

**ILM - Gerencia do ciclo de vida da
informação**

Segurança da Informação

Cerutti - IES - 2014-2

Material extraído de redbook da IBM:

ILM Library: Information

Lifecycle Management

Best Practices Guide

1.4 ILM elements

To manage the data lifecycle and make your business ready for On Demand, there are four main elements that can address your business to an ILM structured environment, as shown in Figure 1-7. They are:

- ▶ Tiered storage management
- ▶ Long-term data retention
- ▶ Data lifecycle management
- ▶ Policy-based archive management

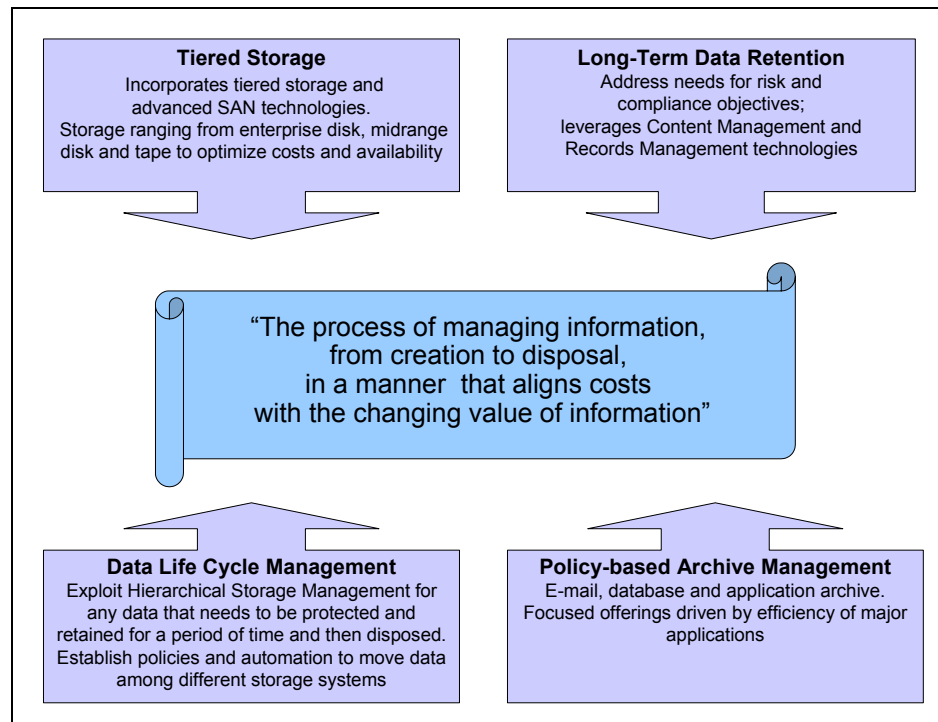


Figure 1-7 ILM elements

The next four sections describe each of these elements in detail:

- ▶ Tiered storage management
- ▶ Long-term data retention
- ▶ Data lifecycle management
- ▶ Policy-based archive management

1.4.1 Tiered storage management

Most organizations today seek a storage solution that can help them manage data more efficiently. They want to reduce the costs of storing large and growing amounts of data and files and maintain business continuity. Through tiered storage, you can reduce overall disk-storage costs, by providing benefits such as:

- ▶ Reducing overall disk-storage costs by allocating the most recent and most critical business data to higher performance disk storage, while moving older and less critical business data to lower cost disk storage.
- ▶ Speeding business processes by providing high-performance access to most recent and most frequently accessed data.
- ▶ Reducing administrative tasks and human errors. Older data can be moved to lower cost disk storage automatically and transparently.

Typical storage environment

Storage environments typically have multiple tiers of *data value*, such as application data that is required daily and archive data that is accessed infrequently. But typical storage configurations offer only a single tier of storage, as shown in Figure 1-8, which limits the ability to optimize cost and performance.

