Electronic Access Conference

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XML: A Beginners Guide

Holly A. Hyland, FSA

Andrew Smalera, XML Framework

Objectives

- XML
  - History
  - Current State
  - Future Vision

FSA Business Needs

- Reduce redundant data storage

- Improve customer relationships

- Increase accuracy of analytics

- Increase efficiency in data handling

- Reduce costs

The Common Record

- First implementation by FSA
- Used for Student Financial Aid Pell, Direct Loan, and Campus-based aid
- XML Schema published November 2001, implementation May 2002
- Agreement with PESC/XML Forum to jointly support and develop standards – February 2002
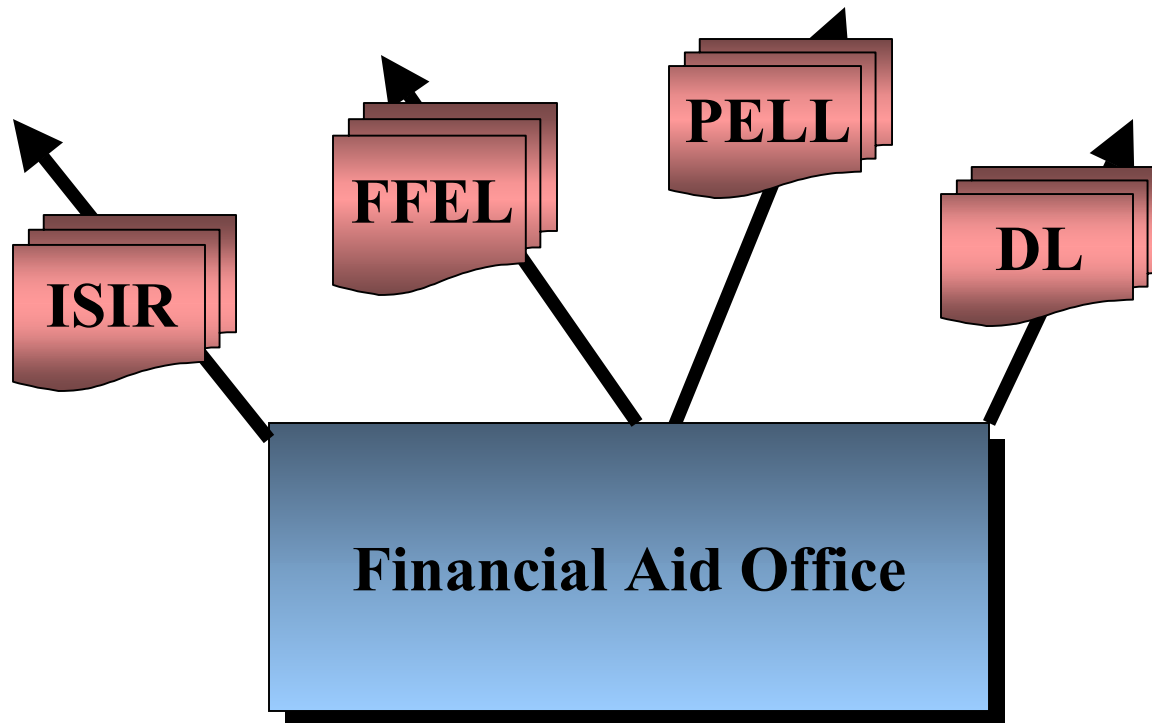
TIP

- **CR - Common Record** - Standard XML "names" (tags) and "formats" (schema) for exchanging data within Higher Education.

