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About the Tutorial

ebXML stands for Electronic Business XML. It is a modular suite of specifications that gives businesses of any size the ability to conduct business over the Internet.

This brief tutorial covers the complete architecture of ebXML and how it provides consistent business semantics and a standard technical infrastructure for business exchanges.

Audience

This tutorial has been designed for beginners who would like to learn the basics of ebXML such as its architecture and how to work with its components.

Prerequisites

To make the most of this tutorial, you should be familiar with either VC++ or C/C++. In addition, you should have a good understanding of the concepts of Windows.

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Contents

| | |
|---|-----------|
| About the Tutorial | i |
| Audience | i |
| Prerequisites | i |
| Disclaimer & Copyright | i |
| Contents | ii |
| 1. EBXML – INTRODUCTION | 1 |
| Definition | 1 |
| Features | 1 |
| ebXML Vision | 1 |
| Why ebXML? | 2 |
| ebXML Founding Organizations | 2 |
| 2. EBXML – ARCHITECTURE | 3 |
| 3. EBXML – BUSINESS PROCESS | 5 |
| Business Collaborations | 5 |
| Business Transactions | 6 |
| Business Document Flows | 6 |
| Choreography | 6 |
| Business Documents | 6 |
| Business Process Specification Example | 6 |
| Conclusion | 7 |
| 4. EBXML – CPP AND CPA | 8 |
| Collaboration Protocol Profile | 8 |
| Structure of a CPP | 8 |
| Trading Partner Agreement | 9 |
| Structure of a CPA | 10 |

5. EBXML – REGISTRY SERVICE 12

 Goals of ebXML Registry 13

 Benefits of ebXML registry 13

 Compliance 13

 Registry Objects and Metadata 13

 Registry Information Model (RIM) 14

6. EBXML – CORE COMPONENTS..... 15

 Definition 15

 Tools and References 15

 Core Components Examples 16

 Conclusion..... 16

7. EBXML – MESSAGING SERVICE 17

 Messaging Design Criteria 17

 Messaging Architecture..... 17

 Message Formatting..... 18

 Conclusion..... 18

8. EBXML – EXAMPLE 19

9. EBXML – SUMMARY 21

 What is Next?..... 21

1. EBXML – INTRODUCTION

Businesses inevitably interact with each other in various ways. Until recent years, many large companies used to communicate automatically through Electronic Data Interchange (EDI), which allows two companies to communicate using predetermined signals.

The trouble with EDI is that it is very expensive and originally it was created for the mainframe world. Now ebXML is replacing EDI.

Definition

- ebXML stands for **E**lectronic **B**usiness **E**xtensible **M**arkup **L**anguage. It is a global standard for electronic business that enables anyone, anywhere to do business transactions with anyone over the Internet.

Features

The features of ebXML are as follows:

- ebXML is an end-to-end B2B XML framework.
- ebXML is a set of specifications that enable a modular framework.
- ebXML relies on the Internet's existing standards such as HTTP, TCP/IP, MIME, SMTP, FTP, UML, and XML.
- ebXML can be implemented and deployed on virtually any computing platform.
- ebXML provides concrete specifications to enable dynamic B2B collaborations.

ebXML Vision

ebXML is designed to create a global electronic market place where enterprises of any size, anywhere can:

- find each other electronically.
- conduct business -
 - using exchange of XML messages.
 - according to standard business process sequences.
 - with clear business semantics.
 - using off-the-shelf purchased business applications.

- according to mutually agreed trading partner protocol agreements.

Why ebXML?

- Existing B2B Frameworks are not adequate:
 - EDI and RosettaNet are too heavy-weight and too rigid.
 - BizTalk is proprietary, single-vendor, and single-platform.
- Simple Object Access Protocol (SOAP); Web Service Definition Language (WSDL); and Universal Description, Discovery, and Integration (UDDI) alone are not adequate:
 - WSDL does not address business collaboration.
 - SOAP in its basic form does not provide secure and reliable message delivery.
 - UDDI does not provide repository capability for business objects.
- There is a growing requirement to standardize business collaborations to address the following:
 - Business processes
 - The parties involved in business collaboration and their roles
 - Exchanging XML documents in the business collaborations
 - Security, reliability, quality of service requirements of business collaboration
- All these needs are addressed by ebXML.

ebXML Founding Organizations

ebXML is a joint initiative by UN/CEFACT and OASIS.

