

S1000D 4.1 Support for Traceable, Technical Learning Content

Introductions to the:

Learning Data Module (LDM),
SCORM Content Packaging Module (SCPM),
Sharable Content Object Data Module (SCO DM),
Learn Codes

and

Highlights from the
OSD/TransAtlantic and ADL Bridge Project

Wayne Gafford, Port Hueneme Naval Surface Warfare Center

Svante Ericsson, Corena



S1000D User Forum 2012
June 18-21, 2012

Agenda

- What is traceability?
- Why traceability is important.
- Overview of S1000D 4.1 support training content and structure.
- Traceability between systems.
- Highlights of OSD Bridge Project Deliverables.

What is Traceability?

- An activity that requires a transaction resulting in a record.

and

- A correlation any two objects that require a one to one, one to many or many to many relationship to determine the completeness of the relationship.

A Grim Tale



What do Hansel and Gretel have to do with breadcrumbs?

Bad Traceability Strategy



Technical training content should be traced to related product support data and to the supported system.

A Good Traceability Tool: The S1 Data Module Code



Traceability involves creating traces that make it possible to understand information for as long as it is needed.
Öberg, 2011

Why is Traceability Important in the Training Context?

A Quantitative Reason: The Need for Integrated Technical Data and Training Content

“Of the 408 projects submitted for Computer-Based Training and PC-Simulation Maintenance, **two-thirds** reported the primary reason for the maintenance request was due to equipment or publication changes. Better integration of technical information with training would alleviate some of this rework.”*

* *Computer-Based Training & Personal Computer-Simulation Prioritization and Cost Estimation Assessment for NETC COO Supporting FY10/11 Spend Plan (NETC 2009)*

S1000D


ATA e-BUSINESS PROGRAM


AJA
AEROSPACE AND DEFENCE
INDUSTRIES ASSOCIATION


ASD
AeroSpace and Defence
Industries Association of Europe

The Learning Data Module

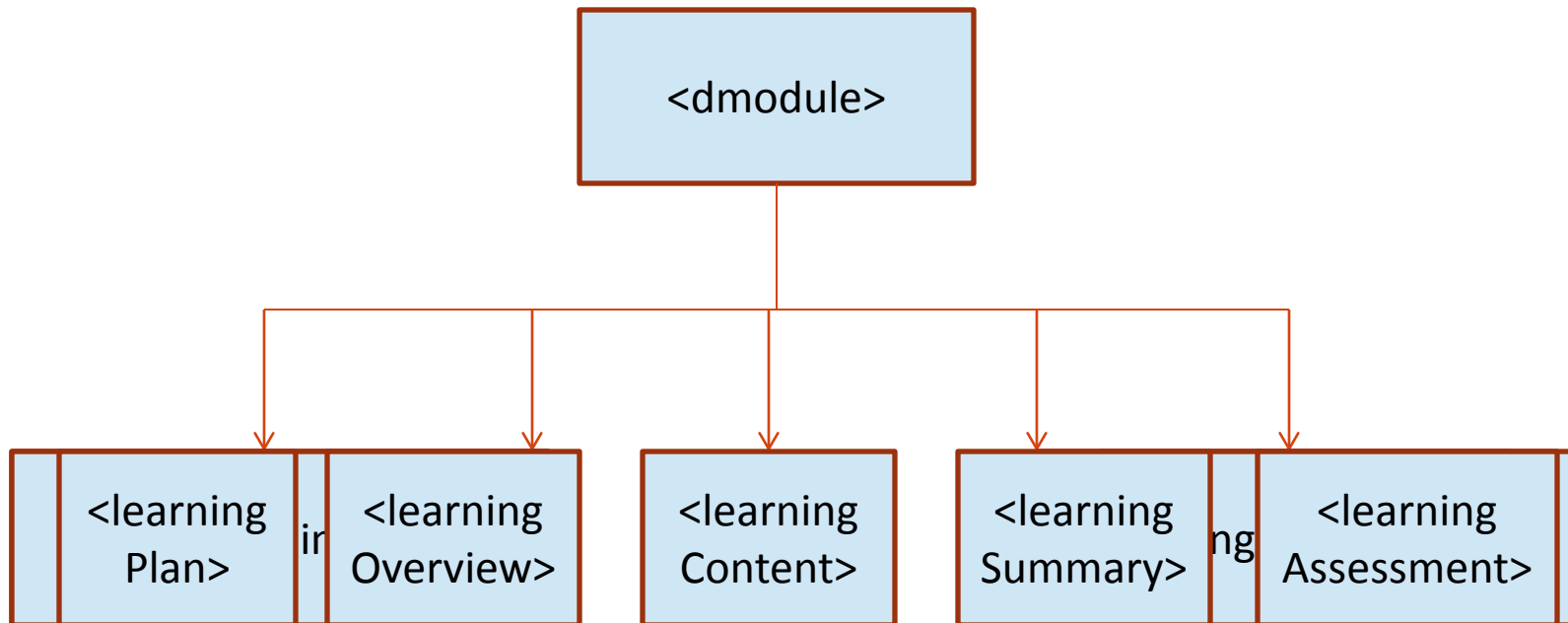
Highlights from the
4.1 S1 Learning Data Module Schema Structure