- **COD** - **Common Origination and Disbursement** - FSA process for originating and disbursing Pell Grants and Direct Loans using Common Record.
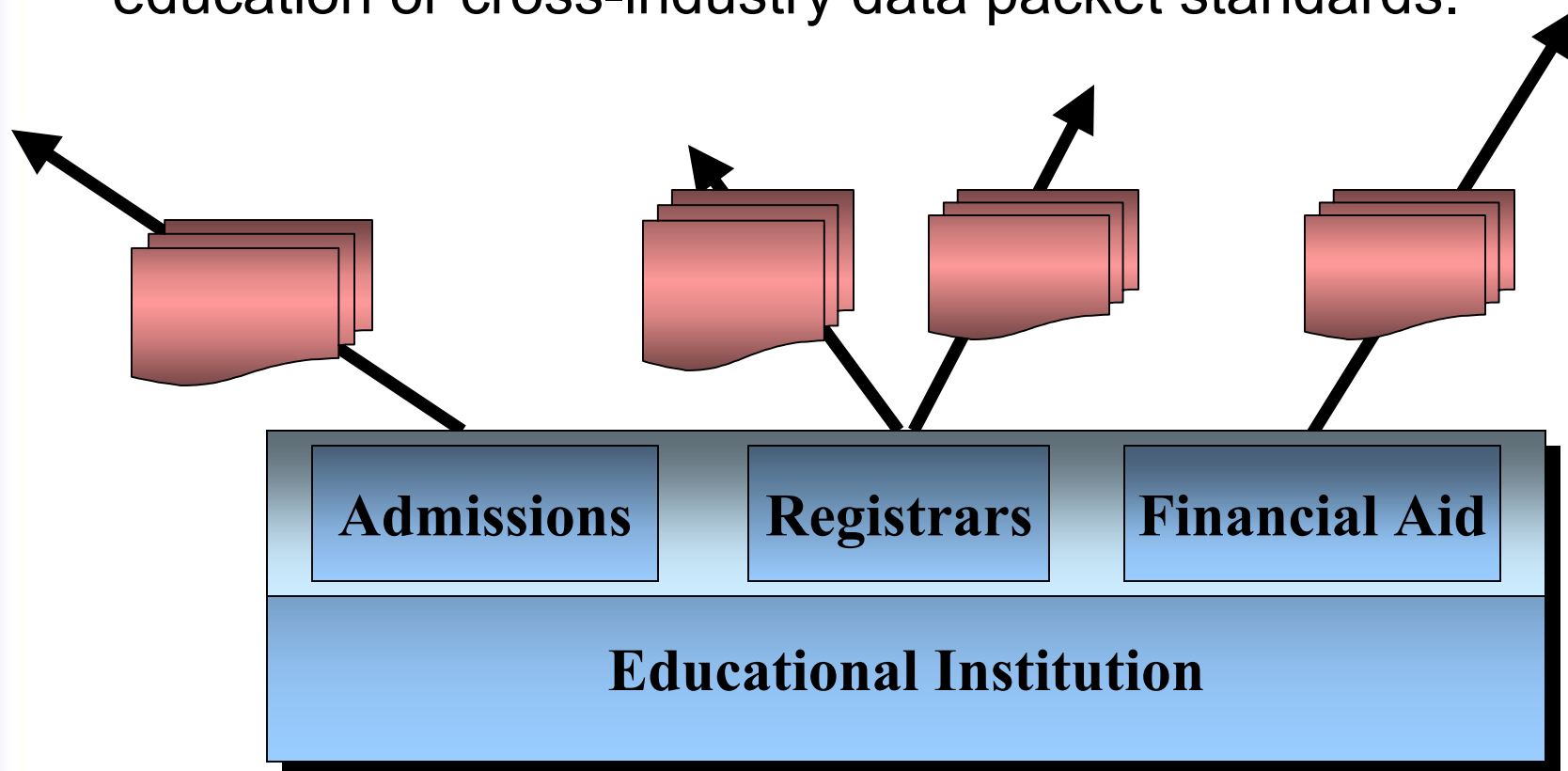
Common Record Expansion