UN/CEFACT:

- It stands for United Nations Centre for Trade Facilitation and Electronic Business.
- It maintains the UN/EDIFACT standards for Electronic Data Interchange (EDI).

OASIS:

- It stands for Organization for Advancement of Structured Information Standards.
- It creates and maintains XML interoperability specifications, broad industry support.

2. EBXML – ARCHITECTURE

By definition, the iterative life cycle of B2B collaboration includes the following steps:

- Process Definition
- Partner Discovery
- Partner Sign-up
- Electronic Plug-in
- Process Execution
- Process Management
- Process Evolution

The overall ebXML specifications are intended to cover almost the entire process of B2B collaboration and are designed to meet the needs described above.

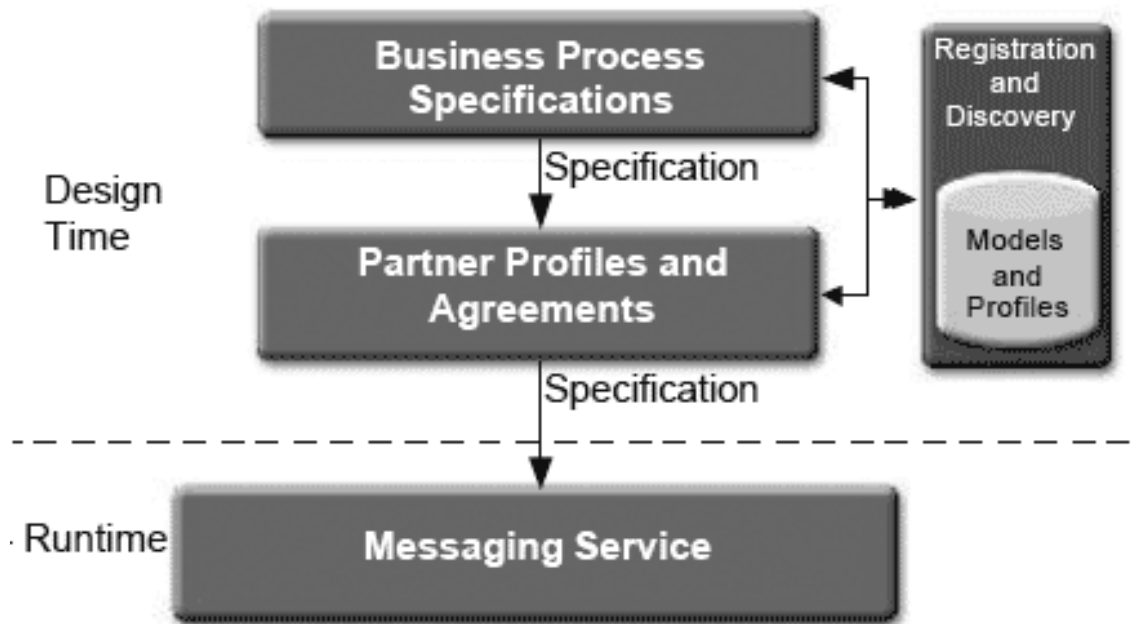
The ebXML architecture as defined by the ebXML team provides:

- A way to define business processes and their associated messages and content.
- A way to register and discover business process sequences with related message exchanges.
- A way to define company profiles.
- A way to define trading partner agreements.
- A uniform message transport layer.

Consequently, the technical architecture of ebXML is composed of five modules:

- Business Process Specifications
- Partner Profile and Agreements
- Registry and Repository
- Core Components
- Messaging Service