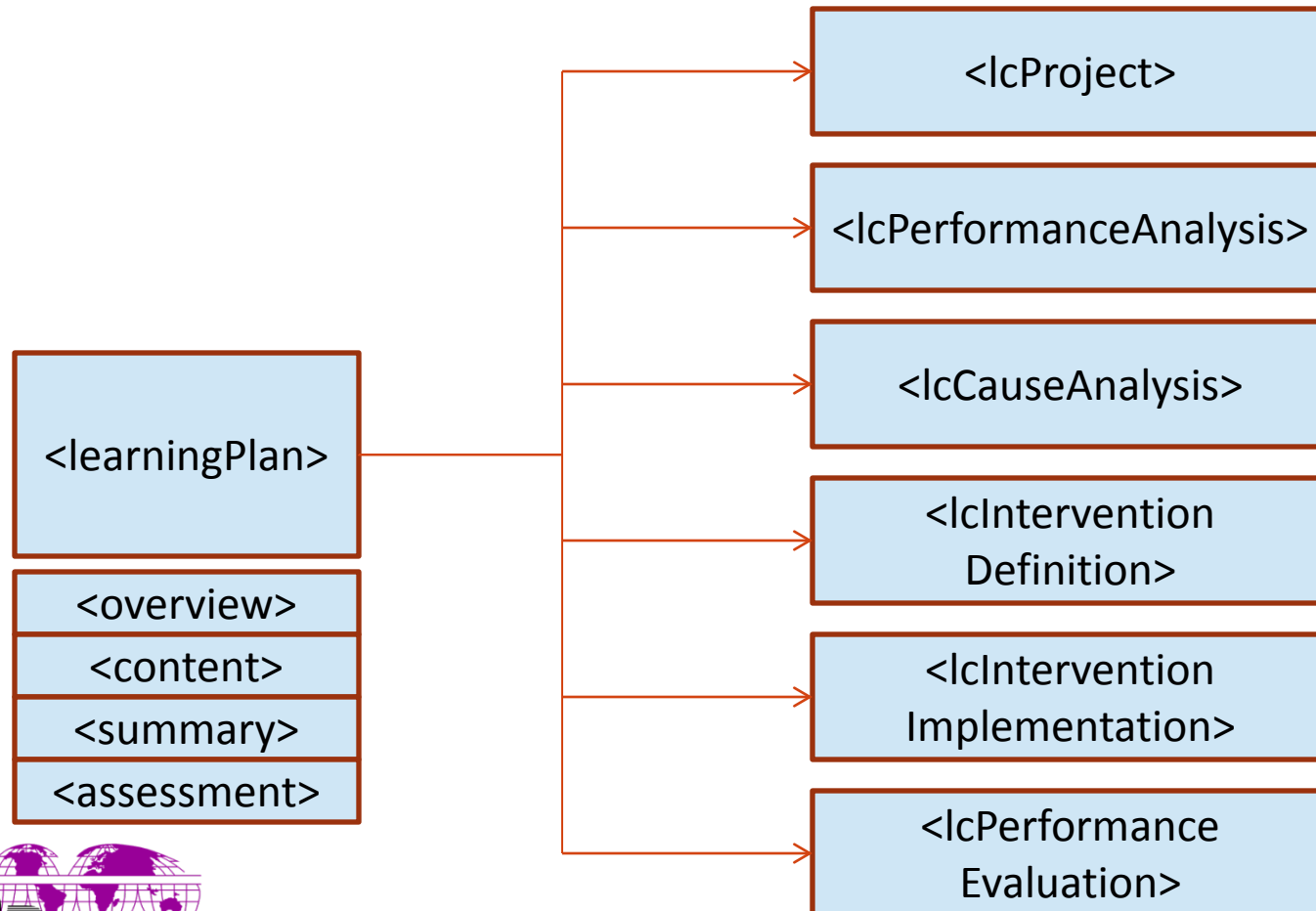
Learning DM Issue 4.1 Chapters

- Chap 3.9.5.2.13 Content section - Learning data module
- Chap 3.9.5.2.13.1 Learning data module - Learning plan information type
- Chap 3.9.5.2.13.2 Content section - Learning overview information
- Chap 3.9.5.2.13.3 Content section - Learning content information
- Chap 3.9.5.2.13.4 Content section - Learning summary information
- Chap 3.9.5.2.13.5 Content section - Learning assessment information

