

SNIA

STORAGE NETWORKING INDUSTRY ASSOCIATION

EDUCATION

Getting Started With ILM

Michael Peterson

Program Dir. SNIA-Data Management Forum

Pres. Strategic Research Corp.

SNIA Legal Notices

- ✓ **The material contained in this tutorial is copyrighted by the SNIA**
- ✓ **Member companies and individuals may use this material in presentations and literature under the following conditions:**
 - ✓ Any slide or slides used must be reproduced without modification
 - ✓ The SNIA must be acknowledged as source of any material used in the body of any document containing material from these presentations.
- ✓ **This presentation is a project of the SNIA Education Committee**

Storage Network Industry Association

- ✓ **SNIA is the trade group for storage networks**
 - ✓ “ensuring that storage networks become complete and trusted solutions across the IT community”
 - ✓ <http://www.snia.org>

- ✓ **SNIA’s “Dictionary of Storage Networking Terminology” online resource**
 - ✓ <http://www.snia.org/dictionary>

- ✓ **SNIA’s Data Management Forum, and its ILM Initiative, is an excellent information resource for data and information lifecycle management**
 - ✓ <http://www.snia.org/dmf>

Agenda Outline

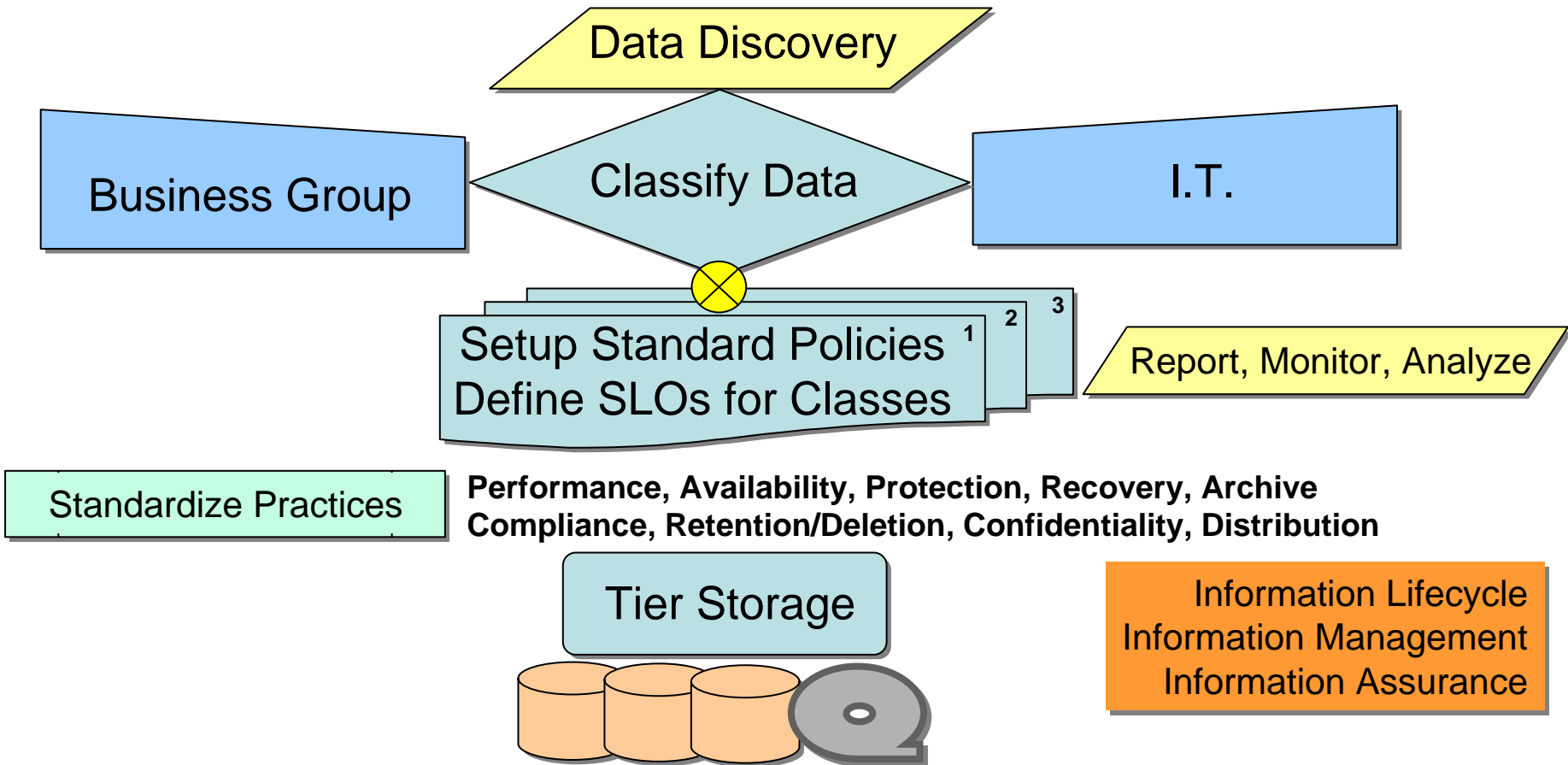
During this presentation we will cover:

- ✓ ILM Overview
 - ✓ Data Classification
 - ✓ SLOs & Policies
 - ✓ Tiered Storage
 - ✓ Q&A
-
- ✓ **Discussion**

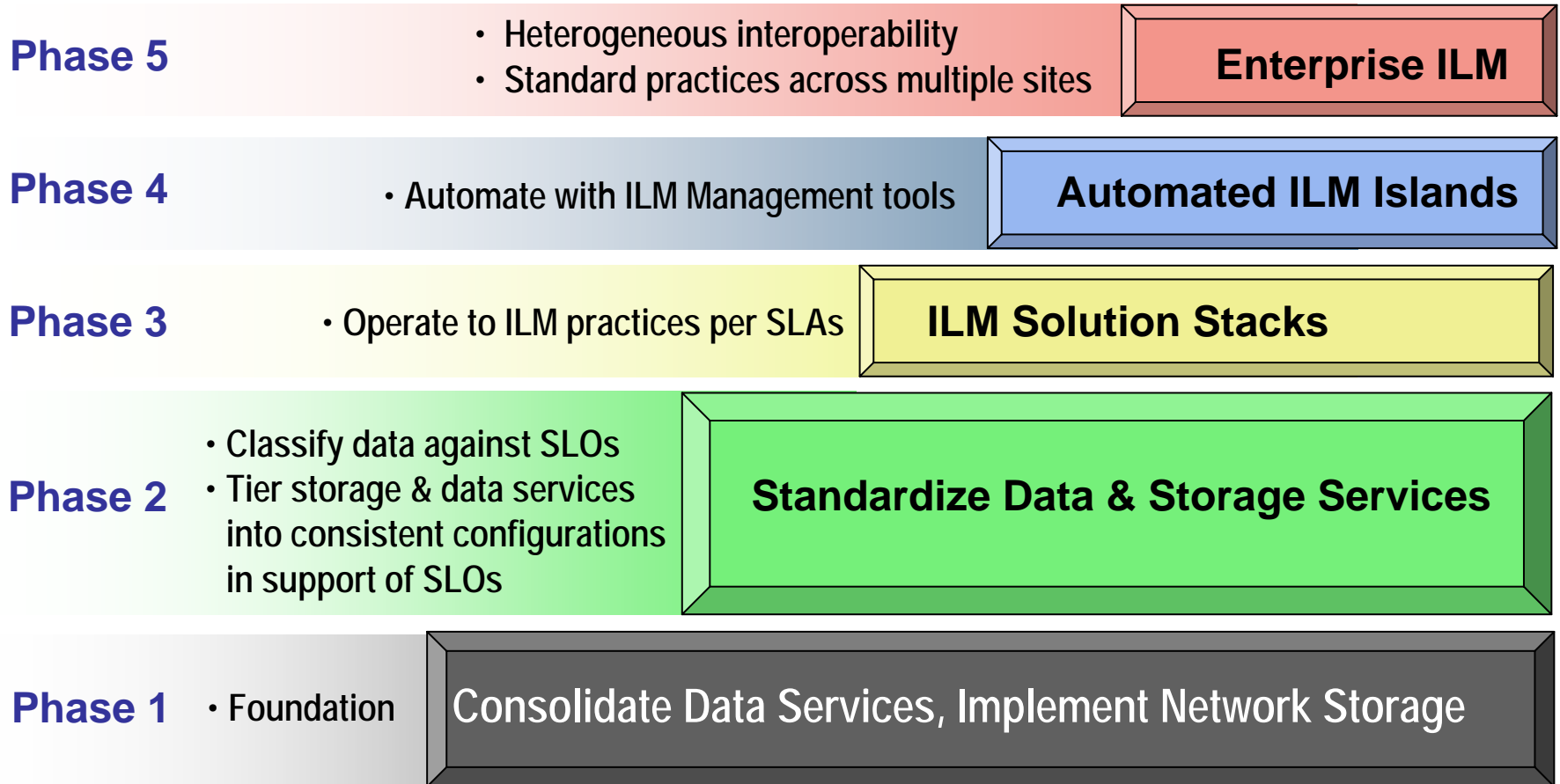



Implementing ILM

ILM is a standards-based, business-driven management practice

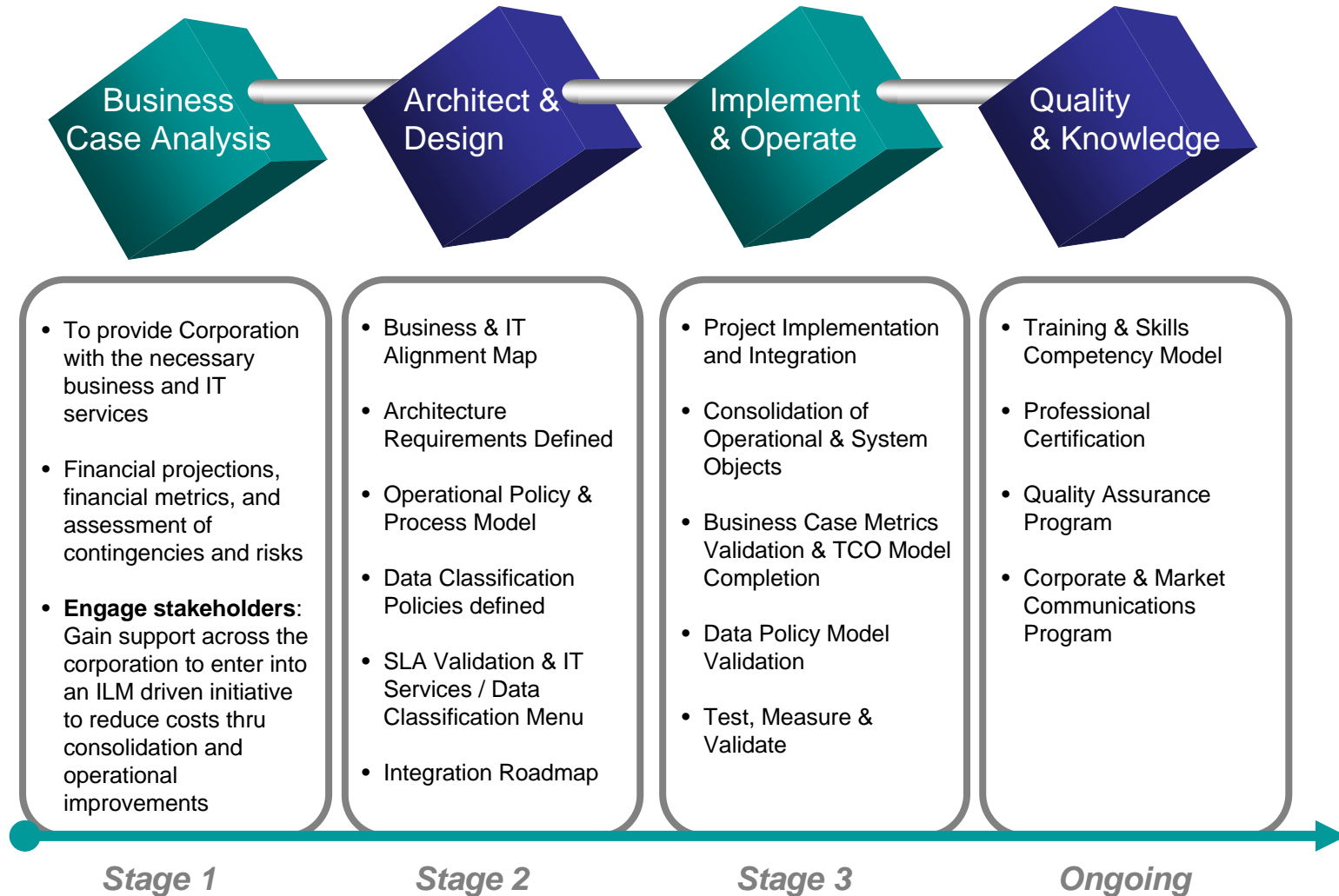


ILM Roadmap



Time 

A Process-based Approach



What is Data Classification?

- ✓ **Organization of data and information into groups for management purposes.**
 - ✓ Allows IT to create multiple service level offerings
 - ✓ Allows LOB to select services based on value of data
 - ✓ May use software to enable some of the process
- ✓ **Represent corporate requirements:**
 - ✓ Security officer: Secret, confidential, proprietary, ...
 - ✓ Records Manager: retention time, ...
 - ✓ Compliance officer (HIPAA, SOX, ...): authorization, retention, ...
- ✓ **Represent LOB requirements:**
 - ✓ Application performance, availability, recoverability, ...
 - ✓ Staff response time, asset reporting, ...
- ✓ **IT Organization needs data classification:**
 - ✓ Method to rationalize requirements into service level offerings

How is Data Classified?

