



Session 27

XML 101

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Objectives

- XML Basics
- Building Standards
 - History
 - Current State
 - Future Vision





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 a large base of users and support tools
 - New browser versions understand XML
 - Wide industry interest and support





Flat File Example

0405298927382 03 1979Sally ASmith
0203INDL2222222 FP 417 Halper Road
Fort Wayne
IN46807Allen USA2197446947
sally.smith@veryspeedy.net 1221784902





XML Example

```
<Student SSN="298927382" BirthDate="1979-02-03" LastName="Smith">
  <Identifiers>
    <DriversLicense>
      <DriversLicenseState>IN</DriversLicenseState>
      <DriversLicenseNumber>DL2222222</DriversLicenseNumber>
    </DriversLicense>
  </Identifiers>
  <Name>
    <FirstName>Sally</FirstName>
    <MiddleInitial>A</MiddleInitial>
  </Name>
  <Contacts>
    <AddressLine>417 Hapler Road</AddressLine>
    <AddressCity>Fort Wayne</AddressCity>
    <AddressStateProvinceCode>IN</AddressStateProvinceCode>
    <AddressPostalCode>46807</AddressPostalCode>
  </Contacts>
</Student>
```

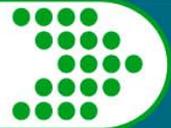




XML Advantages

- 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 easily added
 - Schemas can reference other schemas





XML Characteristics

- Uses tags “<>” and “</>”
- Structured: document must have beginning and end. Elements must have beginning and end tags
 - Helps reduce ambiguity
 - Easier to find errors





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>
  <SESSION Code="!199901">
    <LABEL>
      SPRING SESSION
    </LABEL>
    <YEAR type="CCYY">
      1999
    </YEAR>
    <COURSE index="1">
      <CREDIT type="hours">
        4
      </CREDIT>
      <GRADE>
        A
      </GRADE>
      <CODE>
        SPN 406
      </CODE>
      <COURSE_TITLE>

        SPANISH I
      </COURSE_TITLE>
    </COURSE>
    <COURSE index="2">
      <CREDIT type="hours">
        3
      </CREDIT>
      <GRADE>
        B
      </GRADE>
      <CODE>
        HIS 302
      </CODE>
      <COURSE_TITLE>