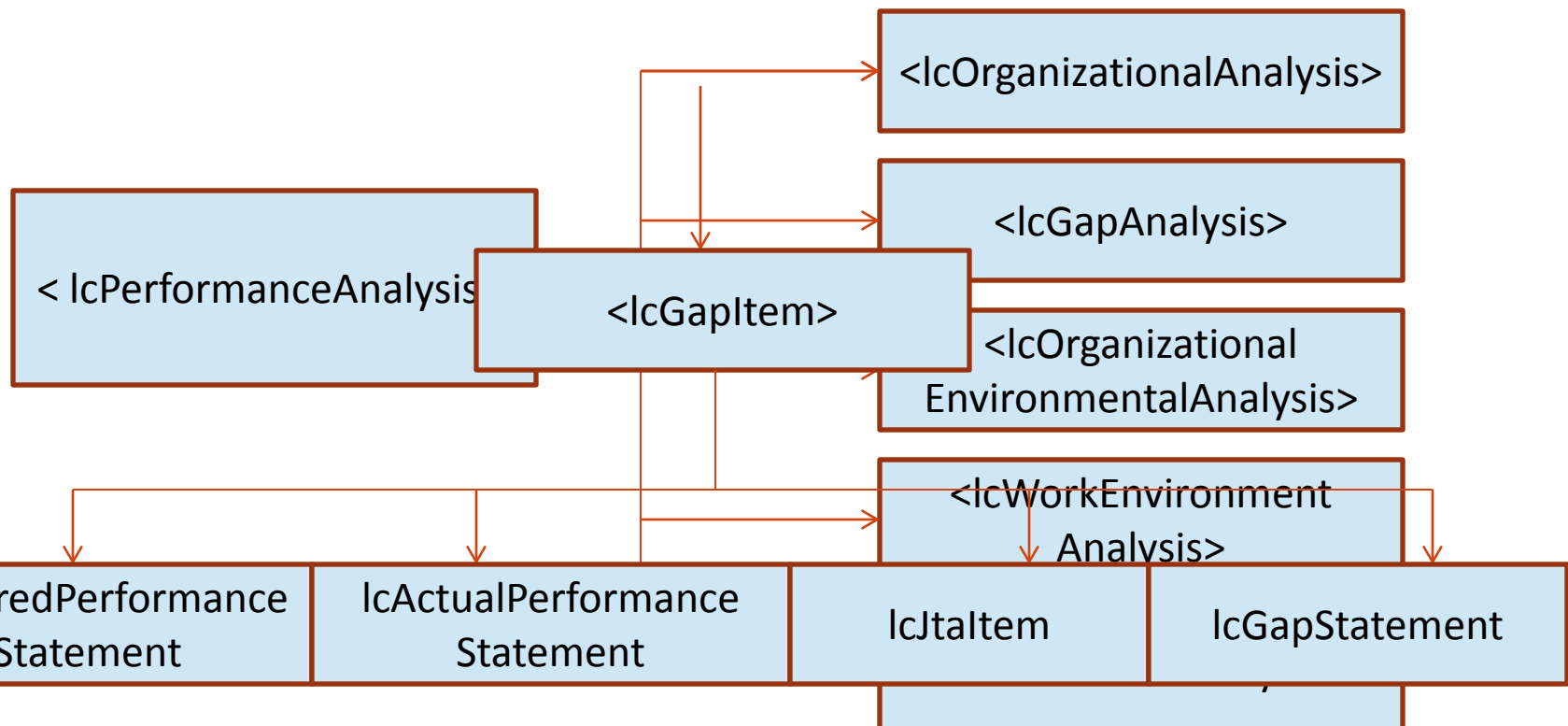
Training Content Structure in S1000D



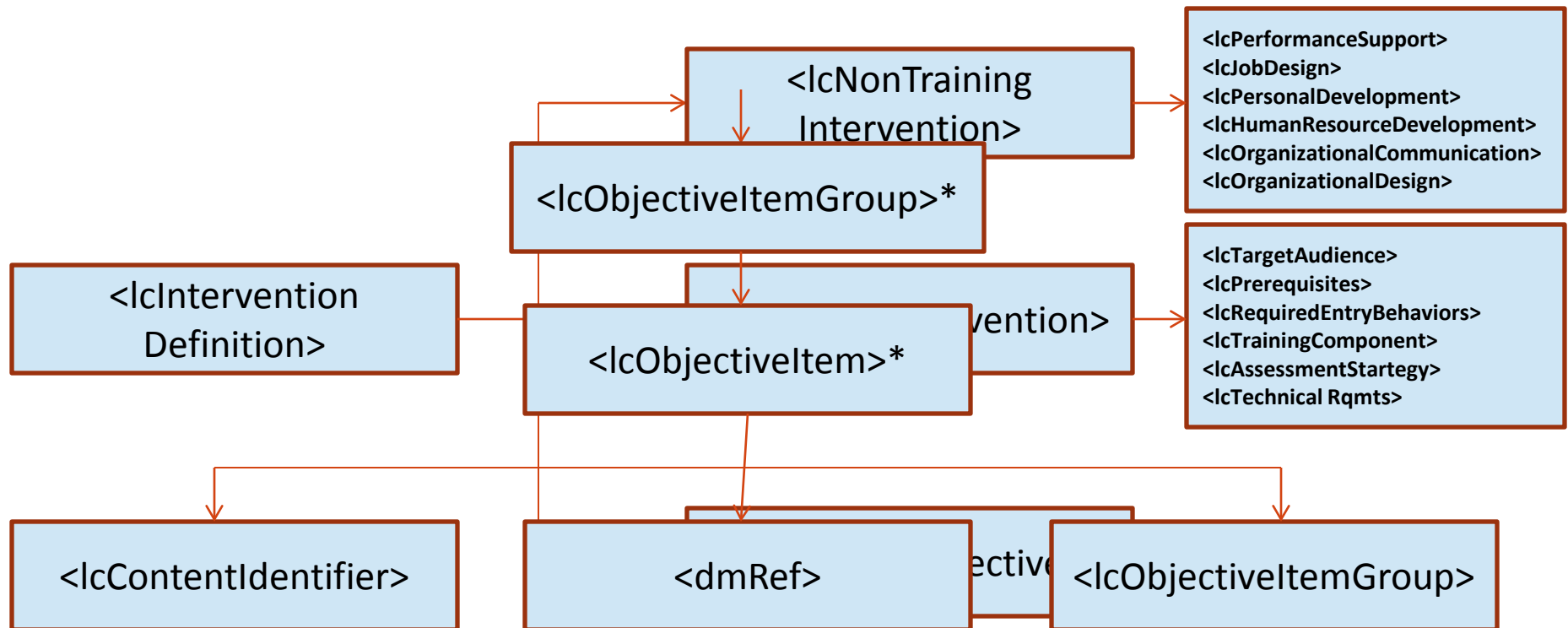
The Learning Plan: Sublevel 1

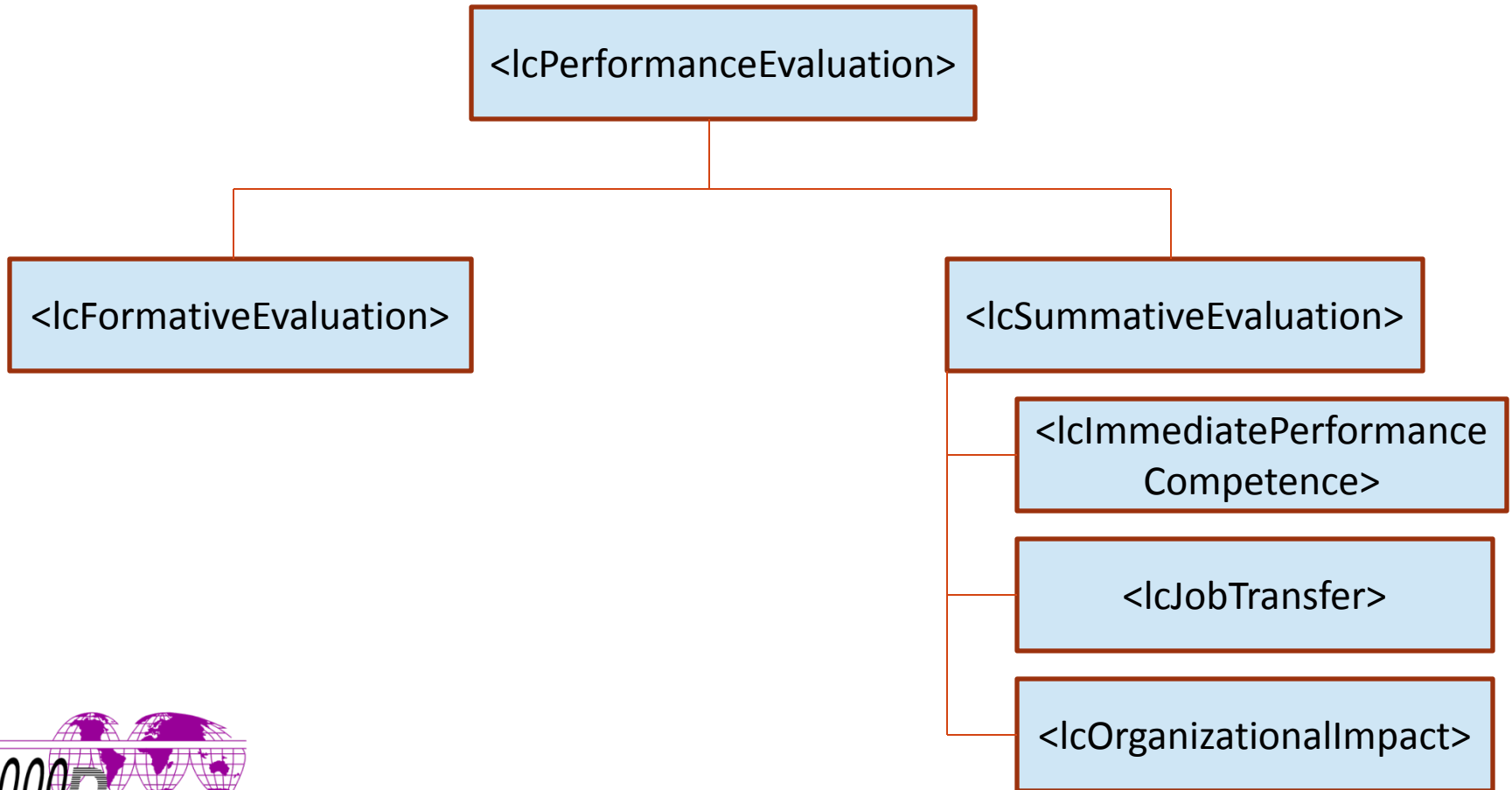


The Learning Plan: Sublevel 2

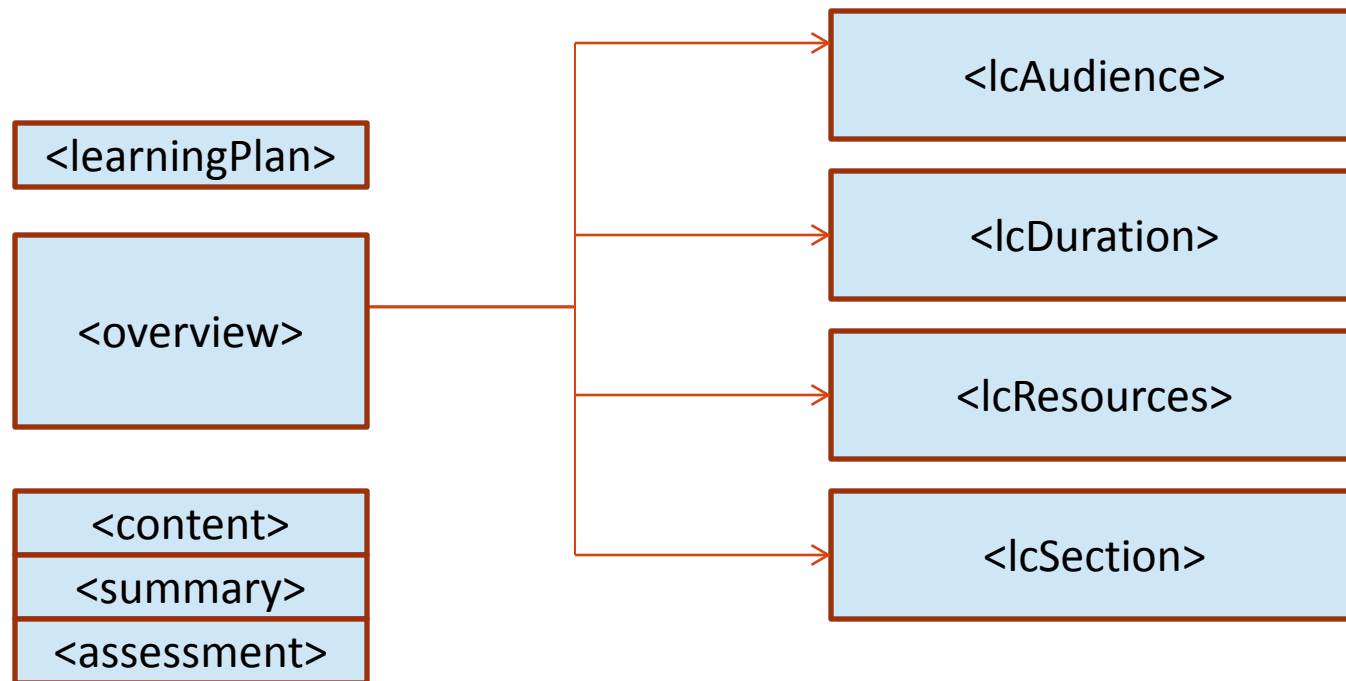


The Learning Plan: Sublevel 2





The Overview: Sublevel 1



Learning Content: Sublevel 1