Data Classification, Policies, SLOs are tightly coupled

❏ **Classify by application**

- ❏ All data from a specific App assigned same classification
- ❏ Simple; good start; a first approximation

❏ **Classify by groups of data**

- ❏ Production or Process data
- ❏ LOB, Department, Owner, Customer, ...
- ❏ Compliance requirements by regulation type

❏ **Classify by metadata**

- ❏ Time last accessed, date created, type of data, author, etc

❏ **Classify by content**

- ❏ Content-filtering for compliance, grouping, risk classification
- ❏ Security and Data classes can merge

Classification allows Classes of Service

✓ Define Service Level Objective framework

- Class of infrastructure for performance & resiliency
- Availability requirements (99.xxx%)
- Data Protection & Recovery classes (RTO-RPO mins to days)
- Archival classes (online, tape, off-site, ...)
- Compliance classes (HIPAA, SOX, ...)
- Confidentiality (in the host, in the network, on storage, at rest...)
- Others ...

✓ Focus on what level of service is required for data

- Not on how it is delivered
- Technology changes, service levels don't

✓ Only create SLOs that are important to your business

Sample Class Models

Security Classes:

- CLASS-1 Public Information, CLASS-2 Internal Information, CLASS-3 Confidential Information, CLASS-4 Secret Information, CLASS-5 Hazardous Information

Source: U.S. Gov, ISO 17799

Processor Model

Tier Description
Tier 1 – Mission Critical
Tier 2 – Business Critical
Tier 3 – Business Important
Tier 4 – Productivity Important
Tier 5 – Non-Critical

Source: IBM Mainframe – circa 1990

DMF Work in Progress



DATA CLASSIFICATION MODEL

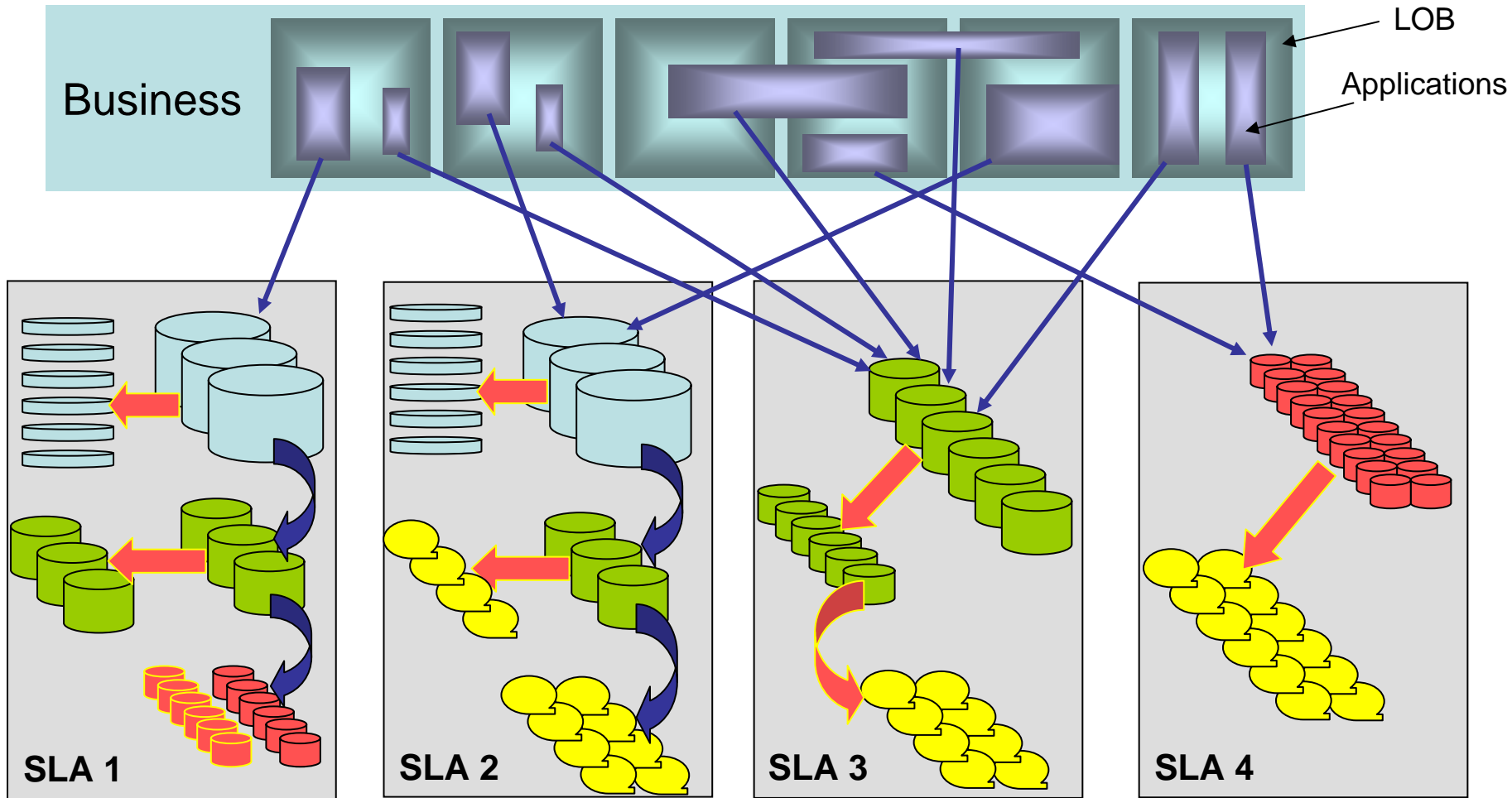
- Class 1 – Not Important to operations
- Class 2 – Important for Productivity
- Class 3 – Business Important information
- Class 4 – Business Vital information
- Class 5 – Mission Critical information



