

Schlumberger Oilfield Services

XML and EDI

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March 16, 1999
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Houston, Tx, USA

Summary

- ◆ What is XML?
- ◆ Using XML for Electronic Commerce
(example)
- ◆ Is XML Alone Enough?
- ◆ Can you use XML today?
- ◆ References

What is XML?

- ◆ eXtensible Markup Language
- ◆ W3C Recommendation, Feb 1998 (XML 1.0)
- ◆ XML is a subset of SGML
 - “The goal of XML is to enable generic SGML (Standard Generalized Markup Language) to be served, received, and processed on the Web in the way that is now possible with HTML.”

XML v. HTML

- ◆ **HTML:** *language for visual presentation of a document; it is an application of SGML (a document type definition = DTD).*
- ◆ **XML:** *meta-language for designing document contents; it is an abbreviated version of SGML, to make it easier for you to define your own document types, and to make it easier for programmers to write programs to handle them.*

Example of XML and HTML

◆ HTML

```
<CENTER><H3>Welcome to Schlumberger</H3></CENTER>  
<UL>  
<LI>  
<B><FONT COLOR="#006600">Oilfield Services</FONT></B>:</LI>  
</UL>
```

◆ XML

```
<Order-Line Reference-No="0528837">  
  <ISBN>0316907235</ISBN>  
  <Author-Title>Labaln, Brian/Chrome</Author-Title>  
  <Quantity>2</Quantity>  
</Order-Line>
```

XML today

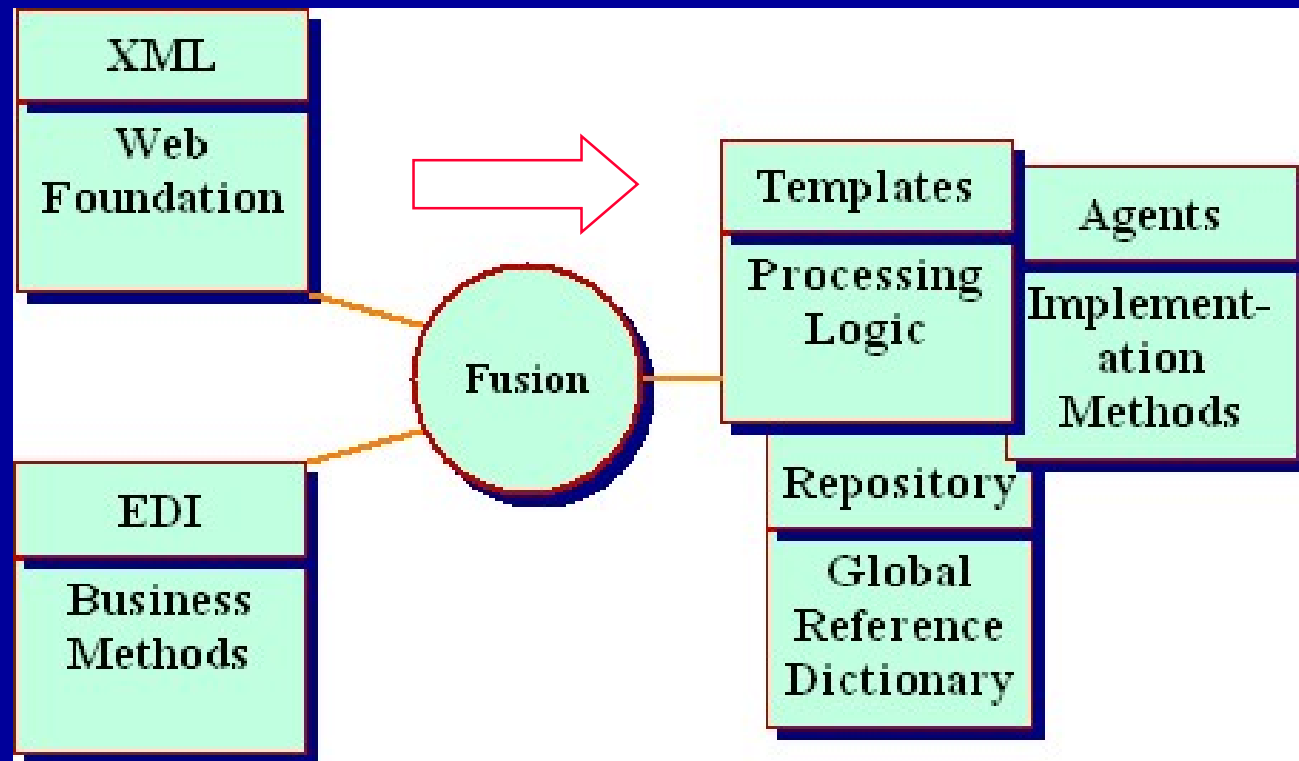
- ◆ XML for documents (out of scope...)
- ◆ XML to exchange structured data
 - A universal object exchange format, made to facilitate integration across applications
 - An alternative to traditional EDI (EDI data to travel inside XML)
 - Many applications: databases exchanges, etc.
- ◆ No XML browser available today, XML still a work in progress

XML and EDI

- ◆ Combining the semantic of EDI with the XML framework
- ◆ Flexible and simple format
- ◆ Suitable for Humans and Applications
- ◆ Allow workflow implementation
- ◆ Could be a fusion of UN/EDIFACT and national standards (ANSI X12, ...)