<learningPlan>

<overview>

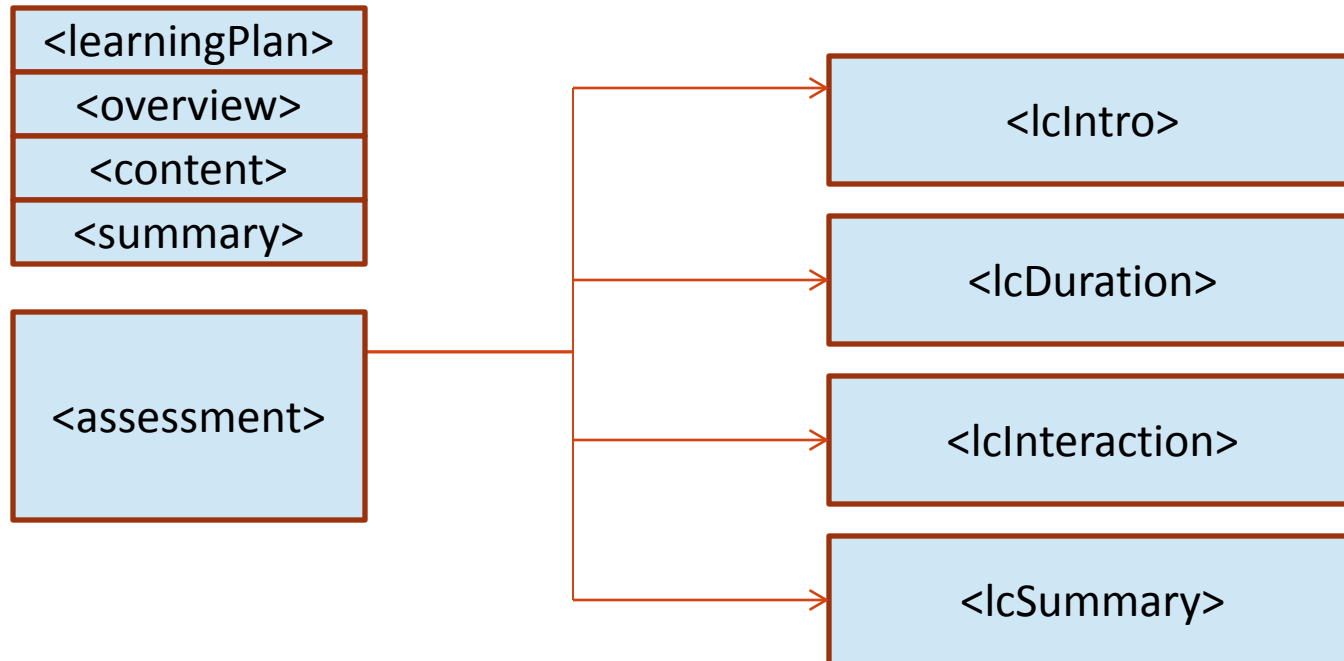
<content>

<lcInstruction>

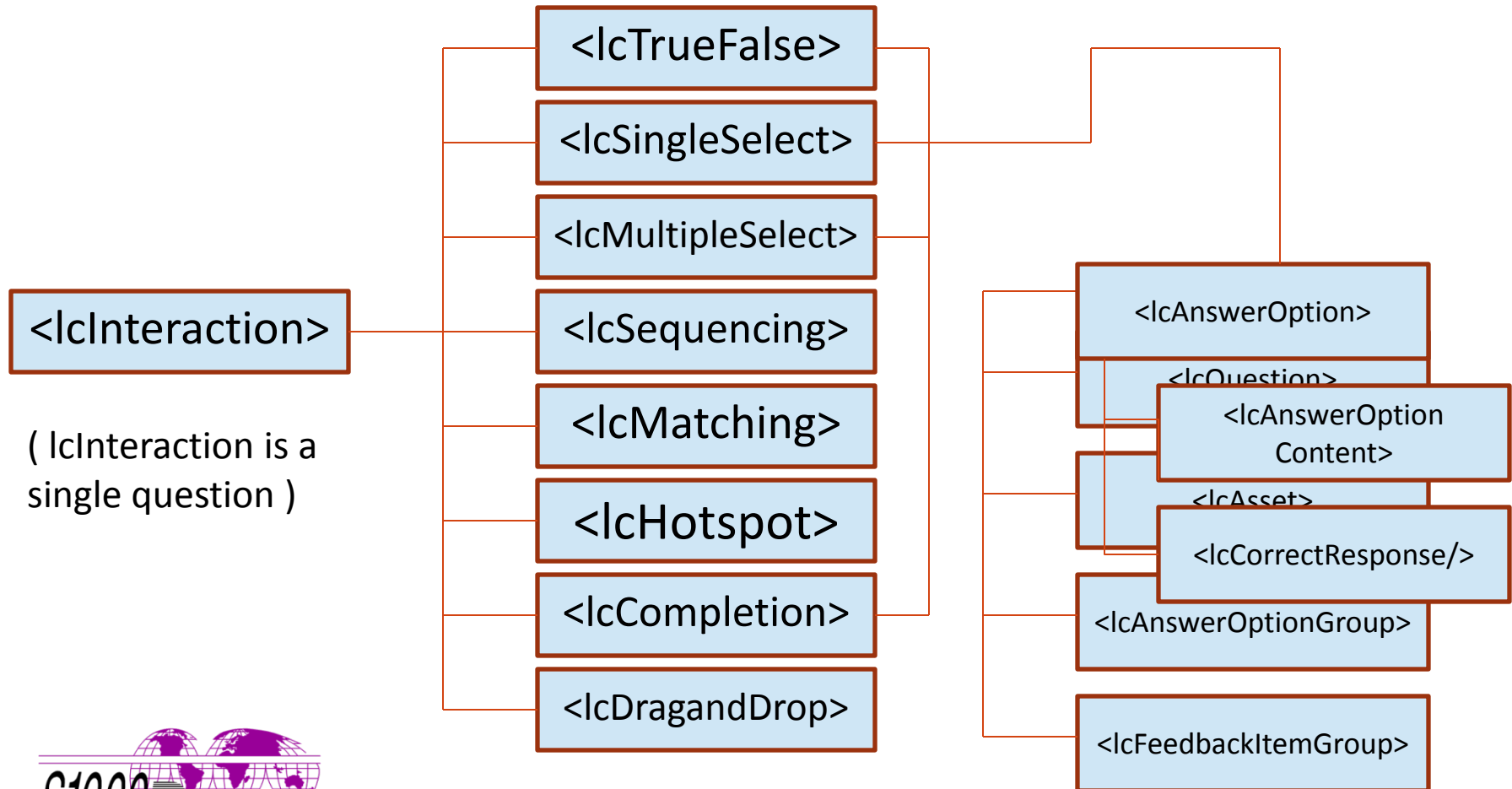
<summary>

<assessment>

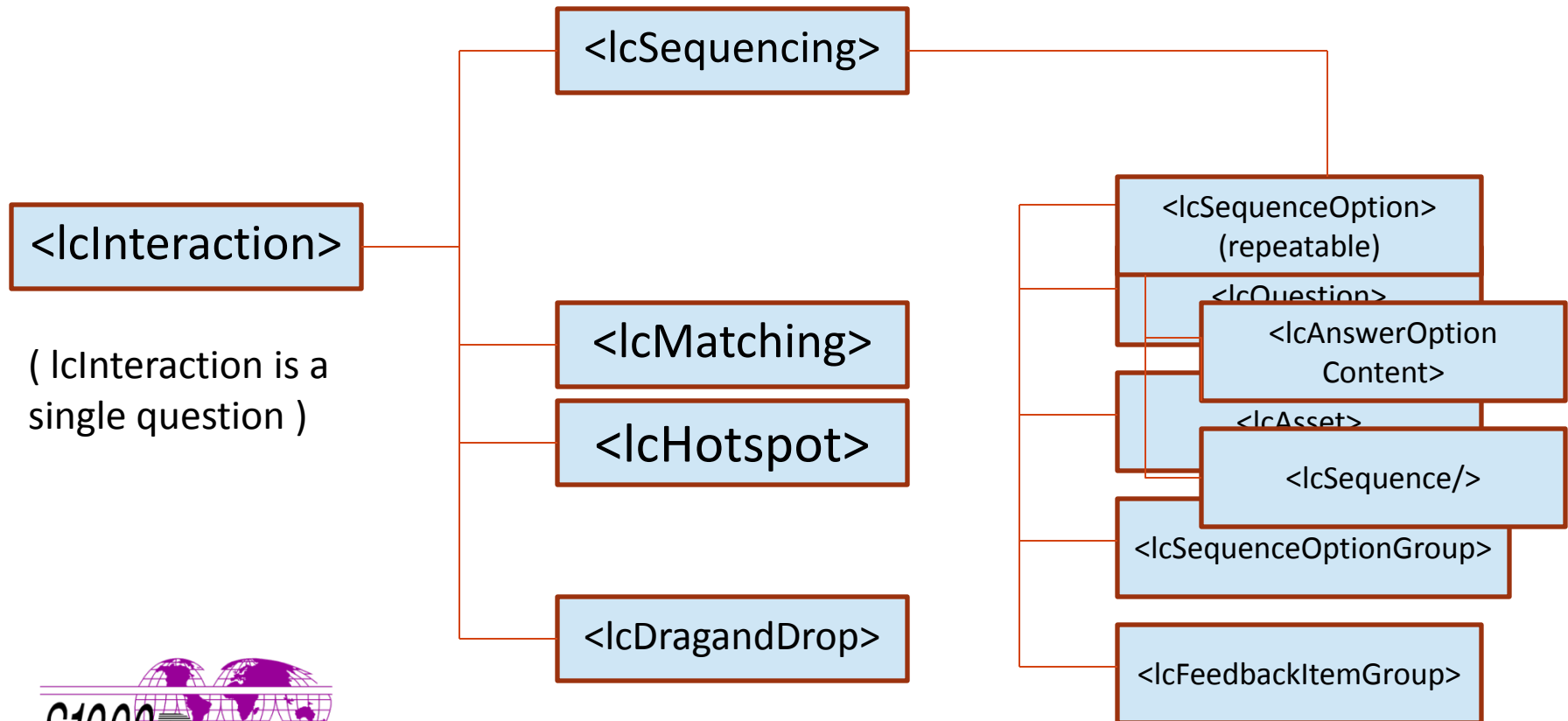
The Assessment: Sublevel 1



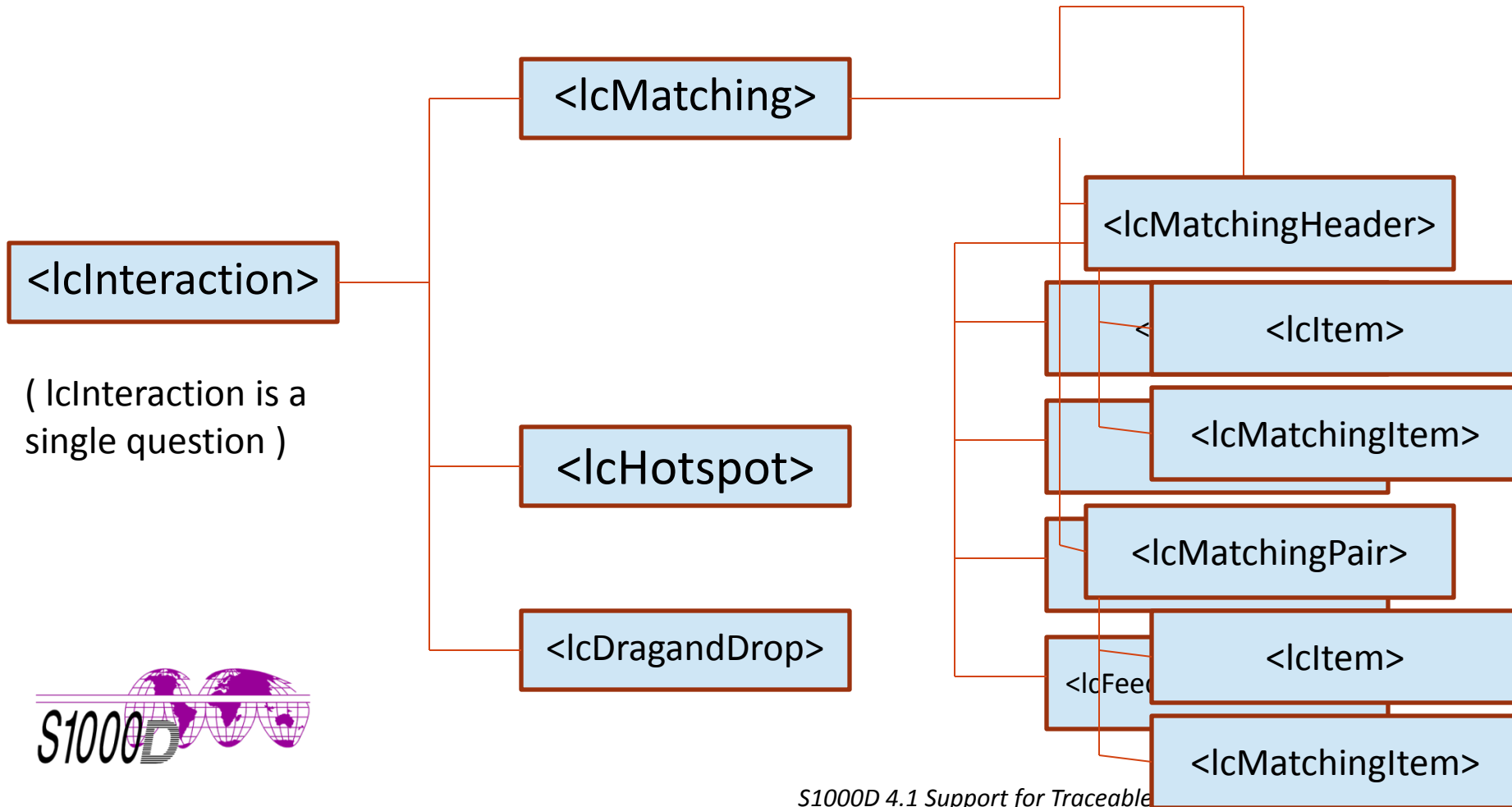
The Assessment: Sublevel 2



The Assessment: Sublevel 2



The Assessment: Sublevel 2