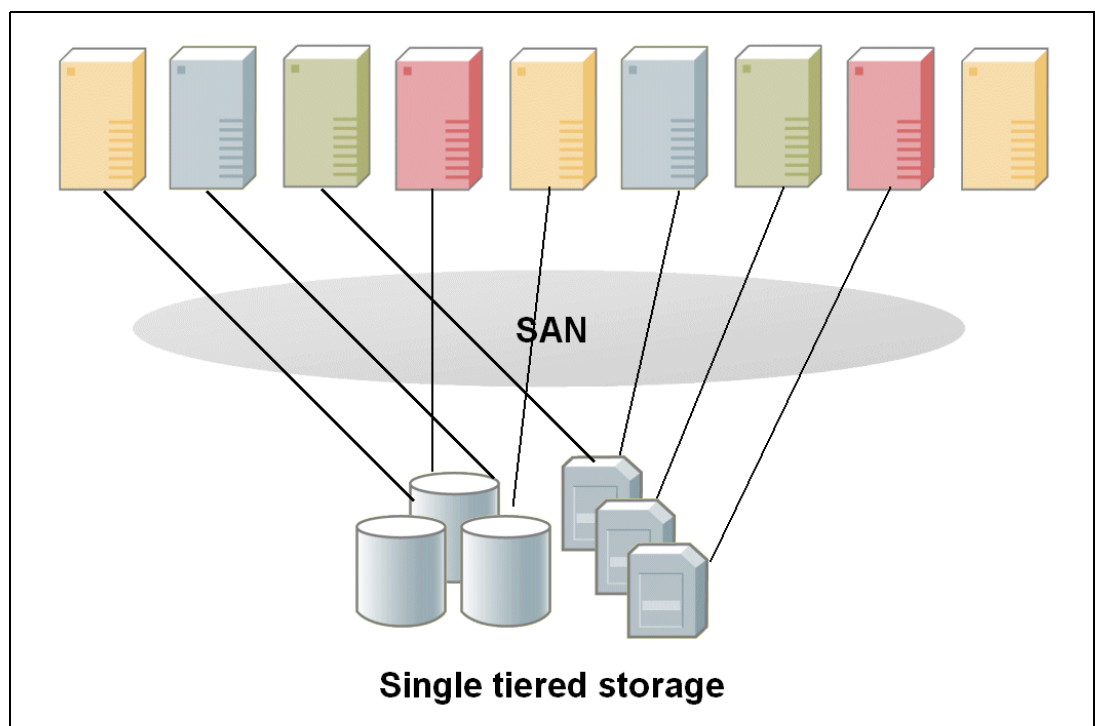


Figure 1-8 Traditional non-tiered storage environment

Multi-tiered storage environment

A tiered storage environment is the infrastructure required to align storage cost with the changing value of information. The tiers are related to data value. The most critical data is allocated to higher performance disk storage, while less critical business data is allocated to lower cost disk storage.

Each storage tier provides different performance matrix and disaster recovery capabilities. Creating classes and storage device groups is an important step to configure a tiered storage ILM environment. We provide details of this in later chapters of this book.

Figure 1-9 shows a multi-tiered storage environment.

