Simple EDI based on ebXML

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Electronic Commerce Promotion Council (ECOM)
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95% of FORTUNE 1000 are using EDI

BUT

Only 2% of Other SME’s are using EDI

**EDI Today**

**Legacy EDI**

+ Contributing to the productivity of the present-day economy through the rapid information exchange among the major companies, if the exchange is continuance, frequent and plenty of.

BUT

- Lacking the flexibility and cannot follow the rapid Business Process Reengineering today.

- Requiring the intricate agreements and the testing on EDI between the parties by the person in charge, before starting the business.

- Being difficult to expand EDI world in SME’s because of the expensive cost and the special EDI skills.

**Web EDI**

+ Easy to implement and to access the electronic datas when you have a PC with a normal browsing software.

BUT

- Requiring the human operation always and Inviting the errors sometimes, because the Web services don’t provide the automation of the EDI data handling.

- Being difficult to continue the rapid and frequent EDI through Client-Server based system depending on the human handling.

**There is a Solution**

XML/EDI ==> ebXML

Standardization
Web EDI

A-Web Server

B-Web Server

HTML on HTTP
XML (Extensible Mark up Language) offers exciting new opportunities for the exchange of business data, be that application-to-application, application-to-person or person-to-application.
Standardization is the key to success
XML used in e-Business

XML diffusion

ebXML Initiative

Chaos to Tower of Babel

Digital economy realization by standardized IT infrastructure

Awareness  Proliferation  Products  Implementation

1998  1999  2000  2001  2002  year

Standardization
ebXML Initiative

Purpose: To research and identify the technical basis upon which the global implementation of XML can be standardized.

Goal: To provide an open technical framework to enable XML to be utilized in a consistent and uniform manner for the exchange of Electronic Business data in application to application, application to person and person to application environments.

Terms: November/1999 – May/2001

Creating a Single Global Electronic Market

Participants:
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expand the Scope of EC</td>
<td>+ Inter-Company / Industry / Cross-Industry&lt;br&gt;+ Global companies / SMEs&lt;br&gt;+ Domestic / International</td>
</tr>
<tr>
<td>2. Openness</td>
<td>+ Open access by Human and Machine</td>
</tr>
<tr>
<td>3. Interoperability</td>
<td>+ Business Process and Information Model Sharing&lt;br&gt;+ Connectivity in the means of IT&lt;br&gt;+ Easy migration from Legacy EDI</td>
</tr>
<tr>
<td>4. Security</td>
<td>+ Authentication / Integrity / Non-repudiation &amp; Confidentiality</td>
</tr>
</tbody>
</table>
ebXML Architecture

Business Process -> Business Document

Business Document -> Core Components

Core Components -> Business Document

Repository

Profile -> Agreement -> Profile

ContextFor -> ReferenceTo

Fill one Role

BuiltWith

Fill other Role

Business Service

Collaboration

Transport

Message
Business Transaction

Requesting Activity

- Non-Repudiation

Success

Failure

Legally Binding

Responding Activity

Non-Repudiation

Unit of Work

Request Document

SignedReceipt

Response Document

Time-Outs

SignedReceipt
Core Component (CC)

Core Component

Party
- Party identifier
- Name
- Address
  - Zip code
  - State
  - City
  - Building

Business Process

Context

Internal system
- Scenario
  - Business Objects
    - Methods
    - Attributes

Message exchange
Registry & Repository

Other Registry

Company Profiles

Standard Elements

Standard Development

Software Development

Other Registry

CPA Negotiation

ebXML Implementation

* Standard Elements
  Process Patterns  Messages
  Core Component  Software Packages
  Common Business Objects
Collaboration-Protocol Agreements (CPA)

1. CPP For Party A negotiate CPA ID
   - Party’s information
      - Party A
      - Party B
   Transport Protocol
   Transport Security
   DocExchange Protocol
   Link to Process-Specification Doc.
   Retry
   -etc.

2. CPP For Party B negotiate CPA Agreed CPA

3. Agreed CPA
   Agreement on CPA has arrived.

4. Start Business activities with each other

CPP Agreed CPA

CPP For Party B
Messaging Service

ebXML Applications

Message Service Interface

Based on SOAP

ebXML Message Envelope (MIME)
- Header Envelope (MIME)
  - Header Information (XML)
- Message Envelope (MIME)
  - Security
  - Payload

Communication Interface

Message Service Management

Error Handling

HTTP  SMTP  IIOP  FTP  Other
ebXML Specifications

Business Process

Core Component

R&R

R&R : Registry & Repository

CPA : Collaboration Protocol Agreement

Company-A

ebXML Messaging

Company-B
Current status of ebXML

1. Standard Models not completed
   + Problems on the portability of BPM
   + Problems on the language translation of CC

2. No consensus on the XML Instanciation of CC

3. Early for implementing the full specification of ebXML
   + Development stage of Domain Models
   + Full works on Modeling/Design Required in each Implementation

Modeling/Design Experts with Expensive Cost
Requirement for Simplification

1. Plug and Play
   - Non-expensive Packaged Solution
   - No need for the Special Skills

2. Bridge from the Legacy EDI
   - Easy to migrate from the Legacy EDI
   - Cooperation with Legacy EDI

ebXML Requirement Specification
**Simple EDI in Japan**

Exchange the pre-defined business documents on the pre-defined business process.