XML/EDI Model

- ◆ Goal: Build a system that delivers information, not just data, and the processing logic that is required.



XML/EDI Model

- ◆ **Templates:** They are referenced or travel along inside the XML as a special section and set of tokens, and can be easily read and interpreted (DTD in XML)
- ◆ **Agents:** They interpret the Templates to perform the work needed, and also interact with the transaction and the user (XSL in XML, stylesheets, Java, ActiveX)
- ◆ **Repository:** Shared Internet Dictionaries, automatic look up of the meaning and definition of XML/EDI elements, used by Agents to cross-reference entities.

Using XML for E-Commerce

◆ Example of a book ordering message

- Data entry form (XML or HTML)
- XML Document Type Definition (DTD)
- XML message
- Exchange of messages

XML Form to Order a Book

Netscape - [Standardized Lite-EDI Book Order Form]

File Edit View Go Bookmarks Options Directory Window Help

Location: file:///a1/book.htm

EDItEUR Lite-EDI Book Ordering

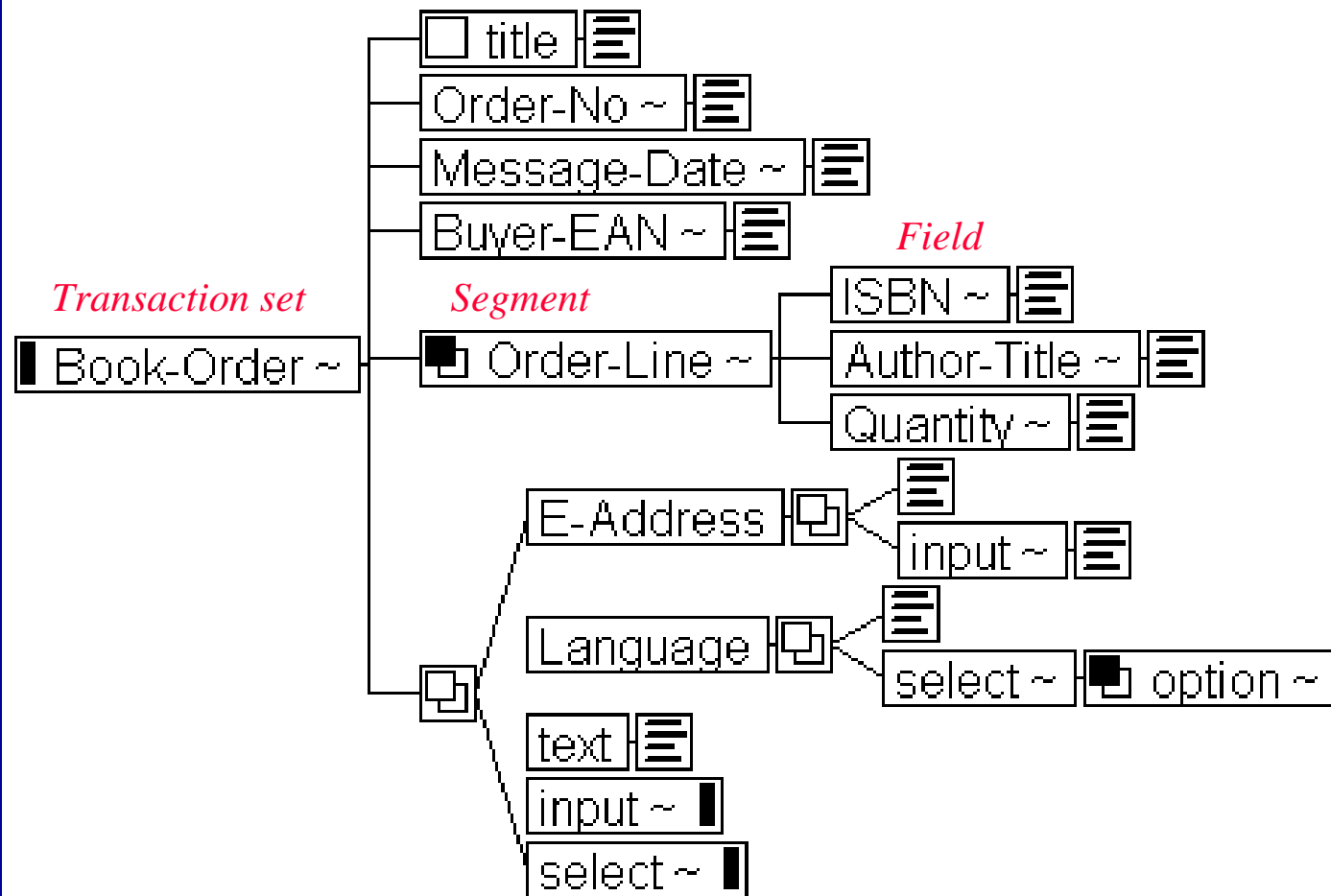
Book Order No:	<input type="text" value="967634"/>		
Message Date:	<input type="text" value="19961002"/>	Enter dates in CCYYMMDD format	
Buyer EAN:	<input type="text" value="5412345000176"/>		
Supplier EAN:	<input type="text" value="4012345000094"/>		
ISBN:	<input type="text" value="0316907235"/>	Author/Title:	<input type="text" value="Laban, Brian/Chrome"/>
Quantity:	<input type="text" value="2"/>	Order line reference number:	<input type="text" value="0528837"/>
ISBN:	<input type="text" value="0856674427"/>	Author/Title:	<input type="text" value="Parry, Linda (ed)/William Morris"/>
Quantity:	<input type="text" value="1"/>	Order line reference number:	<input type="text" value="0528838"/>