Acme Data Classification Menu

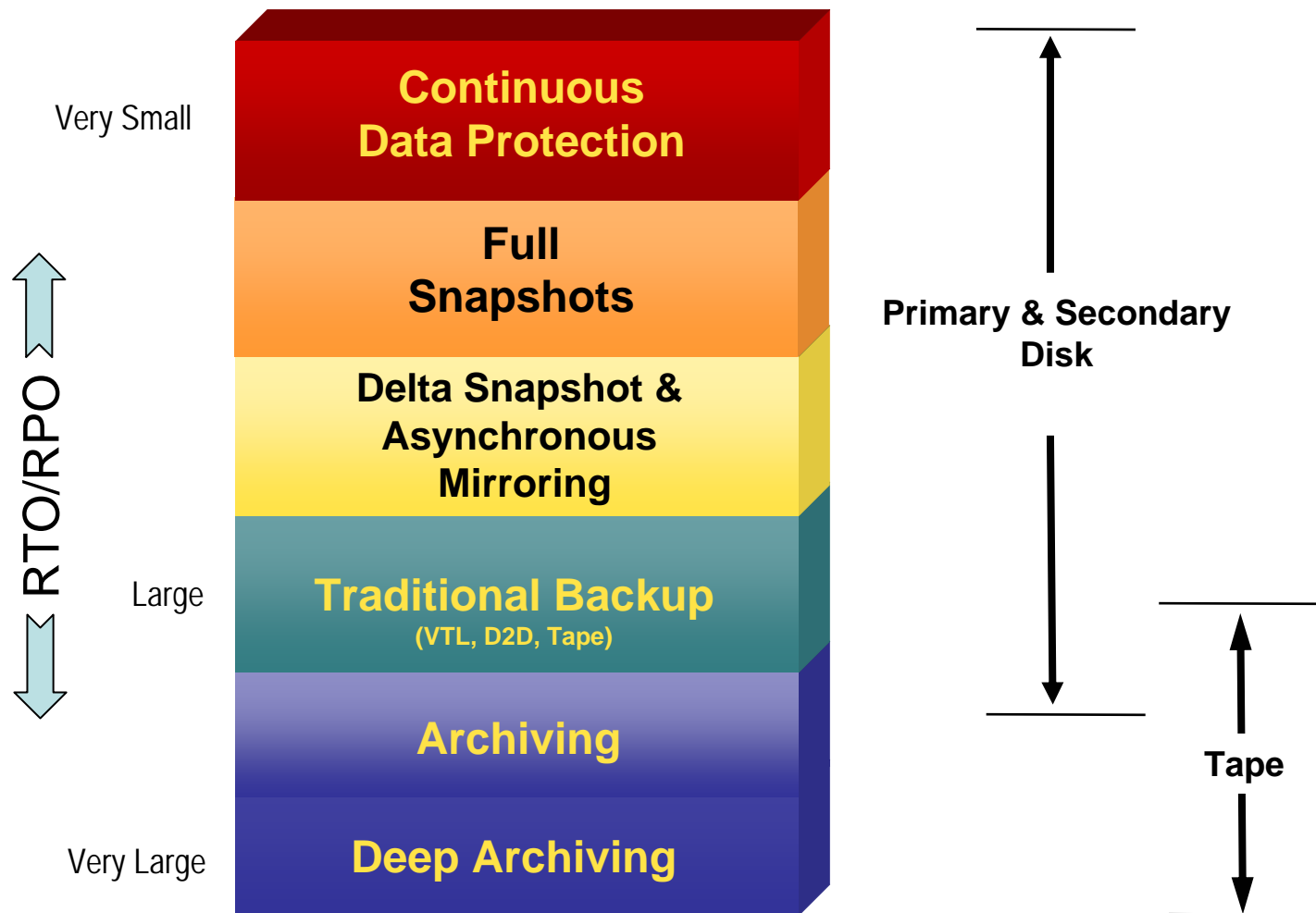
	Mission Critical	Business Important
Requirement	SLO Group	SLO Group
Performance	High Throughput	Medium throughput
Availability	99.999%	99%
Operational Recovery		
–RTO	<15 minutes	<2 hours
–RPO	<5 minutes	<8 hours
Disaster Recovery		
–RTO	<4 hrs	<1 week
–RPO	<5 minutes	<8 hours
Compliance (Retention)	30 yrs	7 yrs
Confidentiality	Class 4 – Secret	Class 3 - Confidential
Archive Inactive Data	120 days	180 days
Charge-back	\$\$\$\$	\$\$