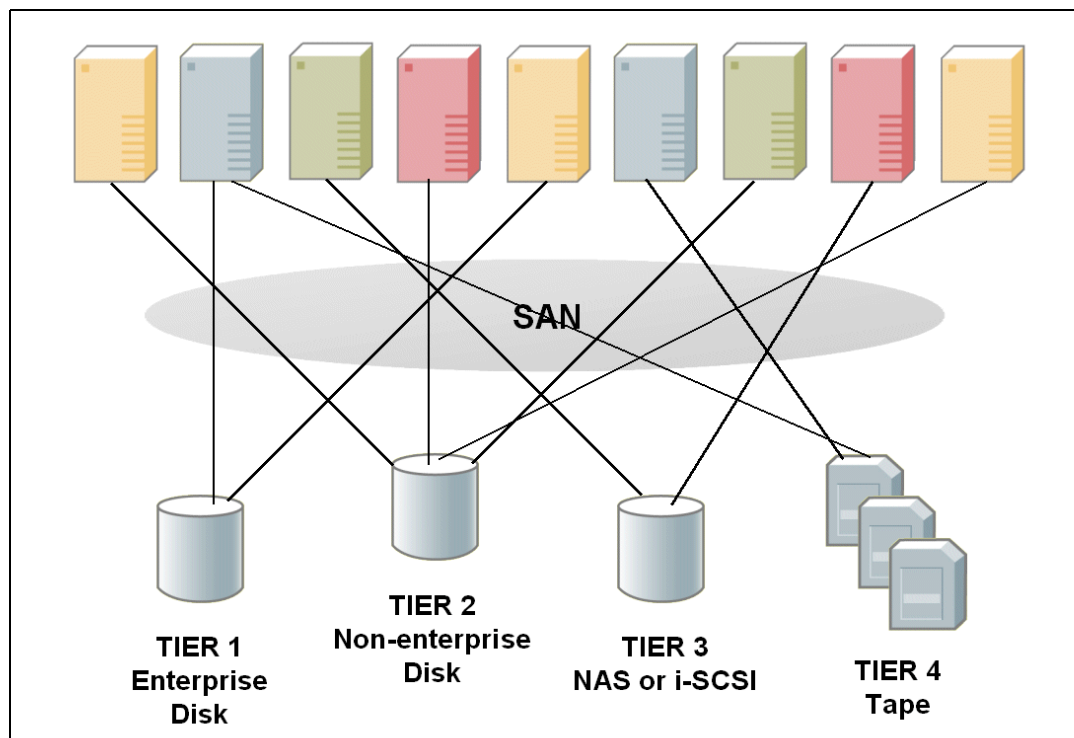


Figure 1-9 Multi-tiered storage environment

An IBM ILM solution in a tiered storage environment is designed to:

- ▶ Reduce the total cost of ownership of managing information. It can help optimize data costs and management, freeing expensive disk storage for the most valuable information.
- ▶ Segment data according to value. This can help create an economical balance and sustainable strategy to align storage costs with business objectives and information value.
- ▶ Help make decisions about moving, retaining, and deleting data, because ILM solutions are closely tied to applications.
- ▶ Manage information and determine how it must be managed based on content, rather than migrating data based on technical specifications. This approach can help result in a more responsive management, and offers you the ability to retain or delete information in accordance with business rules.
- ▶ Provide the framework for a comprehensive enterprise content management strategy.

Key products of IBM for tiered storage solutions and storage virtualization solutions are:

- ▶ IBM TotalStorage® SAN Volume Controller (SVC)
- ▶ IBM System Storage™ N series
- ▶ IBM TotalStorage DS family of disk storage, such as DS4x000, DS6000™, and DS8000™
- ▶ IBM TotalStorage tape drives, tape libraries, and virtual tape solutions

For details of these, see Chapter 5, “Tiers of storage” on page 111.

1.4.2 Long-term data retention

There is a rapidly growing class of data that is best described by the way in which it is managed rather than the arrangement of its bits. The most important attribute of this kind of data is its retention period, therefore it is called *retention managed data*, and it is typically kept in an archive or a repository. In the past it has been variously known as *archive data*, fixed content data, reference data, unstructured data, and other terms implying its read-only nature. It is often measured in terabytes and is kept for long periods of time, sometimes forever.

In addition to the sheer growth of data, the laws and regulations governing the storage and secure retention of business and client information are increasingly becoming part of the business landscape, making data retention a major challenge to any institution. An example of these is the Sarbanes-Oxley Act in the US, of 2002.

Businesses must comply with these laws and regulations. Regulated information can include e-mail, instant messages, business transactions, accounting records, contracts, or insurance claims processing, all of which can have different retention periods, for example, for 2 years, for 7 years, or retained forever. Moreover, some data must be kept just long enough and no longer. Indeed, content is an asset when it has to be kept. However, data kept past its mandated retention period could also become a liability. Furthermore, the retention period can change due to factors such as litigation. All these factors mandate tight coordination and the requirement for ILM.

Not only are there numerous state and governmental regulations that must be met for data storage, but there are also industry-specific and company-specific ones. And of course these regulations are constantly being updated and amended. Organizations have to develop a strategy to ensure that the correct information is kept for the correct period of time, and is readily accessible whenever regulators or auditors request it.

