The Universal Business Language

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Web Services for Business

The promise of web services for business

- Plug 'n play electronic commerce

- Spontaneous trade with anyone, any time

- XML (no ugly EDI syntax!)

- No expensive custom programming

- Ubiquitous Internet presence

- Cheap tools

- Complete platform independence

Why it's not that simple

- XML is not a language; it's a metalanguage

- XML tags have no predefined meaning

- Platform independence requires interoperable data representation

- Interoperability requires large-scale semantic standardization

  □ Hard to do technically

  □ Hard to do organizationally

  □ Tools and methodologies don't really help much beyond basic information display and version management

  □ In the end, meaning has to be defined by *human beings* in a *committee process*. Machines cannot do this.

- B2C and B2B have different web services requirements

Web services for B2C

- RPC interaction model: XML conveys parameters to a procedure call

- Must support run-time trading partner discovery

- Must support run-time service interface definition

Web services for B2B

- Document exchange model: XML conveys legally binding documents

- Must support reliable XML messaging

- Must support EDI legacy systems

- Must enable humans to step in for exception handling

- Automated discovery and automated trading partner formation are optional

  - Most B2B trade is with a small number of partners
  - Most B2B partnership formation is based on human judgement
  - Most B2B partnerships are based on trust and past performance

Making the transition

Web services for B2B must provide an upward migration path for existing businesses. Our goals should be:

● To move existing enterprises online

● To automate existing business relationships

in a way that allows each enterprise to move *at its own speed.*

In other words, we should be upgrading existing business processes *in place.* The standardization of XML business documents is the simplest way to accomplish this.

A Program for Change

What we want

What we want is an XML replacement for the fax machine that is powerful enough to extend the benefits of EDI to all of the world's businesses. We want:

- Cheap, self-configuring data input software

- Cheap, self-configuring data output software

- Reasonable cost of integration with existing backoffice systems

- Standardized, human-readable, machine-readable, persistent XML business data that can be used and re-used by an unlimited number of different business processes

What we need

- Standardized XML business forms that can support existing EDI transaction sets

- Reliable XML messaging

- Optional but powerful discovery of schemas and trading partner profiles

- Optional but powerful XML trading partner agreements

Note that the first two items are all that's needed to implement EDI using XML.

What we would get

The combination of standard XML forms and reliable XML messaging would:

- Provide for incremental automation of existing business processes in place

- Extend EDI to all the world's businesses

- Allow existing EDI users to communicate with smaller partners without replacing their existing backoffice systems

Good news

The ebXML infrastructure gives us almost everything we need to make XML EDI a reality.

- **Reliable messaging:** ebXML extensions to SOAP

- **Powerful discovery:** ebXML registry/repository

- **Trading partner agreements:** ebXML CPP/CPA

All we need to make electronic business available to everyone is a standard set of XML business schemas.

UBL

What it is

- Synthesis of existing XML B2B languages (xCBL, cXML, RosettaNet, OAG, etc.)

- Primary inputs: xCBL, ebXML core components, ebXML context methodology

- Applicable across any sector or domain of electronic trade, transport, and administration (purchasing, payments, logistics, transportation, statistical reporting, social administration, healthcare, etc.)

- Interoperable with existing EDI systems

- Based on a core library plus a context-sensitive extension mechanism

- Unencumbered by intellectual property claims

- Intended to become a legal standard for international trade

Economic challenges to UBL

- There are already several competing (but incomplete) proprietary XML business languages

- Some companies have already made substantial investments in nonstandard solutions

- Some industrial consortia have made substantial investments in industry-specific XML languages

- Some big vendors derive substantial income from the professional services needed to integrate systems using different business languages

- Some big vendors have built solutions around proprietary XML languages

The economic advantages of complete interoperability will outweigh all these considerations in the long run.

Technical challenges to UBL

The basic problem: every company has a slightly different way of doing business.

So every business relationship exhibits a unique set of data exchange requirements.

- Traditional EDI solution

  □ Standardize the union set of all possibly required data structures needed for anyone's version of a given transaction type

  □ For each trading relationship, define the subset that fits the requirements of particular trading partners using "implementation guidelines"

- This works, but everyone agrees there has to be a better solution

The big problem: context

"Standard" business document components are different when used in different business contexts.

- Example: shipping addresses

  - Addresses in Japan are different from addresses in the United States
  - Addresses in the auto industry are different from addresses in other industries

- Example: invoice items

  - An invoice for shoes needs item fields for color; an invoice for gourmet coffee needs item fields for grind
  - Invoices for microprocessor boards have to contain serial numbers for the processor chips to detect substitution in shipment

Context drivers

The ebXML analysis identified the most important "context drivers":

- Business process

- Industry classification

- Product classification

- Geopolitical region

- Official constraints

- Primary business role (vendor, customer, etc.)

- Supporting business role (shipper, insurer, etc.)

- System capabilities

An approach to document standardization

1. Identify the largest data structures (business information entities) that are shared across related business document types and standardize those structures in an agreed-upon XML syntax to form a core library.

2. Devise a mechanism for extending or modifying the business information entities to reflect the requirements of any given business context (any set of context drivers).

3. Generate standard context-specific XML versions of basic business documents and store them in a public registry.

4. Point to the appropriate document types for a specific context and do business.

A UBL EDI roadmap

1. Basic UBL EDI

   □ Standard context-sensitive XML document types

   □ Secure messaging (SOAP + ebXML extensions)

2. Intermediate UBL EDI

   □ Add ebXML CPP/CPA for trading partner agreements

   □ Add ebXML Reg/Rep for CPPs and document formats

3. Advanced UBL EDI

   □ Integrate UBL with machine-processable formal business models

Advantages of UBL EDI

- Starts with the low-hanging fruit

- Provides easily understood transition from traditional EDI and fax-based business practices

- Gets small businesses on board

- Fits existing legal and trade concepts

- Decouples data from process to allow re-use of data

- Hides internal workflow and processing details

- Defers the rocket science for later

The World Wide Web took off when a simple, standard tag language (HTML) was combined with a simple, ubiquitous transport mechanism (HTTP).