With Data Classification: Standard Configurations



Simplified Management, more efficient, scalable

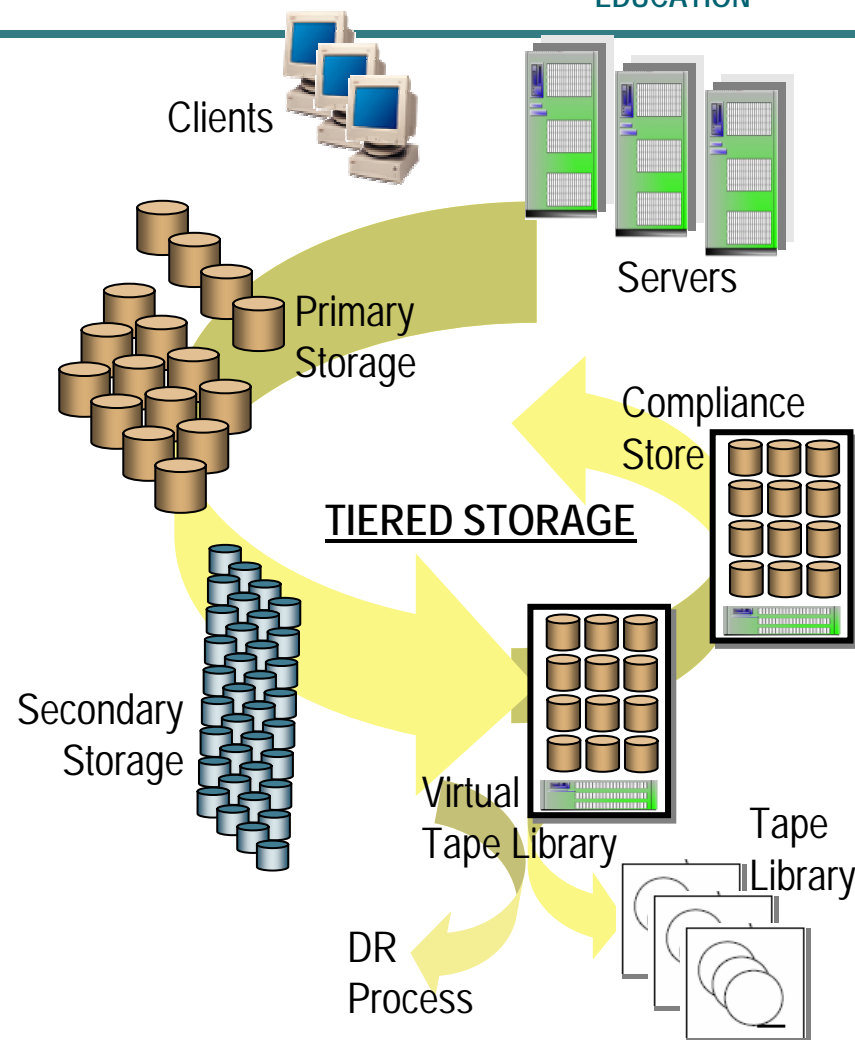
The Operational Recovery Spectrum





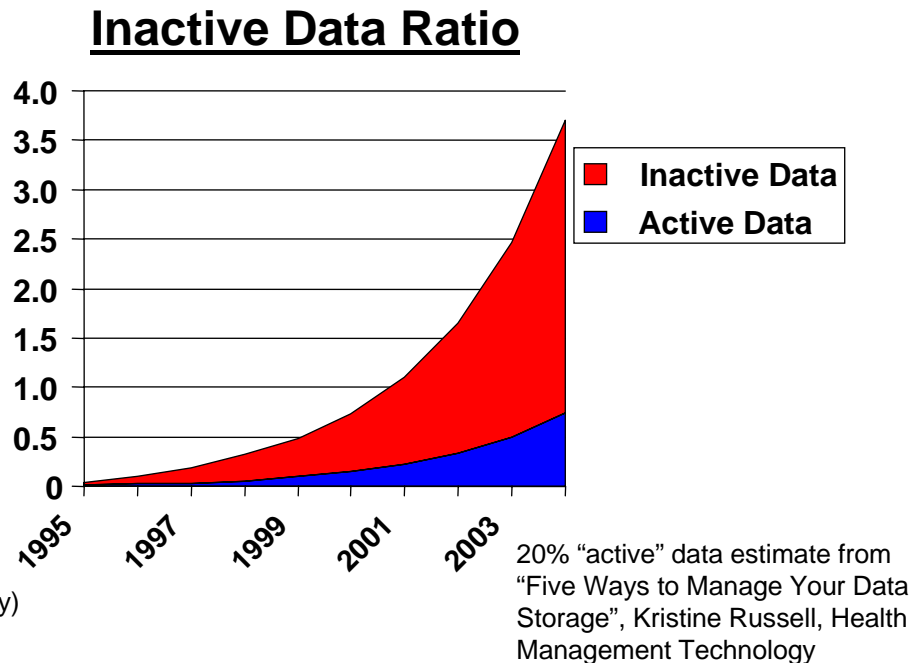
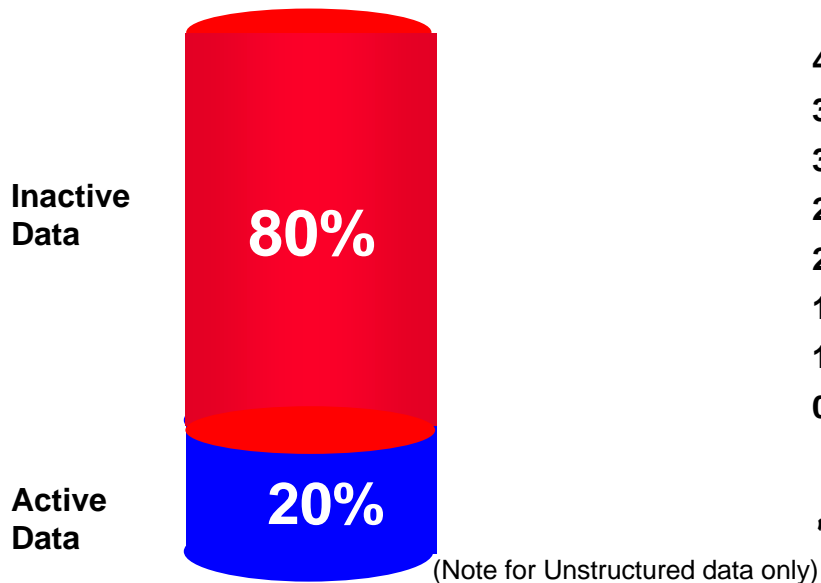
WHAT IS TIERED STORAGE?

- ❖ **Tiering means establishing a hierarchy of storage systems based on service requirements (performance, business continuity, security, protection, retention, compliance, etc.) and cost.**
- ❖ **Tiering storage requires some mechanism to place data:**
 - ❖ Static – applications assigned to specific tiers