Course Structure in S1000D

- 4.0 vs 4.1
- New type of reusable data module
- Creates new traceability opportunities

SCPM Issue 4.1 Chapters

- Chap 4.15 Information management - Learning information
- Chap 4.15.1 Learning information - SCORM content package module
- Chap 4.15.2 Learning information - Coding of SCORM content package modules
- Chap 4.15.3 Learning information - Building SCORM content packages
- Chap 4.15.4 Learning information - Updating SCORM content packages

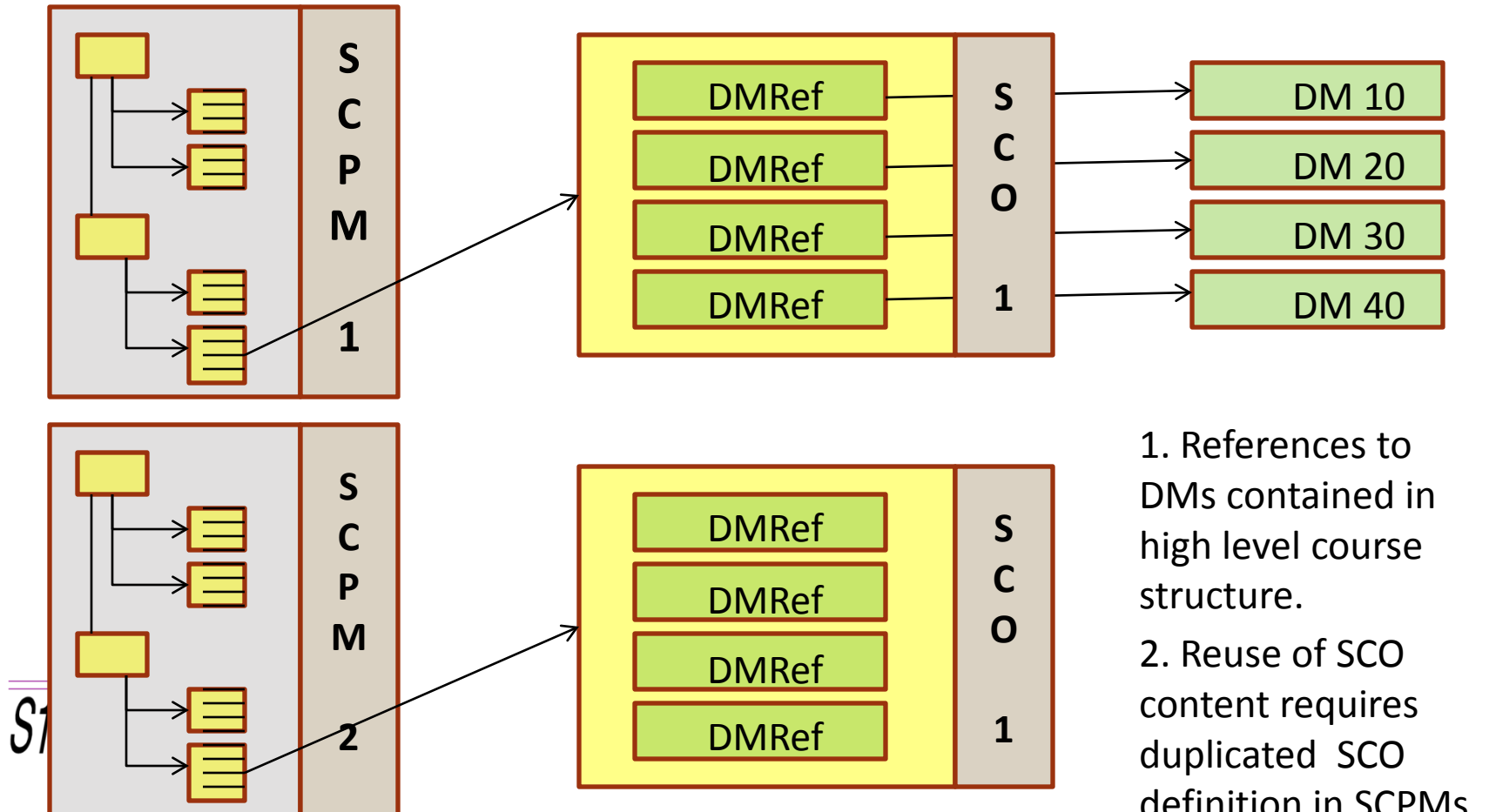
SCO Content DM Issue 4.1 Chapter

- Chap 3.9.5.2.17 Content section - SCO Content Data Module

S1000D 4.0 Schema for Course Structure

SCPM (SCORM Content Package Module): Provides high-level course organization.