It is easy to envision the exponential growth in data storage that results from these regulations and the accompanying requirement for a means of managing this data. Overall, the management and control of retention managed data is a significant challenge for the IT industry when taking into account factors such as cost, latency, bandwidth, integration, security, and privacy.

Regulation examples

It is not within the scope of this book to enumerate and explain the regulations in existence today. For illustration purposes only, we list here some of the major regulations and accords in Table 1-1, summarizing their intent and applicability.

Table 1-1 Some regulations and accords affecting companies

Regulation	Intention	Applicability
SEC/NASD	Prevent securities fraud.	All financial institutions and companies regulated by the SEC
Sarbanes Oxley Act	Ensure accountability for public firms.	All public companies trading on a U.S. Exchange
HIPAA	Privacy and accountability for health care providers and insurers.	Health care providers and insurers, both human and veterinarian

Regulation	Intention	Applicability
Basel II aka The New Accord	Promote greater consistency in the way banks and banking regulators approach risk management across national borders.	Financial industry
21 CFR 11	Approval accountability.	FDA regulation of pharmaceutical and biotechnology companies

For example, in Table 1-2, we list some requirements found in SEC 17a-4 to which financial institutions and broker-dealers must comply. Information produced by these institutions, regarding solicitation and execution of trades and so on, is referred to as compliance data, a subset of retention-managed data.

Table 1-2 Some SEC/NASD requirements

Requirement	Met by
Capture all correspondence (unmodified) [17a-4(f)(3)(v)].	Capture incoming and outgoing e-mail before reaching users.
Store in non-rewritable, non-erasable format [17a-4(f)(2)(ii)(A)].	Write Once Read Many (WORM) storage of all e-mail, all documents.
Verify automatically recording integrity and accuracy [17a-4(f)(2)(ii)(B)].	Validated storage to magnetic, WORM.
Duplicate data and index storage [17a-4(f)(3)(iii)].	Mirrored or duplicate storage servers (copy pools).
Enforce retention periods on all stored data and indexes [17a-4(f)(3)(iv)(c)].	Structured records management.
Search/retrieve all stored data and indexes [17a-4(f)(2)(ii)(D)].	High-performance search retrieval.

IBM ILM data retention strategy

Regulations and other business imperatives, as we just briefly discussed, stress the requirement for an Information Lifecycle Management process and tools to be in place. The unique experience of IBM with the broad range of ILM technologies, and its broad portfolio of offerings and solutions, can help businesses address this particular requirement and provide them with the best solutions to manage their information throughout its lifecycle. IBM provides a comprehensive and open set of solutions to help.

IBM has products that provide content management, data retention management, and sophisticated storage management, along with the storage systems to house the data. To specifically help companies with their risk and compliance efforts, the IBM Risk and Compliance framework is another tool designed to illustrate the infrastructure capabilities required to help address the myriad of compliance requirements. Using the framework, organizations can standardize the use of common technologies to design and deploy a compliance architecture that might help them deal more effectively with compliance initiatives.

For more details about the IBM Risk and Compliance framework, visit:

<http://www-306.ibm.com/software/info/openenvironment/rcf/>

Here are some key products of IBM for data retention and compliance solutions:

- ▶ IBM Tivoli® Storage Manager, including IBM System Storage Archive Manager
- ▶ IBM DB2® Content Manager Family, which includes DB2 Content Manager, Content Manager OnDemand, CommonStore for Exchange Server, CommonStore for Lotus® Domino®, and CommonStore for SAP
- ▶ IBM System Storage N series
- ▶ IBM DB2 Records Manager
- ▶ IBM TotalStorage DS4000™ with SATA disks
- ▶ IBM System Storage DR550
- ▶ IBM TotalStorage Tape (including WORM) products

For details on these products, see Chapter 4, “IBM Tivoli Storage Manager and IBM System Storage Archive Manager” on page 73.