 - ❖ Staged – batched data movement (e.g. archive)
 - ❖ Dynamic – some active data mover (e.g. HSM or ILM policy services)



How Much Inactive Data do you Have?

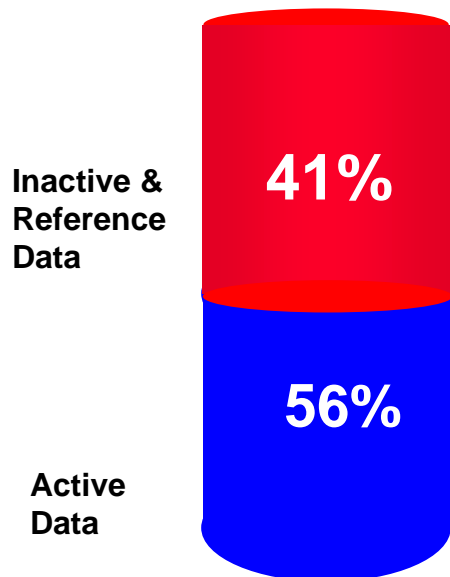
Old definition: Inactive Data - **Not being accessed within 30 days**



Improperly Classified Data Is Very Expensive

- What is today's definition of inactive data?
 - Reference:** Data that will not be modified for the remainder of its lifetime, but still needs regular access.
 - Inactive:** Data that will not be modified and is accessed very infrequently. Typically retained for regulatory or auditing reasons.