<table>
<thead>
<tr>
<th><strong>ebXML Specification</strong></th>
<th><strong>Simple EDI</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process</td>
<td>Can be used for collaboration engine</td>
</tr>
<tr>
<td>Core Component</td>
<td>Pre-defined (XML Instance from CII)</td>
</tr>
<tr>
<td>Registry &amp; Repository</td>
<td>Repository for the standard elements</td>
</tr>
<tr>
<td>Partner Agreement</td>
<td>Not used</td>
</tr>
<tr>
<td>Messaging</td>
<td>ebXML Messaging Service</td>
</tr>
</tbody>
</table>
EDI Message Format

**UN/EDIFACT**

<table>
<thead>
<tr>
<th>Tag</th>
<th>Length</th>
<th>CCYYMMDD</th>
<th>Segment ID</th>
<th>Name of Goods (Qualifier)</th>
<th>CCYYMMDD</th>
<th>Delivery Date</th>
<th>Segment ID</th>
<th>Name of Goods</th>
<th>CCYYMMDD</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Date</td>
<td>4</td>
<td>20001916</td>
<td>011</td>
<td>LX254</td>
<td>20000916</td>
<td>022</td>
<td>075</td>
<td>CT201</td>
<td>20000925</td>
<td>031</td>
</tr>
<tr>
<td>Quantity</td>
<td>4</td>
<td>022</td>
<td>05</td>
<td>LX254</td>
<td>05</td>
<td>3</td>
<td>015</td>
<td>CT201</td>
<td>03</td>
<td>500</td>
</tr>
<tr>
<td>Delivery Date</td>
<td>4</td>
<td>022</td>
<td>05</td>
<td>LX254</td>
<td>05</td>
<td>3</td>
<td>015</td>
<td>CT201</td>
<td>03</td>
<td>500</td>
</tr>
</tbody>
</table>

**CII (Syntax rules for Cross-industry Information Interchange)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>LX254</td>
<td>500</td>
<td>9/25</td>
</tr>
<tr>
<td>CT201</td>
<td>100</td>
<td>10/10</td>
</tr>
<tr>
<td>TI115</td>
<td>300</td>
<td>10/12</td>
</tr>
</tbody>
</table>

**XML**

```xml
<Order>
  <OrderDate>20000916</OrderDate>
  <Name>LX254</Name>  <Qty>500</Qty>  <DelDate>20000925</DelDate>
  <Name>CT201</Name>  <Qty>100</Qty>  <DelDate>20001010</DelDate>
  <Name>TI115</Name>  <Qty>300</Qty>  <DelDate>20001012</DelDate>
</Order>
```
CII <- XML Mapping

CII Data Element

<table>
<thead>
<tr>
<th>Data TAG</th>
<th>Length</th>
<th>Data Value</th>
</tr>
</thead>
</table>

XML Element

```xml
<‘JP’ +CII_TAG>
```

Copy

```xml
</‘JP’ +CII_TAG>
```
CII/XML Example

<?xml version="1.0" encoding="Shift_JIS" ?>
<?xml-stylesheet href="HWSWXSL4.xsl" type="text/xsl" ?>

<CII-HWSW001A0110-V10>
<!–HW/SW EDI 001A Product Information -->

<JPMGH>
<JPC03>0</JPC03>
<JPC04></JPC04>
<JPC05></JPC05>
<JPC06></JPC06>
<JPC07></JPC07>
<JPC08></JPC08>
<JPC09></JPC09>
<JPC10>HWSW</JPC10>
<JPC11>00</JPC11>
<JPC12>1A</JPC12>
<JPC14>0110</JPC14>
<JPC18>19990602</JPC18>
<JPC21>CII300</JPC21>
<JPC29>I</JPC29>
<JPC30></JPC30>
</JPMGH>

<JPTRM SEQ="1">
<JPC31></JPC31>
<JPC32></JPC32>
<JPC33></JPC33>
<JPC34></JPC34>
<JPC35></JPC35>
</JPTRM>

<Message Group Header>

<Message Body>

</CII-HWSW001A0110-V10>
Simple EDI System Configuration
(without Collaboration Engine)

Repository
+Predefined Message
+Style Sheet

Business Applications

Document Composing

CII/XML

ebXML Messaging

SOAP
EDI Status in Japan

Standard EDI Portion (%)
EDI Road Map

Proprietary EDI

Standard EDI
CII, UN/EDIFACT

Internet
EDI

EDI non-Installed

Simple EDI

OO-edi

XML/EDI

Hi-speed
Hi-volume
Continuance

Open Electronic Market

EDI in each group