        TX HISTORY
      </COURSE TITLE>
    </COURSE>
  </SESSION>
</GRADE_REPORT>
</DEMOGRAPHIC>
</STUDENTID>
```

web.xml

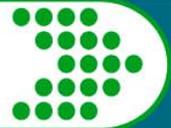


pda.xml



edi.xsd





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





XML Terms (Continued)

- 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





XML Terms (continued)

- 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





FSA Business Needs

- Reduce redundant data storage
- Improve customer relationships
- Increase accuracy of analytics
- Increase efficiency in data handling
- Reduce costs





The Common Record

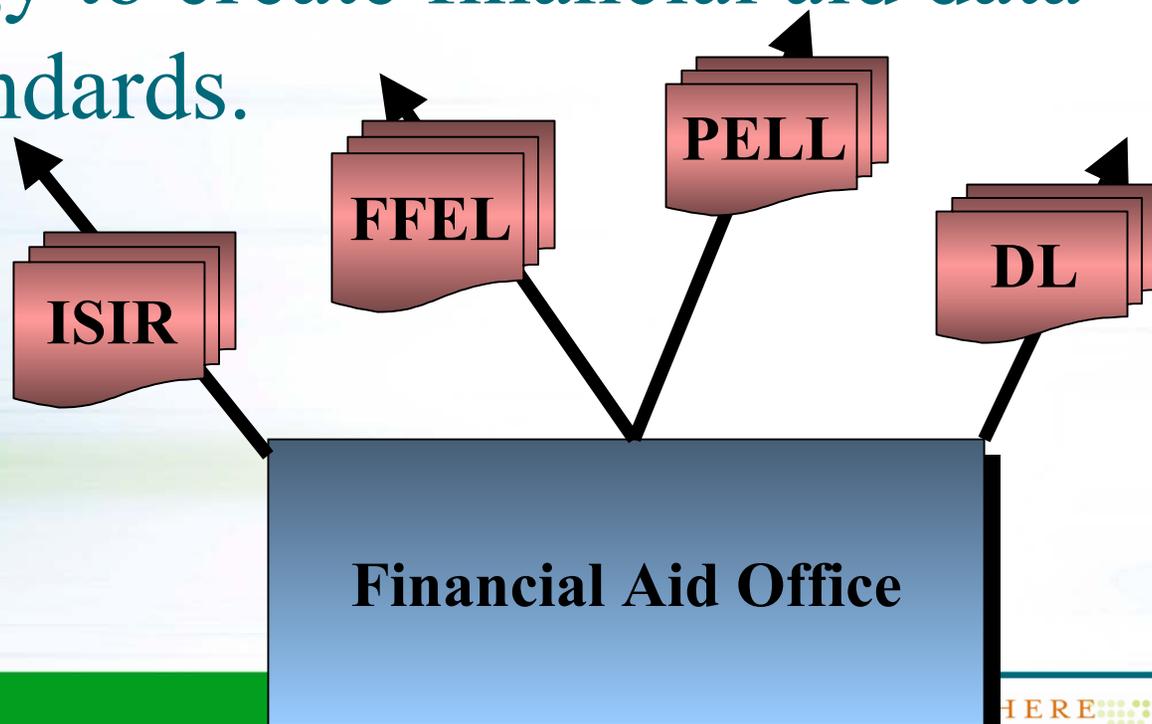