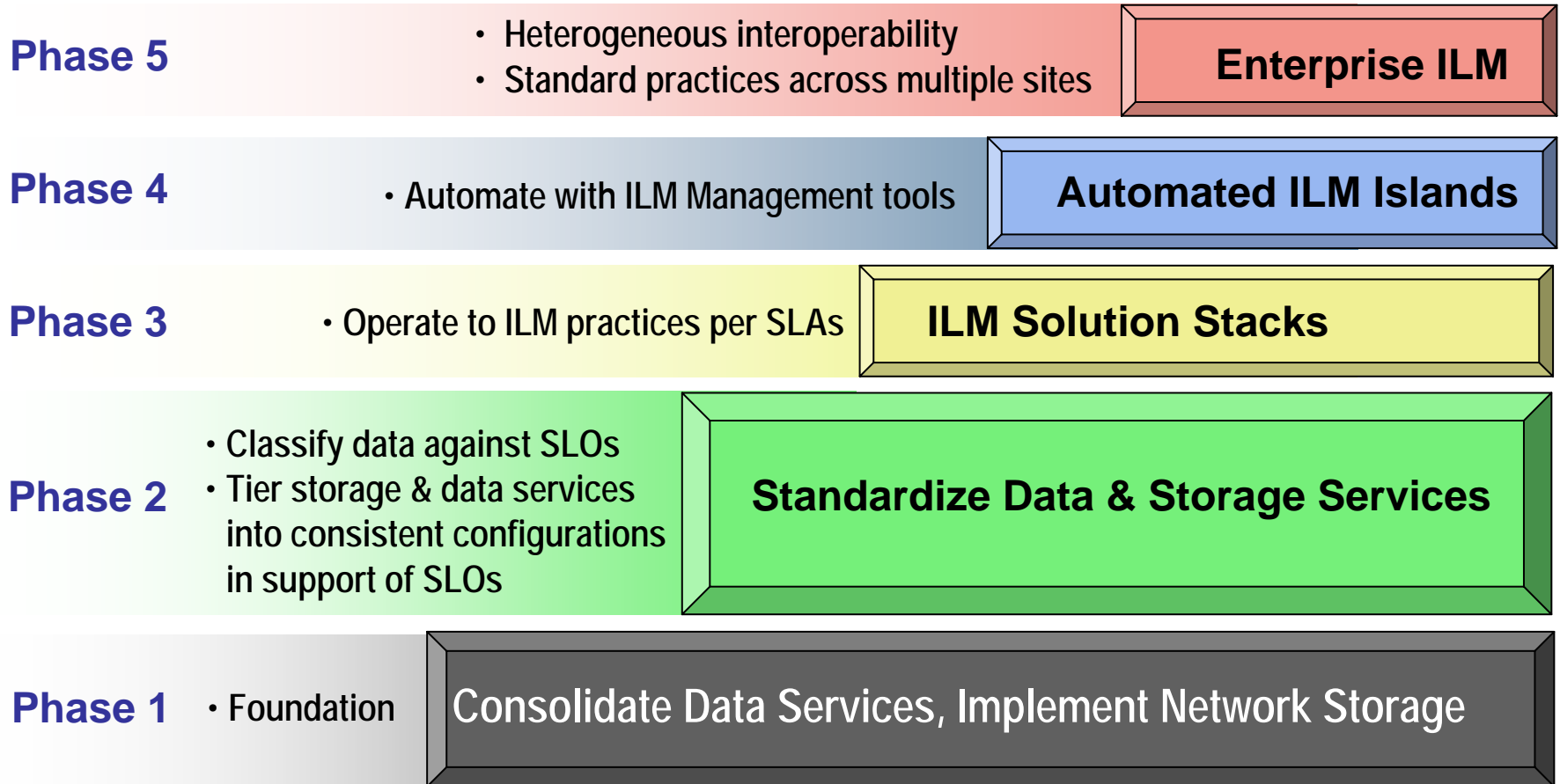
- “Access frequency” does not define value or future need for access anymore?
 - Beware: However you measure it, leaving inactive or reference data on Primary-Storage is increasingly costly and inefficient
 - Lesson: Be sure you are classifying and measuring it correctly – then tier your storage



I.T's perceived mix of what they really have online

Source: Strategic Research Corp. 2005

ILM Roadmap



Time 

In the end: Satisfy the LOB & Make the company successful

Value of ILM to IT

Help LOB to...

Illustrative

Low * Med * High

Decrease Costs

LOB Importance
Our Ability to Deliver



Improve Productivity

LOB Importance
Our Ability to Deliver



Increase Revenues

LOB Importance
Our Ability to Deliver



Happier I.T. Customers

LOB Importance
Our Ability to Deliver



Improve Flexibility

LOB Importance
Our Ability to Deliver



**Please send any comments on this tutorial to SNIA:
track-datamgmt@snia.org**

**Many thanks to the following individuals for
their contributions to this tutorial:**

**Alex Adamopoulos
Nik Simpson
Edgar St.Pierre
Dan Tanner
Mike Rowan**



www.snia.org/dmf