- **ORIGINAL VISION:** Use XML Technology to create financial aid data packet standards.
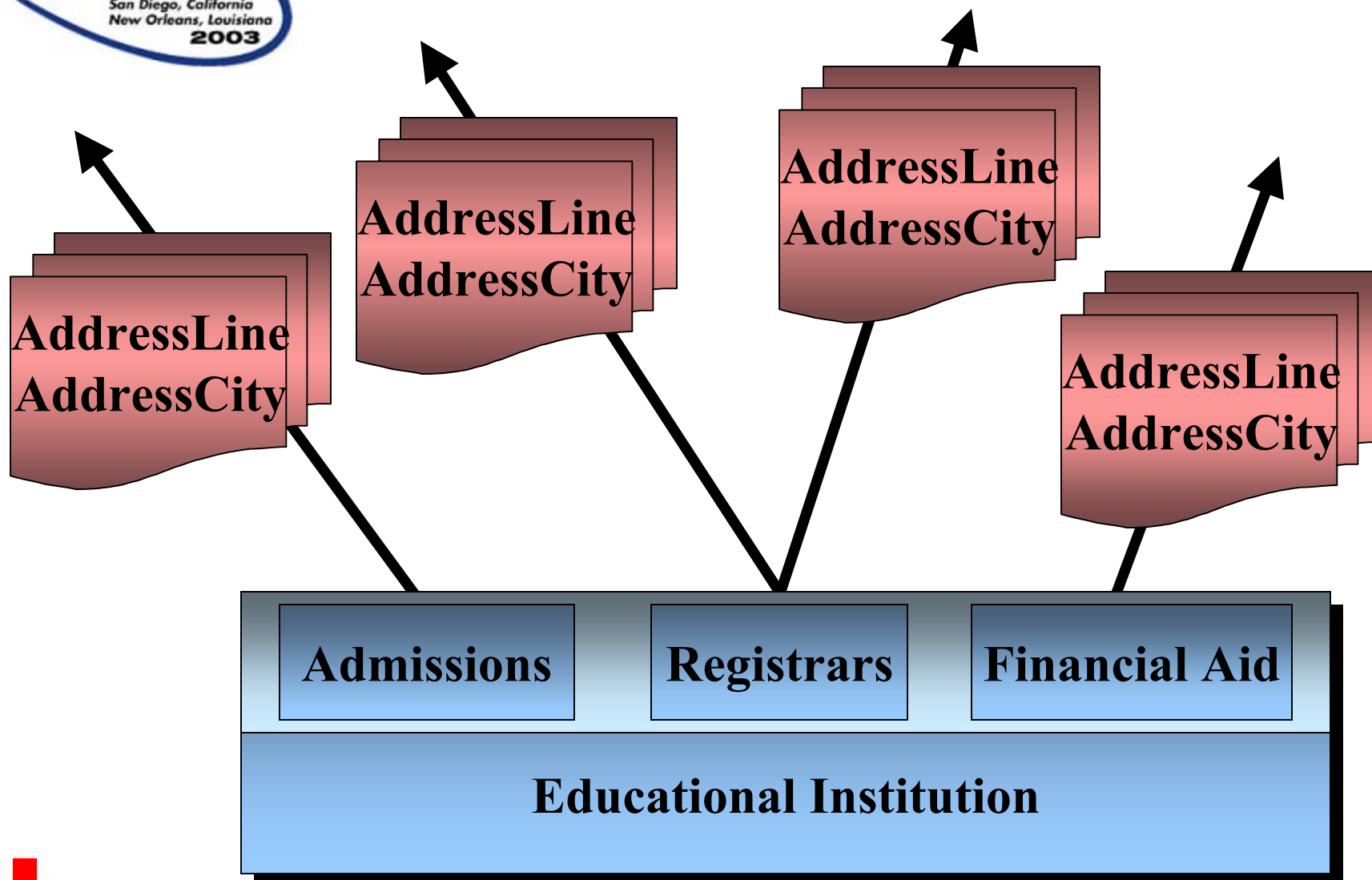
Common Record Expansion

