



# The XML Standards Landscape

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## Session Objectives

- Gain a Quick Understanding of XML
- See the Various Kinds of XML Standards
- View a Drilldown of the Key Standards
- Understand The Evolution of a Standard



## Agenda

- XML Basics
  - WHY?!
  - Structure of an XML Document
  - The DTD
- The XML Standards Playing Field
- XML Standards Drill-down
  - XML "Core" Standards
  - Horizontal "Platform" Standards
  - Vertical Industry Standards
    - ▶ Industry
    - ▶ Professional Services
    - ▶ Science & Engineering
- The Lifecycle of an XML Standard
  - W3C
  - RosettaNet
  - CPExchange
  - UDDI

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## The Changing World of Data (Why Now?)

- The Internet...
- Proliferation of Content
- Increased Integration of Applications
- Automation of Paper-based Systems
- Shift to Customer-Centric KM Model
- Startups & Venture Capital

= BIG CHANGES AHEAD

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## eBusiness

- eBusiness vs. eCommerce
- Modes of interaction
  - Internal
  - Point to Point
  - Marketplace

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## Data Interchange

- Electronic Data Interchange
  - First in use around 1965: Ford et. Al
  - ANSI X12 Standard 1986
  - 95% Supply Chain
  - Industry definition "guidelines"
    - ▶ EIDX: Electronic Components Industry
    - ▶ CompTIA: Computing Technology Industry
    - ▶ AMA: Transportation Industry
  - STILL IN MAJOR USE!

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# EDI

- Flat File, Positional Based Structure
- X12 Standards Defined Transaction Sets
  - 832 Pricing Catalog
  - 850 Purchase Order
  - 855 Purchase Order Acknowledgement
- UN/EDIFACT international equivalent
  - PRICAT
  - PRODDAT



# Paper vs. ANSI X12 EDI Document

Entered: May 17, 1997	BEG*00*SA*00239~9701517												
Ship To: Our Company 309 Our Street Our City, ST ZIP	N1*ST*Our Company N2*309 Our Street N3*Our City*Our State												
Bill To: Our Company Attn: Mr. Smith 250 Our Street Our City, State	N1*BT*Our Company N2*250 Our Street N3*Our City*Our State PER*attn: Mr Smith												
<table border="1"> <thead> <tr> <th>QTY</th> <th>Part</th> <th>Desc</th> <th>Price</th> </tr> </thead> <tbody> <tr> <td>200</td> <td>ABC123</td> <td>Blue</td> <td>\$50</td> </tr> <tr> <td>100</td> <td>BZX321</td> <td>Yellow</td> <td>\$61</td> </tr> </tbody> </table>	QTY	Part	Desc	Price	200	ABC123	Blue	\$50	100	BZX321	Yellow	\$61	PO1*01*200*EA*50.00*CA*BP*ABC12 3 PO2*01*100*EA*61.00*CA*BP*BZX32 1 CTT*2*16100
QTY	Part	Desc	Price										
200	ABC123	Blue	\$50										
100	BZX321	Yellow	\$61										



## EDI Issues

- Technology Aging
- Industry and Versioning Issues
- Cost
- Level of adoption
- Support
  - Vendors
  - Management

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## eXtensible Markup Language (XML)

- Based on W3C Standards
  - Based on SGML, a 20 yr. Old+ standard
- Self-Defining Data Structure
- Rule Enforcement: Document Type Definitions
- Technology heading to XML
  - File Size / Bandwidth Not an Issue
  - Standard Parsers
  - Standard Training

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## Short Example: A Shirt

```
<shirt>
  <Color> Red </Color>
  <Style> Long Sleeve </Style>
  <Fabric> Cotton </Fabric>
  <Size> Medium </Size>
  <Price> 12.99 </Price>
  <Condition> Used </Condition>
</shirt>
```



## XML Sample

```
<PurchaseOrder>
  <DateEntered>
    May 17, 1997
  </DateEntered>
  <ShipTo>
    <company>Our Company</company>
    <address>300 Main St</address>
    <city>Our City</city>
    <state>Our State</state>
    <zip>Our zip</zip>
  </ShipTo>
  <BillTo>
    <company>Our Company</company>
    <address>300 Main St</address>
    <city>Our City</city>
    <state>Our State</state>
    <zip>Our zip</zip>
  </BillTo>
  <LineItems>
    <Item>
      <PartNo>ABC123</PartNo>
      <qty>200</qty>
      <price>$50.00</price>
      <desc>Blue</desc>
      <linetotal>$10000</linetotal>
    </Item>
    <Item>
      <PartNo>BZX321</PartNo>
      <qty>100</qty>
      <price>$61.00</price>
      <desc>Yellow</desc>
      <linetotal>$6100</linetotal>
    </Item>
    <total>$16100.00</total>
    <linecount>2</linecount>
  </LineItems>
</PurchaseOrder>
```