Tick here if a delayed/partial supply of order is acceptable
 Tick here if Confirmation of Acceptance of Order is to be returned by e-mail
 Tick here if e-mail Delivery Note is required to confirm details of delivery

E-mail address: Please respond in:

Document: Done

DTD for Lite EDI Book Order



DTD (extract)

- ◆ `<!ELEMENT Order-Line (ISBN, Author-Title, Quantity) >`
`<!ATTLIST Order-Line`
 EDI-Prefix CDATA #FIXED "LIN+"
 Line-no NUMBER #IMPLIED
 Ref-Prefix CDATA #FIXED "#RFF+LI:"
 Reference-No NUMBER #REQUIRED >

- ◆ `<!ELEMENT ISBN (#PCDATA) >`
`<!ATTLIST ISBN`
 EDI-Prefix CDATA #FIXED "PIA+5+"
 EDI-Suffix CDATA #FIXED ":IB"
 Datatype %EDItypes; #FIXED "N12"
 Size NUMBER #FIXED "12"
 Title CDATA "ISBN:" >

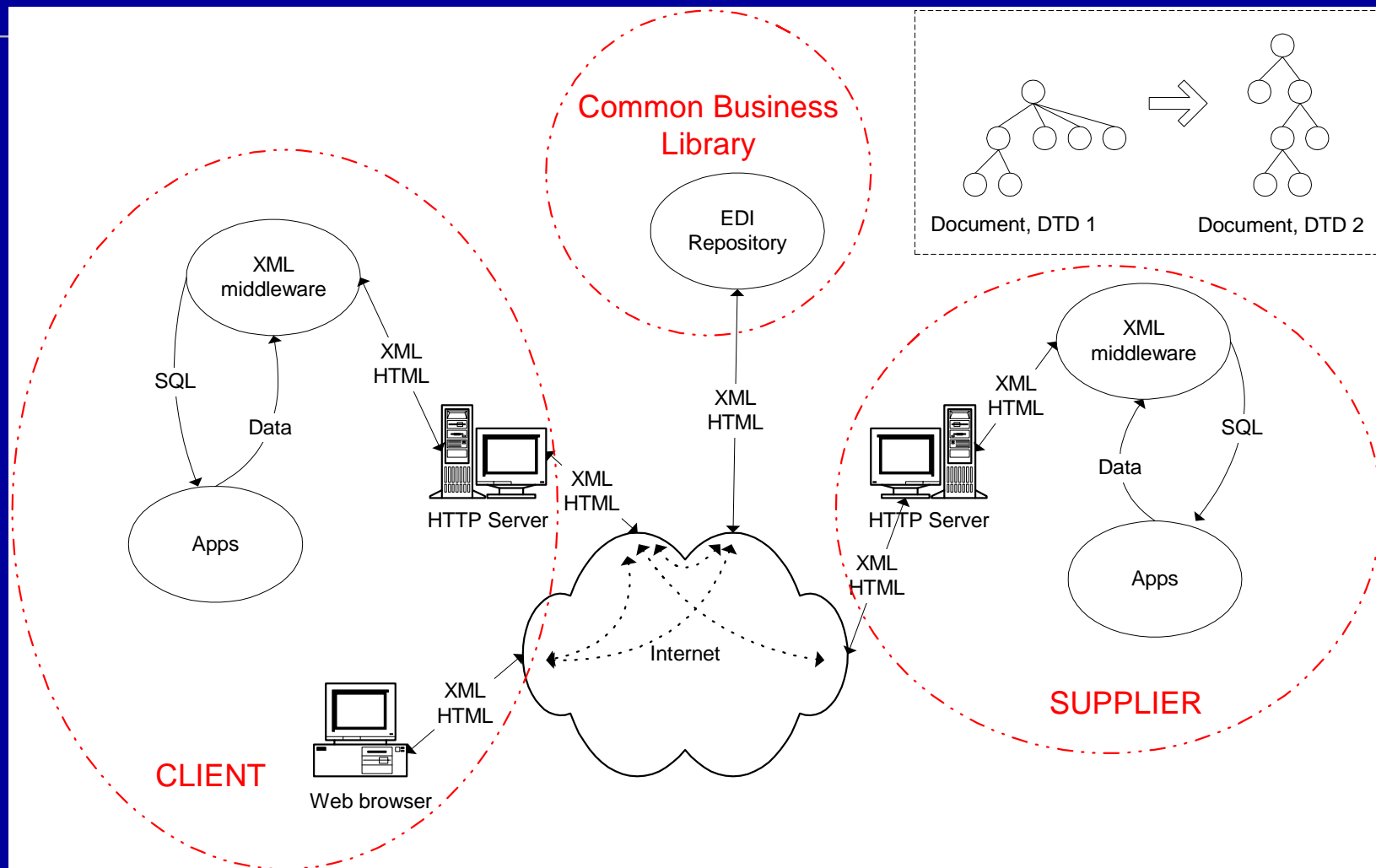
XML message

```
<!DOCTYPE Book-Order PUBLIC "-//EDItEUR//DTD Book Order
  Message//EN">
<Book-Order Supplier="4012345000094" Send-to=
  "http://www.bic.org/order.in">
<title>EDItEUR Lite-EDI Book Ordering</title>
<Order-No>967634</Order-No>
<Message-Date>19961002</Message-Date>
<Buyer-EAN>5412345000176</Buyer-EAN>
<Order-Line Reference-No="0528837">
  <ISBN>0316907235</ISBN>
  <Author-Title>Labaln, Brian/Chrome</Author-Title>
  <Quantity>2</Quantity>
</Order-Line>
```

Exchange of messages

- ◆ People to Apps, Apps to Apps
- ◆ Using Web standards (HTTP, FTP, SMTP, SSL)
- ◆ Use of-the-shelf XML middleware to transform XML messages:
 - from one DTD to another DTD
 - from an XML message to database entries, and reverse (via ODBC)

Exchange of messages