- **REVISED VISION:** Use XML Technology to create higher education or cross-industry data packet standards.
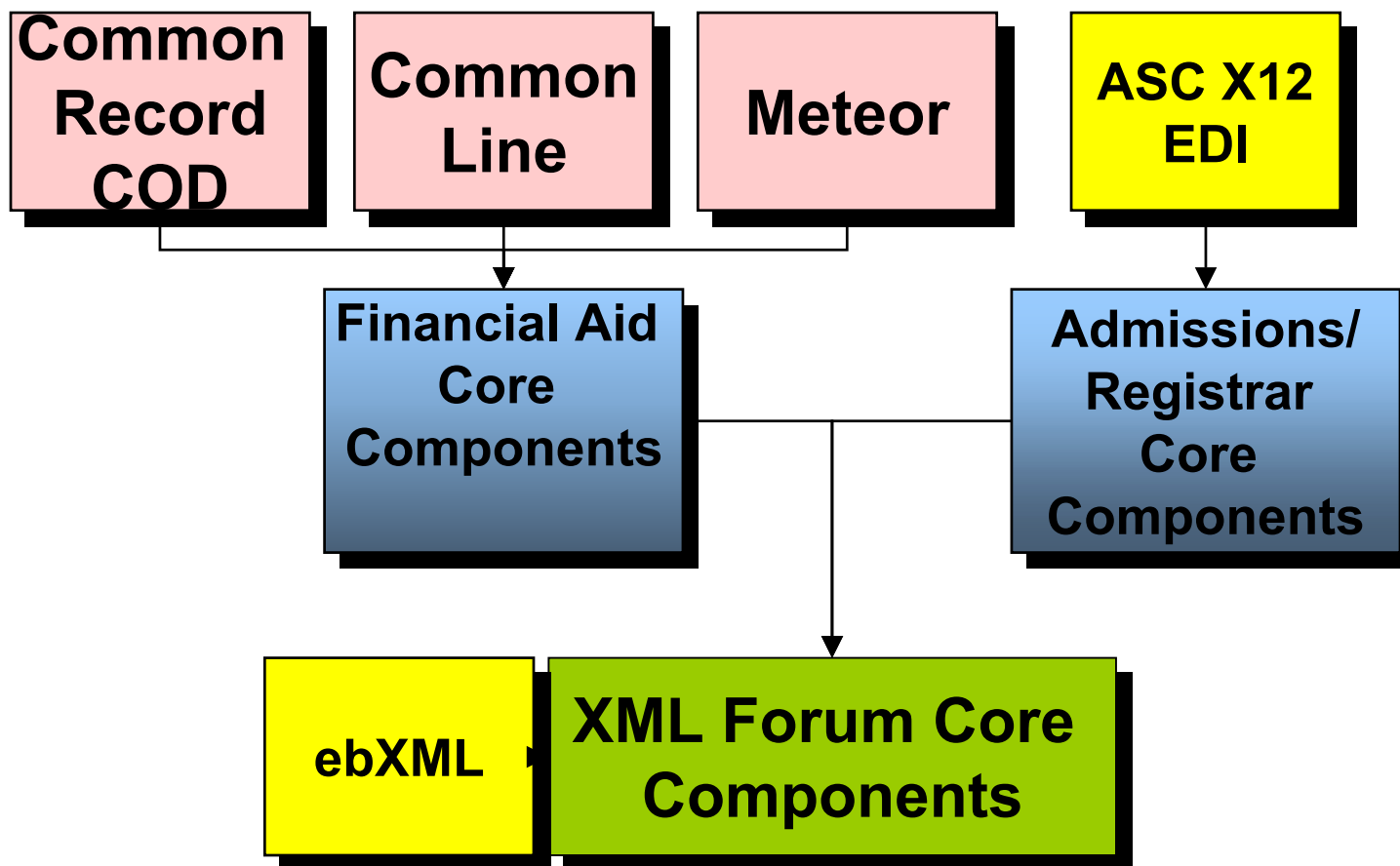

Admissions **Registrars** **Financial Aid**

Educational Institution

Common Record Expansion

Common Record Expansion Convergence of Standards

```
┌─────────────┐  ┌─────────────┐  ┌─────────────┐     ┌─────────────┐
│   Common    │  │   Common    │  │   Meteor    │     │  ASC X12    │
│   Record    │  │    Line     │  │             │     │    EDI      │
│    COD      │  │             │  │             │     │             │
└─────────────┘  └─────────────┘  └─────────────┘     └─────────────┘
```

Common Record COD **Common Line** **Meteor** **ASC X12 EDI**

Financial Aid Core Components

Admissions/ Registrar Core Components

ebXML

XML Forum Core Components

Importance of Standards

- Every year it becomes more expensive to upgrade systems
- Every organization is expected to do more with less
- Standards make training easier
- Reduce change for the sake of change
- Make cross-training easier

Common Record – XML Benefits

- XML is a meta language – allowing trading partners to develop markup languages.

- XML is hierarchical in nature – can represent more complex relationships.

- XML blocks can be repeated – making information sharing more flexible.