UBL + secure messaging can do for electronic commerce what HTML + HTTP did for web publishing.

UBL Deliverables

Deliverable 1: Component library

- Shared library of basic XML building blocks (address, quantity, etc.)

- Provides shared basis for standard documents

- Takes xCBL as a starting point

  □ Covers a large set of document formats

  □ Has component-based approach to document design

  □ Widely deployed

  □ Unencumbered IP (orginally developed under government grant)

- The UBL library will not be backward-compatible with xCBL

- The component library will be aligned with (and feed back into) the ebXML core components

Deliverable 2: Standard documents

- Set of XML schemas for common business documents

- Common basis for ad hoc customization in advance of the UBL context methodology

  □ **Core library** (modular building blocks)

  □ **Procurement documents** (Purchase Order, Purchase Order Response, Purchase Order Change)

  □ **Materials management documents** (Advance Ship Notice, Planning Schedule, Goods Receipt)

  □ **Payment documents** (Commercial Invoice, Remittance Advice)

  □ **Transport/logistics documents** (Consigment Status Request, Consignment Status Report, Bill of Lading)

  □ **Catalogs** (Price Catalog, Product Catalog)

  □ **Statistical reports** (Accounting Report)

Deliverable 3: Context methodology

The context-sensitive extension methodology will define how document formats can be extended based on specific trading partner characteristics.

UBL context extension will build on experience with OO extension methodology, but will be

- More structured

- More consistent

- Easier to track

- Easier to automate

- Require a lower level of skill

The UBL extension methodology takes the ebXML context rules as its starting point.

The UBL TC

Why UBL chose OASIS

- Nonprofit corporation dedicated to XML standards development

  □ Any interested party can join OASIS, and the TC process is completely democratic

  □ All OASIS mail lists are publicly visible

  □ All OASIS Technical Committees provide a freely subscribable mail list for public comment

- Positioned for international trade

  □ OASIS has extensive connections with the international EDI community through two years of ebXML partnership with UN/CEFACT

  □ OASIS is a continuing partner with the UN in ebXML

  □ OASIS is a member of the management group that coordinates the legal standards bodies for international trade (ISO, IEC, ITU, UN/CEFACT)

OASIS UBL Technical Committee

- First two meetings hosted by Sun Microsystems (October 2001 and January 2002)

- Next meeting hosted by UN/EDIFACT Working Group (Barcelona, March 2002)

- Largest contributors of technical resources: Sun, SAP, Commerce One

- Other active contributors include GSA, LMI, Northrop Grumman, Boeing, Oracle, HP, Intuit, Sterling Commerce, Contivo, Schemantix, KPMG, PriceWaterhouseCoopers, France Telecom

UBL web site: http://oasis-open.org/committees/ubl/

UBL TC Subcommittees

- Technical subcommittees

    - Naming and Design Rules SC

    - Context Methodology SC

    - Context Drivers SC

    - Tools and Techniques SC

- Content subcommittees

    - Library Content SC

    - Future domain-specific SCs

- Administration

    - Marketing SC

    - Liaison SC

    - Administration SC

Any OASIS member can become a voting member
of a UBL subcommittee.

UBL Library Content SC

Chair: Tim McGrath
<tmcgrath@portcomm.com.au>

Vice chair: Marion Royal <marion.royal@gsa.gov>

Archive: http://lists.oasis-open.org/archives/ubl-lcsc

Web page: http://oasis-open.org/committees/ubl/lcsc/

Status: First "straw man" draft of Purchase Order schema scheduled for delivery mid-March 2002

UBL Naming and Design Rules SC

Chair: Eve Maler <eve.maler@sun.com>

Editor: Mark Crawford <mcrawford@lmi.org>

Archive: http://lists.oasis-open.org/archives/ubl-ndrsc

Web page: http://oasis-open.org/committees/ubl/ndrsc/

Status: Working through major schema design issues

- Tag structure
- Code lists
- Modularization, namespaces, and versioning
- Local vs. global elements
- Elements vs. attributes
- Extension (additive vs. subtractive)

UBL Liaison SC

Chair: Jon Bosak <jon.bosak@sun.com>

Archive: http://lists.oasis-open.org/archives/ubl-lsc

The members of the Liaison SC are persons formally appointed to this role by cooperating organizations. Initial liaisons include:

- ARTS (retail industry)
- EIDX (electronics industry)
- RosettaNet (information technology)
- XBRL (accounting and statistics)

UBL lets industry consortia pool their resources to develop interoperable business documents.

Participation in UBL

To get the UBL white paper: http://oasis-open.org/committees/ubl/msc/200112/ubl.pdf

To get more information about UBL: http://oasis-open.org/committees/ubl

To subscribe to the ubl-comment list: http://lists.oasis-open.org/ob/adm.pl

To join OASIS: http://www.oasis-open.org/join

To join a UBL SC: contact the subcommittee chair

To join the UBL TC: send a request to the TC chair, jon.bosak@sun.com

Summary: UBL

- "The real deal" -- actual standard XML business schemas

- Grounded in solid design rules developed by XML and ebusiness experts

- Based on ebXML core components and context methodology

- Enables an interoperability framework for B2B web services, EDI, and traditional business practices

- Goes beyond EDI to address cross-industry interoperability

- Committed to vendor neutrality, an open process, and international cross-industry semantic harmonization

- Distills the experience of both vertical and horizontal industry standards organizations

- Intended as a long-term solution for business data