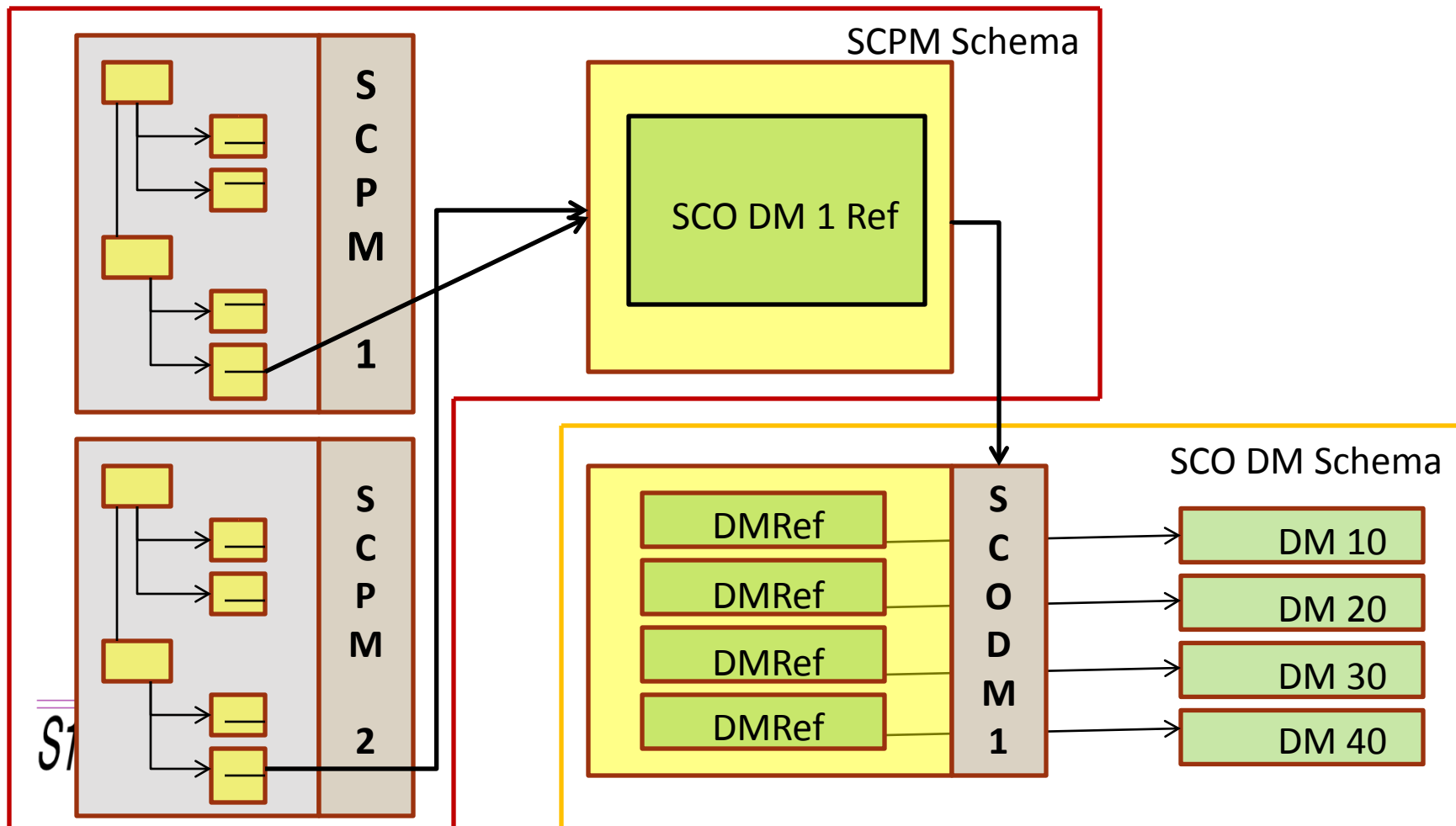
SCO Content (Sharable Content Object Content): Contains References to data modules.



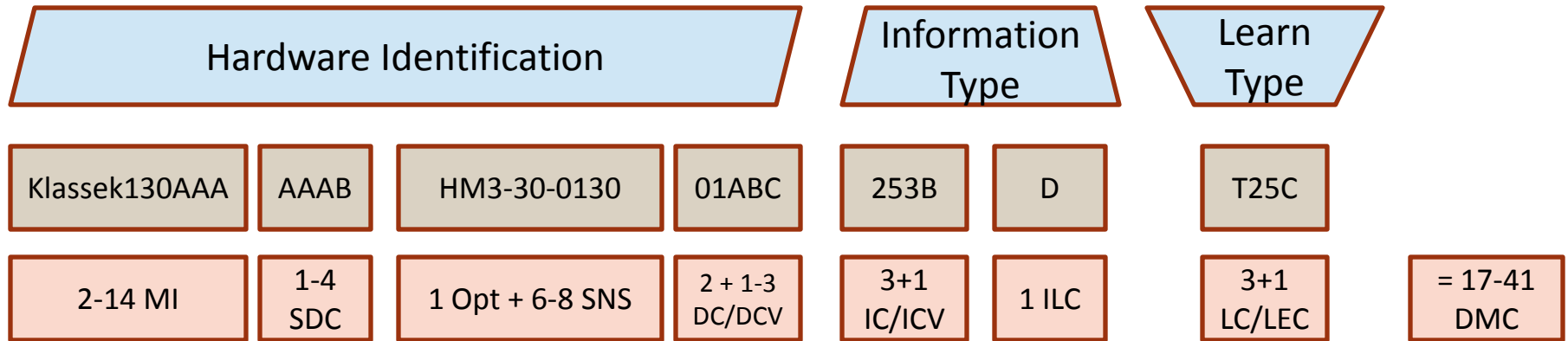
S1000D 4.1 Schemas for Course Structure

SCPM (SCORM Content Package Module): Provides high-level course organization.

SCO DM Ref **NEW!** – A single reference to SCO DM Identifier vs. a list of DM Refs



Learn Codes in the DMC



Learn Code Description: H and T Codes

- **H Codes (Human Performance)**

The “H” coding framework for human performance technology data modules is derived from an industry-recognized human performance technology model developed by Darlene M. VanTiem, James L. Moseley, and Joan Conway Dessinger. Human performance technologists need to be familiar with this model and its core requirements.