These modules will be covered in the next five subsequent chapters. The following diagram shows the simplified architecture of ebXML:



ebXML Architecture

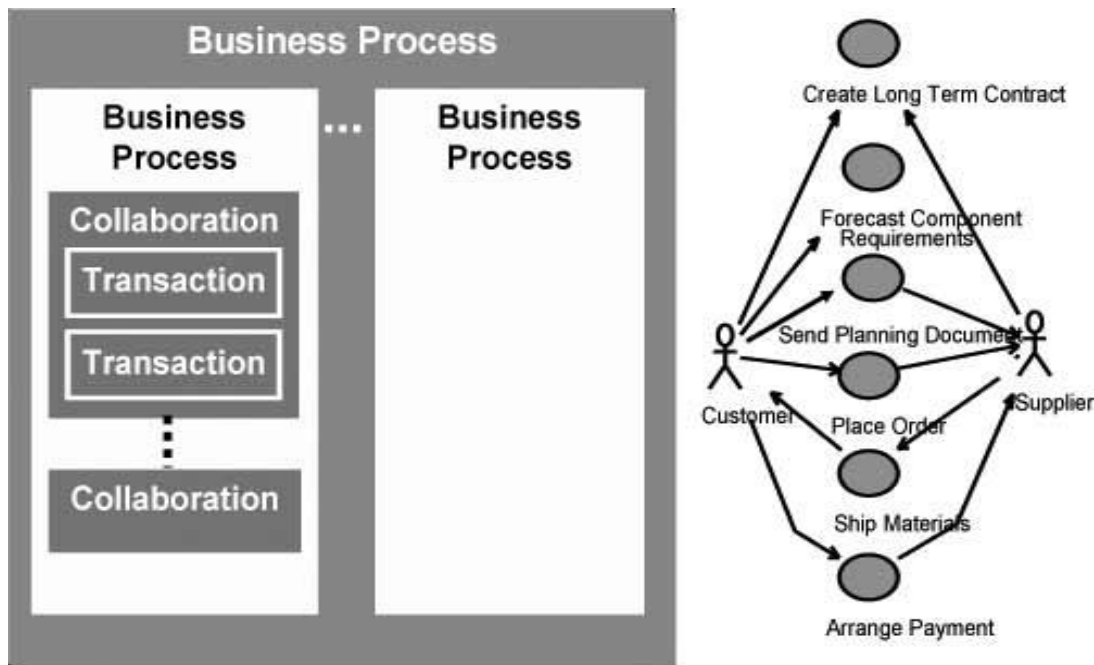
3. EBXML – BUSINESS PROCESS

A Business Process is something that a business does, such as buying computer parts or selling a professional service. It involves the exchange of information between two or more trading partners in some predictable way.

The specifications for business process definition enable an organization to express its business processes so that they are understandable by other organizations. It enables the integration of business processes within a company or among multiple companies.

The **ebXML Business Process Specification Schema (BPSS)** provides the definition of an XML document that describes how an organization conducts its business. An ebXML BPSS is a declaration of the partners, roles, collaborations, choreography, and business document exchanges that make up a business process.

Following diagram gives a conceptual view of Business Process.



Business Process : Conceptual View

Business Collaborations

A Business Collaboration is a choreographed set of business transaction activities, in which two trading partners exchange documents.

The most common one is a Binary Collaboration, in which two partners exchange documents. A Multiparty Collaboration takes place when information is exchanged between more than two parties.

Multiparty collaborations are actually choreographed Binary Collaborations.

At its lowest level, a business collaboration can be broken down into business transactions.

Business Transactions

A Business Transaction is the atomic level of work in a business process. It either succeeds or fails completely.

Business transactions are transactions in which trading partners actually transfer business documents.

Business Document Flows

A business transaction is realized as a Business Document flows between requesting and responding roles. There is always a requesting business document, and optionally a responding business document, depending on the desired transaction semantics, for example, one-way notification vs. two-way conversation.

Actual document definition is achieved using the ebXML core component specifications, or by some methodology external to ebXML but resulting in a DTD or Schema that an ebXML business process specification can point to.

Choreography

Choreography is expressed in terms of states and the transitions between them. A business activity is known as an abstract state, with business collaborations and business transaction activities known as concrete states. The choreography is described in the ebXML business process specification schema using activity diagram concepts such as start state, completion state, etc.

Business Documents

Business documents are composed of business information objects, or smaller chunks of information that have previously been identified.

These chunks, or components, do not carry any information, of course. They are merely structures, such as an XML schema or a DTD, that define information and presentation. The end result is a predictable structure into which information is

placed, so that the receiver of the final document can interpret it to extract the information.

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