM in their applications.**

Hitachi Data Systems Support of XAM

HITACHI
Inspire the Next

Hitachi Data Systems practices and adopts standards to build open system products for our customers and partners!

HITACHI
Inspire the Next

Questions/Discussion

HITACHI
Inspire the Next

Thank You