## Origins of XML: SGML

- SGML defines structured syntax for printing industry.
- HTML is a derivative of this focused on layout and display of **hypertext**
- XML is a derivative for structured data



## Origins of XML: HTML

- HyperText Markup Language (HTML)
- An older "sister" of XML
- Describes the layout and format of web pages
- Example:

```
<p>  
    <font size=1>Hello world</font>  
</p>
```



## XML Tag Structure

- XML is a *mark-up language*

```
<markup> Content </markup>  
<bold> Shout </bold>
```

- Only one rule: Needs to be closure
- One pseudo-exception:

```
<statement/>
```



## Document Type Definitions (DTDs)

- Reigning in arbitrariness with rules
- Defines:
  - Allowed tags
  - Layering, order of tags
  - Attributes
  - Recurrence of tags
- NOT Necessary!
- Different DTDs for Same document!





## Sample DTD

```
<!DOCTYPE shirt [  
<!ELEMENT Shirt  
  (Color+,Size+,Price+,Style+,Fabric+,Condition+)>  
<!ELEMENT Color (#PCDATA)>  
<!ELEMENT Size (#PCDATA)>  
<!ELEMENT Price (#PCDATA)>  
<!ELEMENT Style (#PCDATA)>  
<!ELEMENT Fabric (#PCDATA)>  
<!ELEMENT Condition (#PCDATA)>  
>]
```



## The XML Document Object Model (DOM)

- When a parser is done, it produces a tree model of the document
  - Vendor neutral / Standard API
  - XML Object Model
  - OMG IDL syntax:  
X = Document.documentElement
- Microsoft Active/X Control
- Java, Javascript, ECMAScript
- Active Server Pages, etc...



## XML Issues

- Space Hog
  - Bandwidth
  - Storage
  - Processing
- Too Flexible, needs Definition
- No Value-Added Network
- Still Nascent Technology!
- Implementations?!



## So, why will THIS succeed?

- What is often said...
  - "XML is easier to read and create"
  - "XML can be displayed with a simple browser/style sheet"
  - "XML can be exchanged over the Internet"
  - "XML can use comparably cheap interoperability software"
  - "Agreement on a DTD/Schema means interoperability"
  - "We can build processes based on the DOM"
  - "Remove Process from Content"
  - "We can validate using a validating parser"
- Even better arguments...
  - Finally, for the small and medium sized guys
  - Lead by strong standards organizations
  - Training
  - Company attitudes
  - Security
  - Proliferation



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  - Vertical Industry Standards
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## ANYONE can define a DTD...

- Multi-Industry, HUGE Consortia
- Vertical industry groups
- Groups of Companies
- Individual Companies
- Academic & Government Institutions
- Individuals

... did I miss anyone?

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## The Standards Playing Field

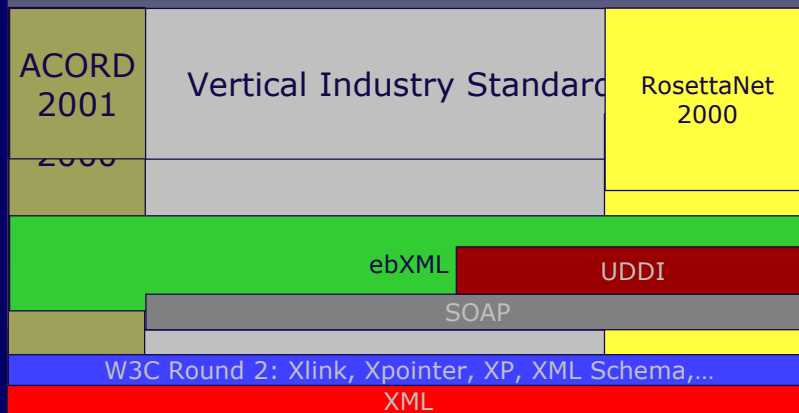
- XML "Core" Standards
  - W3C
  - IETF
  - UN
- Horizontal "Platform" Standards
  - ebXML
  - RosettaNet
  - UDDI
- Industry "Vertical" Standards
  - Professional Services
  - Scientific, Engineering
  - Industrial
  - Computing
  - Knowledge Management

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## The Standards Stack Refined



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## The Depth of a Standard -- eBusiness

- What is an eBusiness standard?
  - Messaging
  - Business Process
  - Discovery & Description
  - Profiling
  - Catalog
  - Payment
  - Shipping / Transport
- Who are the players?
  - Manufacturers
  - Channel Partners
  - Customers
  - Software Vendors
  - Logistics
  - Government

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## What Happened?