Example	H10 Performance analysis	H30 Intervention definition
Learn Types	H11 Organizational analysis - Vision statement	H31 Performance support
	H12 Organizational analysis - Mission statement	H32 Job/Work design
	H13 Organizational analysis - Values	H33 Personal development
	H14 Organizational analysis - Goal statement	H34 Human resource development
	H15 Organizational analysis - Objective statement	H35 Organizational communication
	H16 Organizational analysis - Gap statement	
	H17 Environmental analysis - Organizational environment	

Note: Each code corresponds to a <tag> in the <learnPlan> schema structure.

Learn Code Description: H and T Codes

- **T Codes (Training)**

The coding framework for training data modules is derived from a theory of instruction by Robert Gagne, known as the Nine Events of Instruction. Trained or certified Instructional Systems Design (ISD) professionals need to be familiar with these events of instruction as a framework for designing training systems. Other well-established theories of instruction, learning, and/or motivation are also reflected in the training learn codes to facilitate their use and understanding across ISD practitioners.

Example	T20 Learning objectives	T48 Animated content – Discrimination
Learn Types	T21 Terminal objective - Intellectual skill - Discriminations	T49 Animated content – Fact
	T22 Terminal objective - Intellectual skill - Concepts	T4A Animated content – Concept
	T23 Terminal objective - Intellectual skill - Rules/Principles	T4B Animated content - Rule/Principle
	T24 Terminal objective - Intellectual skill - Processes	T4C Animated content – Procedure
	T25 Terminal objective - Intellectual skill - Procedures	T4D Animated content - Higher order rule
	T26 Terminal objective - Intellectual skill - Higher order rules	
	T27 Terminal objective - Verbal information - Facts	

Note: Each code corresponds to a <tag> in the <learnPlan> and other parts of the LDMschema structure.

OSD/TransAtlantic

Bridge Project Highlights

- Concept of Operations
- Bridge API
- AIM/SCO Workbench Content Development Tool
- Bridge Toolkit (Transformation)
- Data Identification Service (Life Cycle Tracing)
- Cost Benefit Analysis

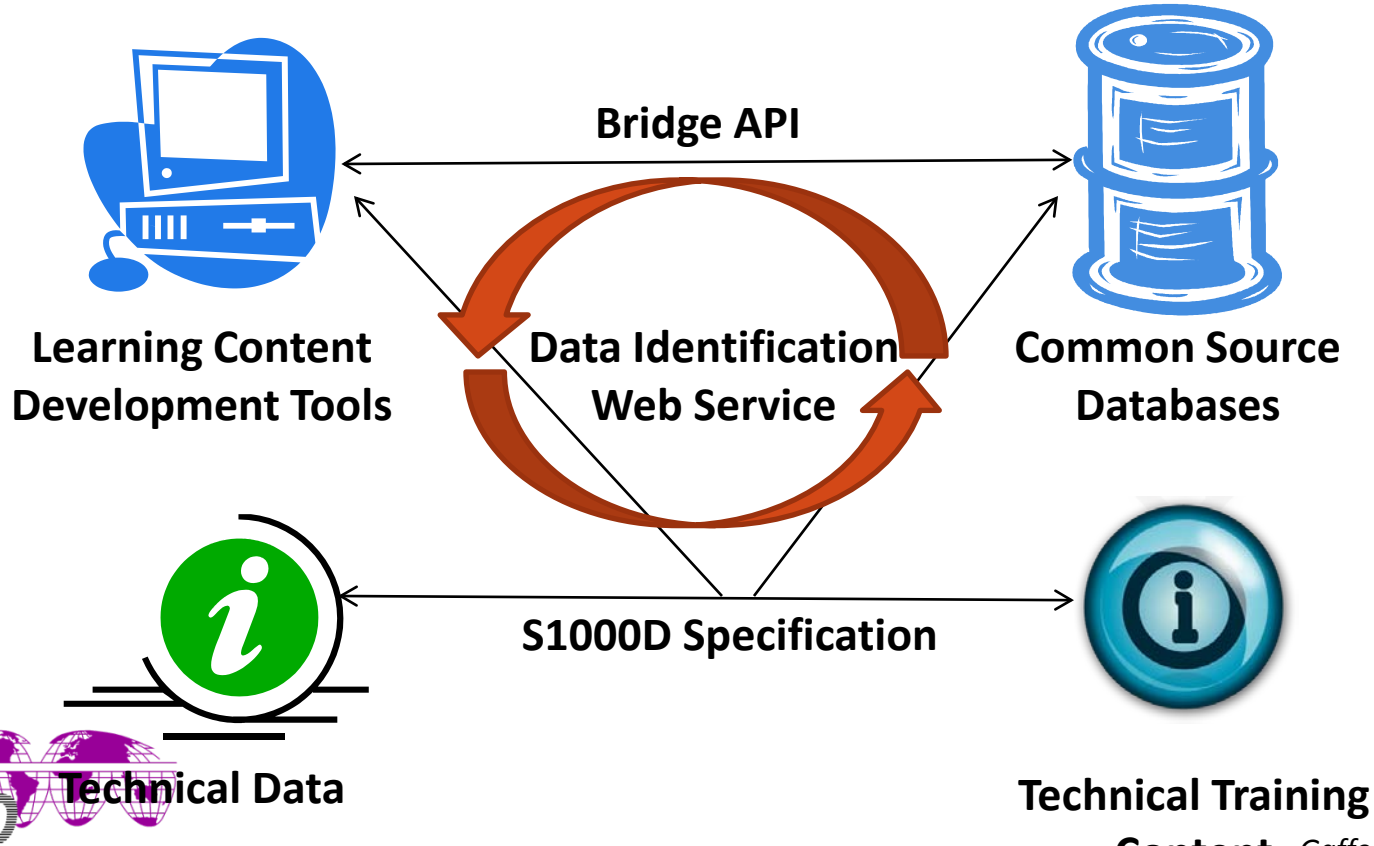
- Publically available Bridge Project deliverables at <http://www.adlnet.gov/bridge-conops-project-tackles-life-cycle-management-for-distributed-learning-content>

S1000D

THE
BRIDGE PROJECT

SCORM

Providing Traceability



S1000D Technical Data

Technical Training

Content Gafford and Ericsson

S1000D 4.1 Support for Traceable, Technical Learning Content

Traceability Demonstrations

- S1000D Transformation Toolkit:

<http://s1000d-scorm.adlnet.gov/JQueryMobileTest3/>

- Product Data Identification Service

<http://www1.idsi.com/ecpwebclient/Account/Login.aspx>

Summary

- Good data traceability practices are fundamental to integrated data environments.
- 2/3 of changes to U.S. Navy training content driven by technical system changes.
- S1000D structures and manages a variety of information types that support the integrated data concept.
- Traceability occurs between systems *and* data.
- OSD Bridge Project offers tools and techniques for integrated technical data and training content.

Thank you / Tack!

- Questions and Discussion

Wayne Gafford
Port Hueneme Naval Surface Warfare Center
Office of Logistics

Svante Ericsson
Corena