Important: The IBM offerings are intended to help clients address the numerous and complex issues relating to data retention in regulated and non-regulated business environments. Nevertheless, each client’s situation is unique, and laws, regulations, and business considerations impacting data retention policies and practices are constantly evolving. Clients remain responsible for ensuring that their information technology systems and data retention practices comply with applicable laws and regulations, and IBM encourages clients to seek appropriate legal counsel to ensure their compliance with those requirements. IBM does not provide legal advice or represent or warrant that its services or products are going to ensure that the client is in compliance with any law.

1.4.3 Data lifecycle management

At its core, the process of ILM moves data up and down a path of tiered storage resources, including high-performance, high-capacity disk arrays, lower-cost disk arrays such as serial ATA (SATA), tape libraries, and permanent archival media where appropriate. However, ILM involves more than just data movement, it encompasses scheduled deletion and regulatory compliance as well. Because decisions about moving, retaining, and deleting data are closely tied to application use of data, ILM solutions are usually closely tied to applications.

ILM has the potential to provide the framework for a comprehensive information-management strategy, and helps ensure that information is stored on the most cost-effective media. This helps enable administrators to make use of tiered and virtual storage, as well as process automation. By migrating unused data off of more costly, high-performance disks, ILM is designed to help:

- ▶ Reduce costs to manage and retain data.
- ▶ Improve application performance.
- ▶ Reduce backup windows and ease system upgrades.
- ▶ Streamline™ data management.
- ▶ Allow the enterprise to respond to demand, in real-time.
- ▶ Support a sustainable storage management strategy.
- ▶ Scale as the business grows.

ILM is designed to recognize that different types of information can have different values at different points in their lifecycle. As shown in Figure 1-10, data can be allocated to a specific storage level aligned to its cost, with policies defining when and where data is to be moved.

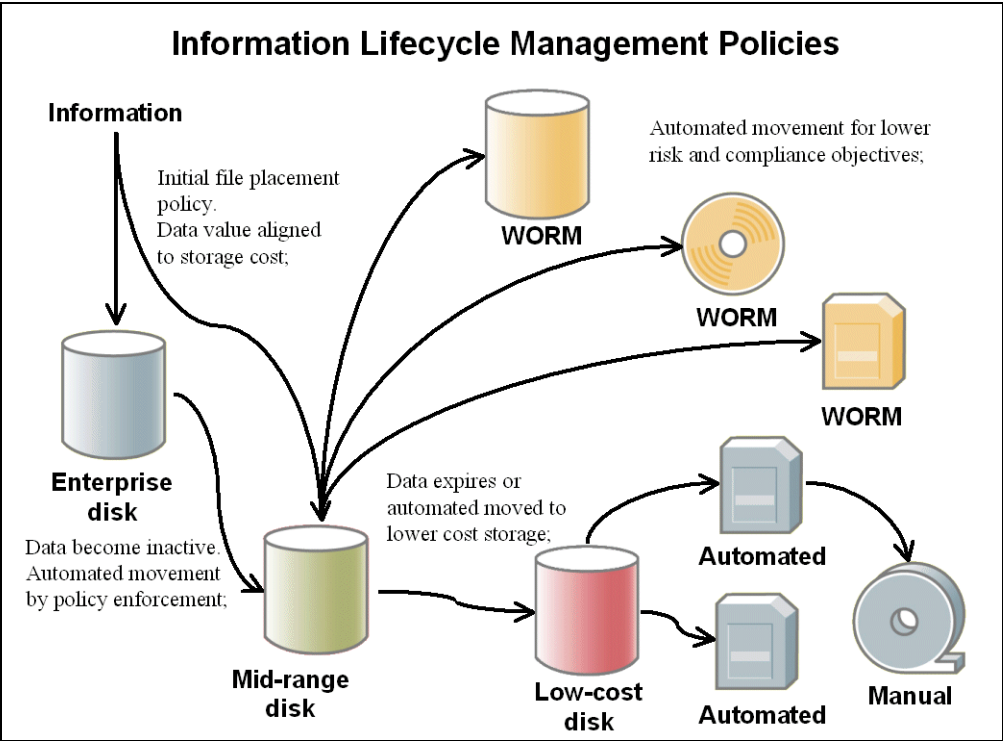


Figure 1-10 ILM policies

But, sometimes, the value of a piece of information might change, and data that was previously inactive and was migrated to a lower-cost storage now could be required and must be processed on a high-performance disk. A data lifecycle management policy can be defined to move the information back to enterprise storage, making the storage cost aligned to data value, as illustrated in Figure 1-11.

