XML in the Development of Component Systems
What is SCORM

- Sharable Content Object Model
  - aka Sharable Courseware Object Model
- Result of the ADL Initiative (Advanced Distributed Learning)
  - U.S. DoD project
  - based on earlier work of AICC, IMS, IEEE, ARIADNE
- Web-based learning technology
- Current release is SCORM 2004 (aka SCORM 1.3)
  - this presentation assumes SCORM 1.2
- http://www.adlnet.org/index.cfm?fuseaction=scormabt
SCORM Architecture

SCORM Content Aggregation Model
- identification and aggregation of resources into structured learning content
  - SCORM Content Packaging
    - based on IMS Learning Resource Meta-data Information Model
      - based on IEEE Learning Technology Standards Committee (LTSC) Learning Objects Model (LOM) Specification

SCORM Run-Time
- launching, communicating with, and tracking content in the WWW
SCORM Architecture

BOOK 1: The SCORM Overview
- Meta-data Dictionary (from IEEE)
- (Meta-data XML Binding and Best Practice (from IMS))

BOOK 2: The SCORM Content Aggregation Model
- Content Structure (derived from AICC)
- Content Packaging (from IMS)
- Data Model (from AICC)
- Launch, Communication API (from AICC)

BOOK 3: The SCORM Run Time Environment

taken from SCORM 1.2 Overview
Content Aggregation Model

Content Model
- Nomenclature defining the content components of a learning experience

Meta-data
- A mechanism for describing specific instances of the components of the content model

Content Packaging
- Defines how to represent the intended behavior of a learning experience (Content Structure) and how to package learning resources for movement between different environments (Content Packaging)
Content Model

Assets
- electronic representations of media (text, images, sound, …)

Sharable Content Objects (SCO)
- collection of assets
- includes “launchable asset”
  - utilizes SCORM Run-Time Environment to communicate with a Learning Management System (LMS)
- described with meta-data

Content Aggregation
- definition of content structure
Meta-data Components

- **Content Aggregation Meta-data**
  - description of aggregated components (to support searching)

- **SCO Meta-data**
  - description of individual components (to support re-use)

- **Asset Meta-data**
  - description of the “raw content” (independent of application)
Meta-data Definition

- Information model
  - tabular and graphical meta-meta-model
- Meta-data XML binding
  - based on systematic mapping of information model to XML elements
Information Model

Categories of meta-data elements

- General category
- Lifecycle category
- Meta-metadata category
- Technical category
- Education category
- Rights category
- Relation category
- Annotation category
- Classification category