

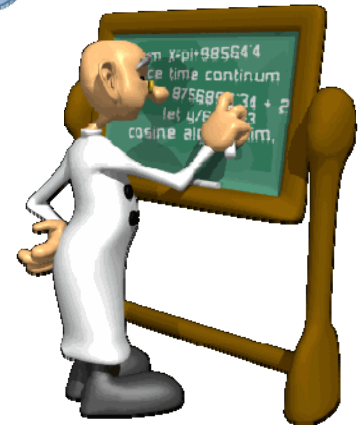
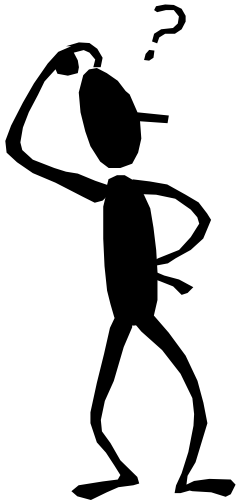
QUESTION

Why are we Still
Talking About
HSM, ILM



HSM - ILM - >>>

Does anyone Doubt The Concept



Tiered Data - Intelligent Management - Lower Cost Media

W.O.R.S.E.

**Write Once
Read Seldom
If Ever**



**Regardless of the classification can we really afford
to integrate restrictions to data accessibility**

Users - Applications Still Need Access

▶ HOW MANY YEARS

Cheap Disk
Cheaper Disk
Even Cheaper Disk
Tape
Backup Software
rsync scripts



SOME SUCCESS

Hard Work

a Lot of Thought

Very Good People

But... Only a Few

THE QUESTION

Can
Current Technologies
Provide
Tomorrows Ideals
Today





Abstraction

**While we can Expect
the Cost of Media
To Continue to Decline
Cost of Media
Is not a Solution**

We Should Expect

➤ **Infinite Object Count Capability within a Single Global Name Space -**

We are building True Digital Libraries. What is the difference between a physical paper library and a digital repository. You can expand a physical building as large as you want. Traditional file systems and applications have object limitations.

Internally the repository or digital library - Must be Pointer-Less

➤ **Multiple Access Paths to the same exact information store -**

The HSM environment must provide and support for multiple access protocols.

- CIFS and NFS - Full Cross Platform Permissions Support
- REST / S3 - etc.
- SQL Non-Proprietary Direct table / catalog lookups - Quires to all aspects of the information. Metadata, All Indexed Data, Attributes, Extended Metadata
- User available API for any user requested customization - etc.

We Should Expect

- **A Global Perspective to Access** - *A True Private Cloud Capability, Within a Building, Across a Campus, Across a Continent or Around the World we need to present our data through a common access paths regardless of where the physical asset resides.*

In addition the system must provide Locality Aware Retrieval

- **Private to Public Cloud Seamless Integration** -
Whether it is the concept of a simple access portal or the actual use of the public options the system must provide for Bi-Directional Access and Support.
 - Limited Data Set Representations
 - Sharing of a common data pool
 - Utilization of an Off-Site storage capability, etc.

We Should Expect

- **Object Based Architecture** - *Intelligence and Physical Asset Independence*, The ability to provide lookups, analytics, analysis without scanning the physical media or file system.
- **Data Mobility** - *One Button Zero Impact Non-disruptive* hardware and media refresh migrations across any type of storage and media to any type of storage and media anywhere in the world.
Container Based Capability – Eliminate the Small File management issue.
- **Physical Transportability** - Seamless Export and Import of removable media
 - LTFS import / export. TAR import / export, etc.
- **True Any Hardware, Any Media Support** -
 - Transparent Direct Read From Tape, NO Disk Staging
 - Erasure Based Disk Systems Support
 - JBod, True Independent Abstraction providing for Multi-Threading, Parallel Processing and Access to Hundreds of Individual Drives Simultaneously. Lowest Available Cost, Tremendous Speed.

We Should Expect

- **User Defined Access and Reliability** - Different Data, Different models.
 - 2 way, 3 way, “N” way access. 1, 2, 3 copies or more. Your choice Your reasons.
 - Multi-Point On-Site Off-Site Private Cloud Capable Replication.
 - Division, Department, Directory or Folder Multi-View Point in Time Fall Back
 - Definable Dynamic Versioning with Global and Granular Policy Controls.
 - Block Level Self Audit / Self Repair on any media including tape.
- **Compatible with Current Methodologies / Philosophies** -
The Solution can be phased in without disrupting current operating models.
Seamless transition to improved policy based file management controls while aligning with existing technology refresh schedules.
- **Backup to Near Line to Archive incorporating Disaster Recovery** -
Today – Yes – This can be done.

We Should Expect

- **Total System Monitoring, Maintenance and Support -**
 - Monitoring and reporting on every aspect of the entire system
 - Servers, HBA's, Switches, Tape Drives, Disk Drives, All Media.
 - Performance Metrics – Peaks, Valleys, Nominal and Averages.
 - All Access Conditions and Parameters.
 - Compliance, Remediation, Encryption and WORM.

- **You can turn the concept of a solution into a culture - *If you want?***
 - Set and Forget
 - Reduce operational overheads
 - Intuitive
 - Self Aware
 - Predictive
 - Self Healing
 - Simple, Policy Based, Easy

HSM TODAY

**An Active File Management Concept
Providing Primary Read
Backup and Secondary Tiers
In an Active Archive Environment
+
On Site - Off Site Replication Recovery
+
Private and Public Cloud Integration**