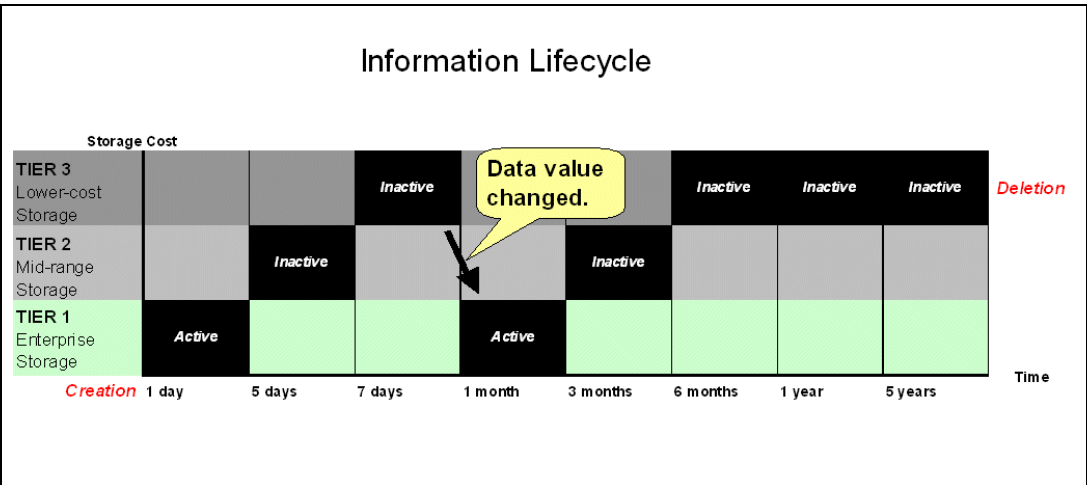


Figure 1-11 Information value changes

Key products of IBM for lifecycle management are:

- ▶ IBM TotalStorage Productivity Center
- ▶ IBM TotalStorage SAN Volume Controller (SVC)
- ▶ IBM Tivoli Storage Manager, including IBM System Storage Archive Manager
- ▶ IBM Tivoli Storage Manager for Space Management

For details of these products, see Chapter 5, “Tiers of storage” on page 111.

1.4.4 Policy-based archive management

As businesses of all sizes migrate to e-business solutions and a new way of doing business, they already have mountains of data and content that have been captured, stored, and distributed across the enterprise. This wealth of information provides a unique opportunity. By incorporating these assets into e-business solutions, and at the same time delivering newly generated information media to their employees and clients, a business can reduce costs and information redundancy and leverage the potential profit-making aspects of their information assets.

Growth of information in corporate databases such as Enterprise Resource Planning (ERP) systems and e-mail systems can make organizations think about moving unused data off the high-cost disks. They must now:

- ▶ Identify database data that is no longer being regularly accessed and move it to an archive where it remains available.
- ▶ Define and manage what to archive, when to archive, and how to archive from the mail system or database system to the back-end archive management system.

Database archive solutions can help improve performance for online databases, reduce backup times, and improve application upgrade times.

E-mail archiving solutions are designed to reduce the size of corporate e-mail systems by moving e-mail attachments and/or messages to an archive from which they can easily be recovered if required. This action helps reduce the requirement for end-user management of e-mail, improves the performance of e-mail systems, and supports the retention and deletion of e-mail.

The way to do this is to migrate and store all information assets into an e-business enabled content manager. ERP databases and e-mail solutions generate large volumes of information and data objects that can be stored in content management archives. An archive solution allows you to free system resources, while maintaining access to the stored objects for later reference. Allowing it to manage and migrate data objects gives a solution the ability to have ready access to newly created information that carries a higher value, while at the same time still being able to retrieve data that has been archived on less expensive media, as shown in Figure 1-12.