- First implementation by FSA
- Used for Student Financial Aid
Pell Grant, Direct Loan, and
Campus-Based Aid
- XML Schema published November
2001; implementation May 2002





Common Record Expansion

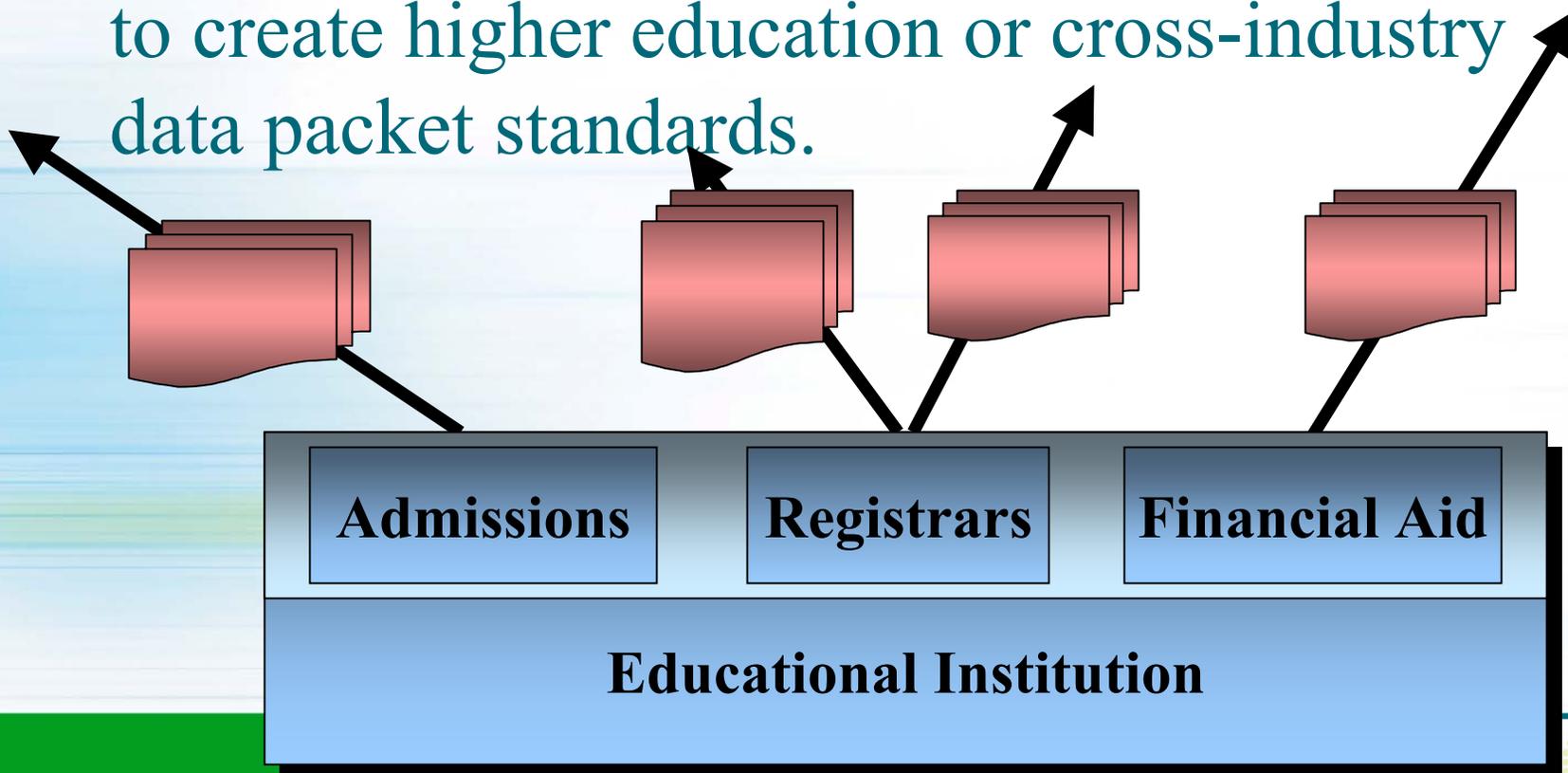
- ORIGINAL VISION: Use XML Technology to create financial aid data packet standards.





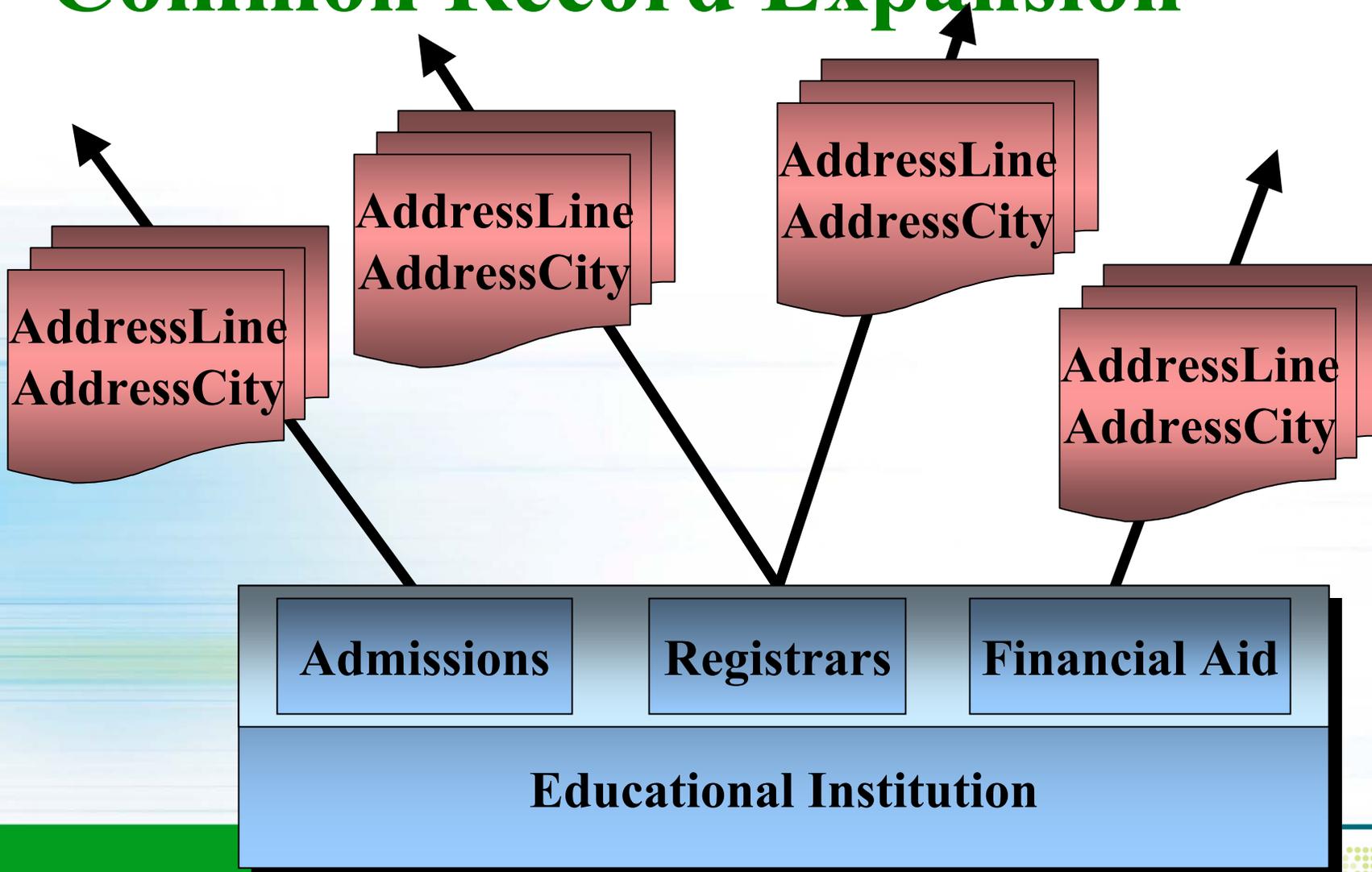
Common Record Expansion

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



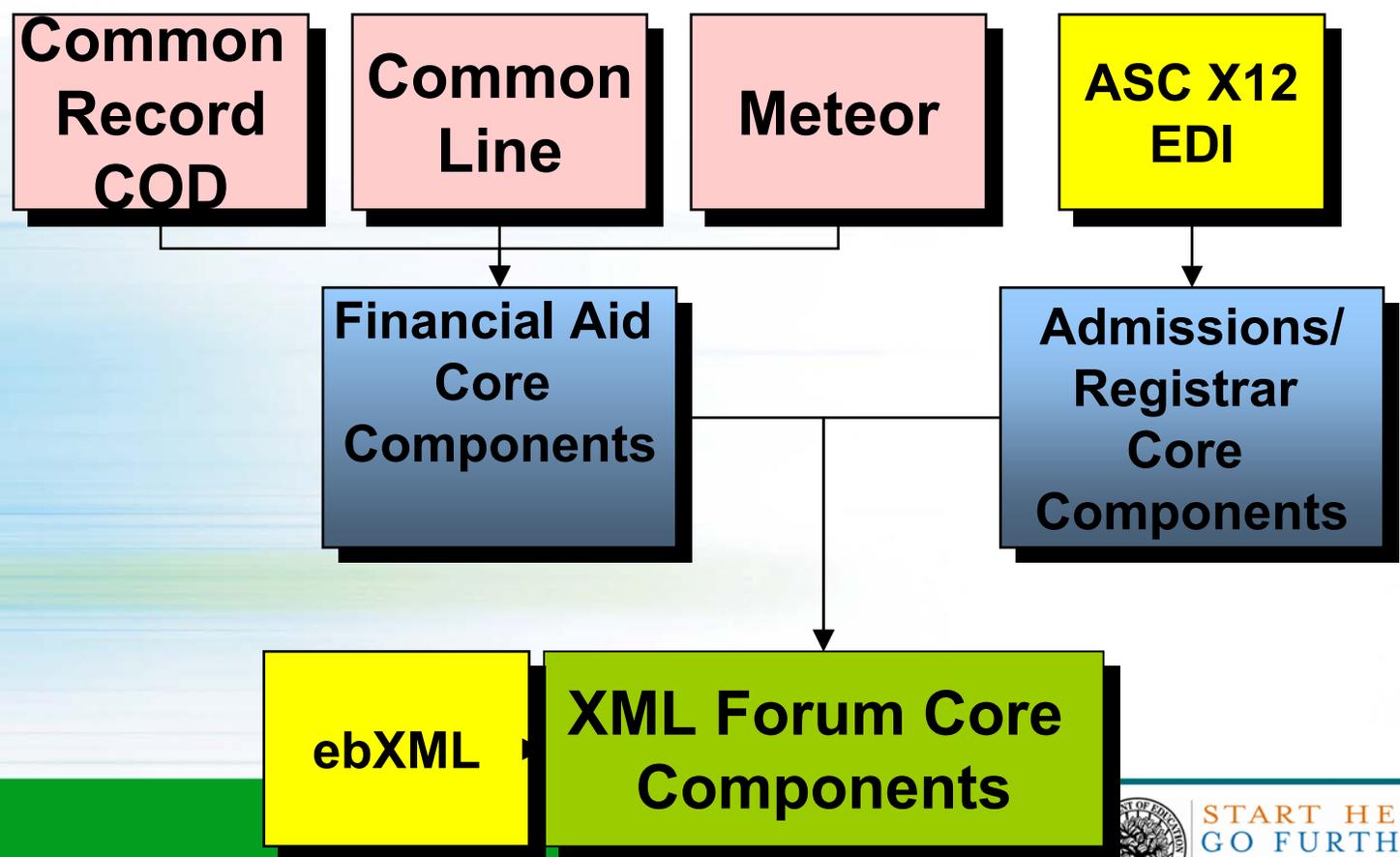


Common Record Expansion





Common Record Expansion Convergence of Standards





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

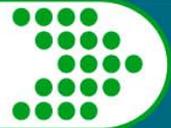




Common Record – XML Benefits

- XML is a meta-language -- allows 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.*





Development Initiatives in Process

- Request/Response of XML Postsecondary Transcript
- Request/Response of Degree Audit
- Online Loan Counseling
- High School XML Transcript
- Data Transport
- Student Aid Inquiry
- Admission Application

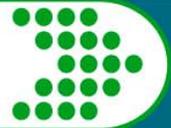




Vision/Where Are We Going?

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





Questions?

I appreciate your feedback and comments. I can be reached at:

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