- XML schemas define advanced relationships that are not possible in standard flat files.*

Common Record – Current State

- **Negotiations with Community**
  - PESC
    - Academic Transcript
  - ESC
    - Common Record CommonLine

- **XML Framework 10-31-03**

Common Record – FSA, CommonLine, and PESC

- Shared Goal of developing an XML Higher Education Standard.

- Shared Lessons Learned (Technology and Implementation)

- Working with Electronic Standards Council (ESC) as they develop the Common Record: CommonLine.

- Provide Project Management assistance to PESC as they developed the Academic Transcript schema and the CommonRecord: CommonLine schema.
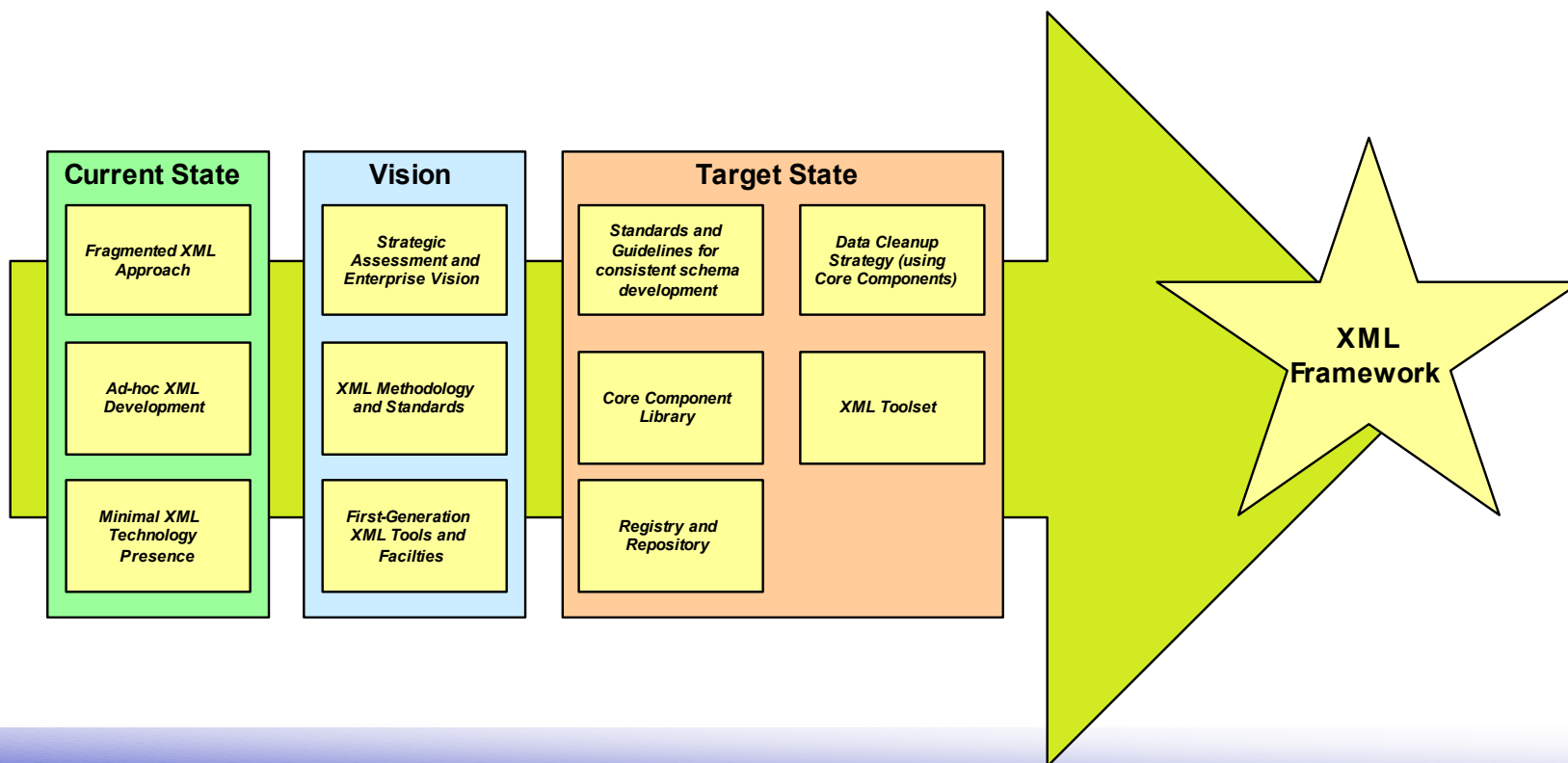
Common Record – FSA's XML Framework