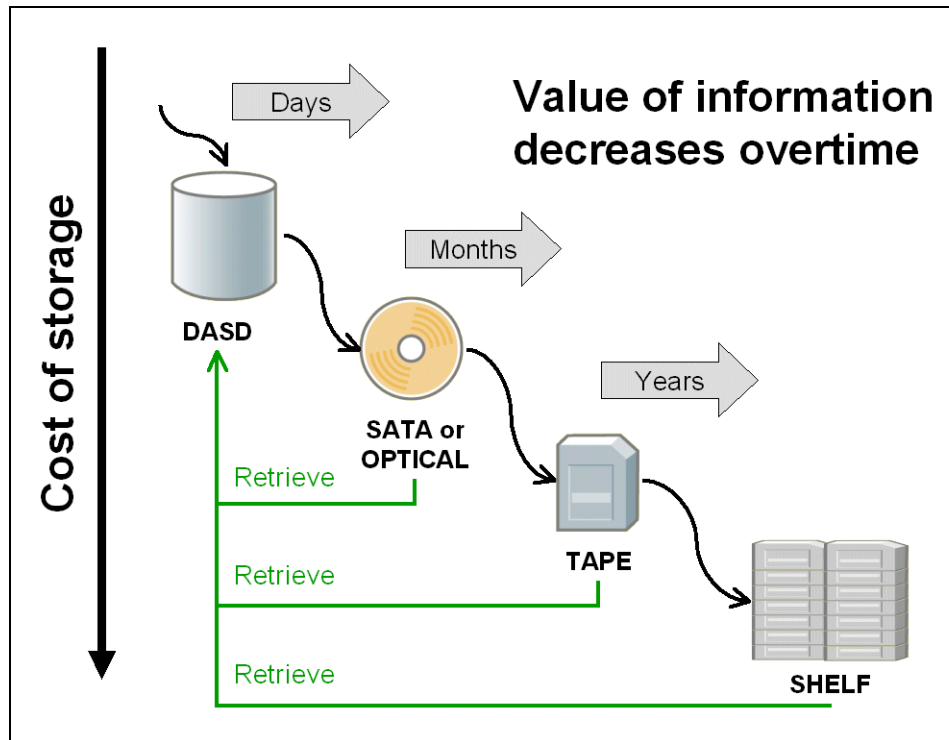


Figure 1-12 Value of information and archive/retrieve management

Key products of IBM for archive management are:

- ▶ IBM Tivoli Storage Manager, including IBM System Storage Archive Manager
- ▶ IBM DB2 Content Manager family of products
- ▶ IBM DB2 CommonStore family of products

For details about these products, see Chapter 5, “Tiers of storage” on page 111.

1.5 Standards and organizations

The success and adoption of any new technology, and any improvement to existing technology, is greatly influenced by standards. Standards are the basis for the interoperability of hardware and software from different, and often rival, vendors. Although standards bodies and organizations such as the Internet Engineering Task Force (IETF), American National Standards Institute (ANSI), and International Organization for Standardization (ISO) publish these formal standards, other organizations and industry associations, such as the Storage Networking Industry Association (SNIA), play a significant role in defining the standards and market development and direction.

Storage Networking Industry Association

The Storage Networking Industry Association is an international computer system industry forum of developers, integrators, and IT professionals who evolve and promote storage networking technology and solutions. SNIA was formed to ensure that storage networks become efficient, complete, and trusted solutions across the IT community. IBM is one of the founding members of this organization. SNIA is uniquely committed to networking solutions into a broader market. SNIA is using its Storage Management Initiative (SMI) and its Storage Management Initiative Specification (SMI-S) to create and promote adoption of a highly functional interoperable management interface for multivendor storage networking products.

exercícios:

- 1-Qual a importancia do ILM para o negócio das empresas?**
- 2-Quais as vantagens de gerenciarmos o ciclo de vida da informação?**
- 3-Explique os 4 componentes do gerenciamento do ciclo de vida da informacao**
- 4-Qual a influencia de Big Data e IoT nesses processos?**
- 5-Escreva uma política de segurança que proteja a GERÊNCIA DO CICLO DE VIDA DA INFORMAÇÃO, baseado no material de aula e no material auxiliar (este documento).**