Is XML Alone Enough?

- ◆ Problem: Infinite number of languages
- ◆ Solution:
 - Common Business Library
 - Building Blocks of Commerce Elements
 - Industry Semantic Initiatives
 - Set of documents businesses exchange to do business
- ◆ Problem: Precise meaning of information in the document (type of data, constraints on content)
- ◆ Solution: XML-Schema, XML-Data, ...

CBL Building Blocks

CBL Documents

Business Descriptions

Vendor **core**

Services **core**

Products

Business Forms

Catalog

Purchase Order

Invoice

Measurements

Time

Currency

Weight

Locale

Address **core**

Country **core**

Language **core**

Classification

SIC

NAICS

FSC

You can use XML/EDI today

◆ Provided that:

- XML/EDI is accepted an instance of UN/EDIFACT, or for the US of ANSI X12
- There is a global Repository identifying XML tags and DTDs
 - Common Business Library, in the US

◆ This is a political issue, not a technical

Questions ?



References

- ◆ XML Official Site: <http://www.w3.org/XML/>
- ◆ XML.com: <http://www.xml.com/xml/pub>
- ◆ CommerceNet: <http://www.commerce.net/>
- ◆ Common Business Library (CBL): <http://www.veosystems.com/cbl/cbl-1.1/doc/index.html>
- ◆ SOX (Schema for Object-oriented XML):
<http://www.w3.org/Submission/1998/15/>
- ◆ XML and EDI:
<http://www.xmledi.com/>
<http://www.xmlx.com/>
<http://www.geocities.com/WallStreet/Floor/5815/>
http://www.editie.nl/edifact/eema98_XML-EDI/index.htm
<http://www.xmledi.com/xmlediindex.htm>
- ◆ The SGML/XML Web Page: <http://www.oasis-open.org/cover/conf.html>