- XML Strategic Assessment and Enterprise Vision
- XML Technical Reference and Usage Guidelines
- XML Core Component Dictionaries
- XML Registry and Repository
- XML Framework Communications Strategy
- XML ISIR Performance Test and SAIG Capacity Plan

Overview - XML Framework

Objective: The FSA XML Framework will outline FSA's target state and implementation strategy for using XML across the enterprise. The XML Framework will provide standards, processes, and a toolset for implementing XML.

Common Record Estimated Implementation Schedule

ISIR

COD

	ISIR	COD
02-03		**Common Record – COD v 1.0g**
03-04		**Common Record –COD 2.0c (changed all tag names)**
04-05		**Common Record –COD 2.0d (+2 new tags – 6 old tags)**
05-06	**Common Record – ISIR 1.0a Align with standard**	**Common Record – COD 3.0 Align with standard (XML Required)**
06-07	**Common Record – ISIR 1.0a (XML Required)**	**Common Record – COD 3.0a**
07-08	**Common Record – ISIR 1.0a**	**Common Record – COD 3.0b**

Vision/Where are we going?

Members of the community have come together to build an XML standard for higher education.

What Is XML?

- Extensible markup language
  - Internet document language
  - Open source
    - Free
    - Non-proprietary
    - Supported by world wide web consortium (W3C)

XML Advantages

- Easy to understand and use
- Already has large base of users and support tools
  - New browser versions understand XML
  - Wide industry interest and support

XML Advantages

- Data files are machine and human readable
  - You don't need to read it but you could
- The entire document or portions of the record can be transmitted
  - Data elements can be omitted and order is less important
- Additional information can be added easily
  - Schemas can reference other schemas

XML Characteristics

- Uses tags "<>" and "</>"
- Structured: document must have beginning and end. Most elements must have beginning and end tags
  - Helps reduce ambiguity
  - Easier to find errors

XML Example

```
<Name>
  <LastName>Stones</LastName>
  <FirstName>Dave</FirstName>
  <MiddleInitial>Z</MiddleInitial>
</Name>
```

Potential Uses

- Enhanced Browser capabilities
  - 'smart searches'
  - web databases
- Better control of output
- Application to Application document transfer
- XML based e-commerce

```
<STUDENTID  type = "SSN">
  123456789
</STUDENTID>
<DEMOGRAPHIC>
  <BIRTH DATE type="DATE">
   19740823
  </BIRTH DATE>
  <GENDER>
   M
  </GENDER>
</DEMOGRAPHIC>
<GRADE_REPORT>
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   </LABEL>
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   </YEAR>
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   </GRADE>
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   </CODE>
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  </COURSE>
  <COURSE index="2">
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    3
   </CREDIT>
   <GRADE>
    B
   </GRADE>
   <CODE>
    HIS 302
   </CODE>
   <COURSE_TITLE>

    TX HISTORY
   </COURSE_TITLE>
  </COURSE>
```

web.xsl

pda.xsl

edi.xsd

Handhelds
& PDA's

Why use XML for Educational records?

- **Share information seamlessly and easily**
- **Cost savings**
  - 'off the shelf' tools are coming to market
- **Technology-neutral**
  - Joins different databases or systems
  - Smaller institutions can adopt

XML Terms

- **DTD:** Master listing of all the elements including where and how they need to be placed in the documents
- **Schema:** An XML application that can describe the allowed content of documents
  - **Validation:** Process of checking structural validity of document
  - **Instance Document:** A listing of all possible tags
  - **XML Example Document:** A listing of tags with example data
- **XSL, XSLT:** converts an XML file into a another specified format
- **Parser:** Tool that reads the document and divides it into individual elements, attributes, and other pieces

Technical Assistance

We appreciate your feedback and comments. We can be reach:

Name: Holly A. Hyland
Phone: 202.377.3710
Email: Holly.Hyland@ed.gov

Name: Andrew Smalera
Phone: 202.962.0789
Email: Andrew.Smalera@accenture.com