- Venture-backed Startups
- Focused standards driving horizontal standards
- Land grab drives Horizontal standards
- Economics are driving convergence
- Startups are Burnouts
- Show me the Money

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## Key XML Core Standards

- XML v1.0 (born 1998, matured 2000)
- XML Schema
- XSL – style sheets / XSLT
- Namespaces
  - what does "<bjx>14.2</bjx>" mean?
  - Who is in control, anyways?
- Xlink, Xpointer
- XHTML
- XML Query
- XML Protocol (XP)
- Digital Signatures
- SOAP
- P3P
  - » ... JUST THE IMPORTANT ONES!

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## Horizontal Standards

- eBusiness "Platform" Standards
  - ebXML
    - » Not a standard... but a direction
  - RosettaNet
    - » Biz Processes
  - BizTalk
  - UDDI
  - OAGIS
- Workflow
  - SWAP
- Ontologies
  - Making connections and helping computers to understand...
  - OIL, SHOE, TopicMaps, XTM



## Vertical Standards pt. 1

- Professional Services
  - Healthcare
    - » HL7
    - » CISTERN
  - Legal
    - » LegalXML
  - Human Resources
    - » HR-XML
  - Insurance
    - » ACORD
  - Travel
    - » HITIS
    - » OTA
  - Real Estate
    - » RETML



## Vertical Standards pt. 2

- Scientific & Engineering
  - Math
    - » MathML
    - » GXD
  - Biology
    - » BIOML
    - » ArrayML
    - » BioXML
    - » A ZILLION more...
  - Chemistry
    - » CML
  - Astronomy
    - » NASA (AIML, AML...)

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## Vertical Standards pt. 3

- Heavy Industry
  - Transportation
    - » Automotive
      - Ship
    - » Maritime
  - Construction
    - » aecXML
- Computing, Technology
  - Telecommunications
  - Internet Protocols (IMPP)
- Entertainment, etc.
  - News
    - » NewsML
  - Printing
    - » PrintML
  - Etc.
    - » ChessML
    - » MindReadingML

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## Picking the Winners

- Why is it important to pick one?
- Who / What?
  - Look at the Core Standards
  - Development Cycles
  - Wave of public opinion
  - "Open" vs. "Really Open"
  - Implementations
- Some examples
  - DTD vs. Schema
  - XML-EDI versus completely XML
  - ebXML vs. RosettaNet
  - OTA vs. HITIS

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## A Possible Future

- XML
- SOAP
- UDDI
- ebXML
- RosettaNet

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## Time

- Standards Time
  - Evolution
  - Agreements
- Solutions Time
  - Speciation
  - Implementations
- Product Time
  - Incremental change
  - Development
- Internet Time
  - Keep mutating
  - Unrealistic

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## W3C: Epitome of Standards

- Who / What?
  - The founders & members
- Process
  - Note
  - Working Draft
  - Last Call Working Draft
  - Candidate Recommendation
  - Proposed Recommendation
  - Recommendation
  - Is that it?

"R-E-S-P-E-C-T"

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## ebXML

- Lots of buzz and Momentum
- A company or an organization? Or both?
- Staff on Loan
- Milestone & Deliverable oriented
- Results to be seen

"Divide and Conquer"

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## CPEXchange

- Focused Problem, Focused Solution
- Small working group
- Frequent meetings
- Get out the draft!
- No time for politics
- After v1.0, what next?

“Keep it Simple, Stupid (KISS)”



## UDDI

- The BIG Guys: Microsoft, IBM, Ariba
- Working towards a REAL system
- Push it out
- What about the little guys?
- A “standards” approach?
- A lot of support...

“When Parental Supervision is Needed”



## Competition = Chaos

- Vertical Industry definition
  - Standards Orgs
  - Industry groups
- Horizontal Product definition
  - Microsoft
  - Oracle
  - IBM
- eMarketplaces
- Internal Development
- No one wants to be a standards body... why?
  - ebXML
  - RosettaNet
  - UDDI



## What do I do?

- Horizontal Standards
  - Participate, Implement, and Wait
- Vertical Standards
  - Start early
- Internal Development
  - Always a factor
  - Build for interchange
  - Never extend beyond its purpose!
- Applications
  - Ignore the software vendors



## So, Where Next?

- Stay informed!
  - Read the ZapThink Report
- ROI-based Adoption Plans
  - 0-6 month plan
    - Focus, focus, focus – develop a beach-head
    - Find a friend
  - 6-12 month plan
    - Look for results
    - Back a horizontal platform
  - 1-2 yr plan
    - Build and promote
- Get Help!
  - Don't Struggle Alone
  - Seek Implementation Success
  - Find a Model

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## Questions / Feedback

- You can find these slides at:
  - <http://www.zapthink.com/>
- Check out the Quarterly ZapThink Standards Report!
- Great Books:
  - XML Applications, WROX Press (9 authors!)
  - The XML Guide, (3 book series)
- Your Q & A!

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