BizTalk: Microsoft's Business-to-Busines E-Commerce Strategy

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Abstract

To support the exploding business-to-business e-commerce across different platforms, Microsoft proposed the BizTalk Initiatives in March 1999. The objective of this paper is to examine BizTalk, Microsoft's Business-to-Business E-Commerce Strategy. Examples of the three main components of BizTalk, including the BizTalk Framework, the BizTalk.org community and repository of published schemas, and Microsoft’s BizTalk server will be presented. BizTalk framework is based on XML. BizTalk enables application integration over the Internet. However, some see BizTalk as Microsoft's attempt to control the e-commerce platform.

Key Words: BizTalk, E-commerce, XML, Application Integration

Introduction

The business-to-business (B2B) e-commerce market is growing at an exponential rate. According to Gartner Group's forecast, the worldwide B2B market will grow from $145 billion in 1999 to $7.29 trillion in 2004. B2B e-commerce will constitute 7 percent of the forecasted $105 trillion total global sales by 2004. Nevertheless, B2B e-commerce lacks a common framework for companies to transact efficiently over the Internet. Without such a common framework, the growth of business-to-business e-commerce may be hindered.

In response to the urgent need for interoperability and a common framework, in March 1999 Microsoft proposed the BizTalk Framework for application integration and electronic commerce through data interchange standards based on XML. BizTalk is a framework for implementing an Extensible Markup Language (XML) schema and a set of XML tags used in messages sent between transacting partners. By formatting business data in XML, BizTalk enables trading partners to integrate their applications and communicate with each other over the Internet.

Any individual or organization can download the framework and specifications and use them to implement and submit XML schemas to the Web site (http://www.biztalk.org/Biztalk/). To date, numerous organizations including SAP, PeopleSoft, and J.D. Edwards just to name a few have joined the BizTalk community.

The objective of this paper is to examine BizTalk, Microsoft's business-to-business e-commerce strategy. Section one of the paper briefly describes XML standard and its deficiency; section two presents the BizTalk framework and an example, and section three examines the benefits of the BizTalk framework, and section four concludes the paper.

XML Standard and Its Deficiency

Extensible Markup Language (XML) is the W3C data standard that defines a platform-independent way to represent data that is transmitted between computers. As with HTML, data of a web page are identified using tags. HTML provides standards for data representation but not for data management. However, data management is essential for business-to-business e-commerce.

The XML standard itself describes how to create the markup tags and outlines the benefits of using them to describe data. It is up to individual designers to decide on how to name their tags and how to format information so that it can be processed. These descriptions form the schema of the data structure and can be shared among applications. The example in Figure 1 illustrates how XML is used to describe a customer.

In the same way that a record structure contains fields, XML designers are free to use any XML tags that are required for their applications. If XML tags are adopted
throughout an organization's intranet as well as among its trading partners, all parties involved must agree on the tag names of the schema. The scenario is similar to the Electronic Data Interchange (EDI) standards for which a committee is formed for each industry to standardize record structure for transactions. Since no single solution meets the needs of a complex deployment environment, interoperability of adopting XML to support business-to-business e-commerce becomes an issue.

Figure 1. XML Structured Data for Customer

```xml
<customer>
  <customerID>1111</customerID>
  <customerName>Mary Smith</customerName>
  <address>1000 E. Victoria, Carson, CA 90747</address>
  <telephone>3102433579</telephone>
</customer>
```

Microsoft’s BizTalk

To support the exploding business-to-business e-commerce across different platforms, it is necessary to have a common framework that makes it easy to integrate applications and conduct business over the Internet. MicroSoft proposed the BizTalk Initiatives in March 1999. The Initiative has three main components: the BizTalk Framework, the BizTalk.org community and repository of published schema, and Microsoft’s BizTalk server for developing, executing, and managing distributed business processes. (http://www.microsoft.com/biztalk/).

BizTalk.Org Community and Repository

Individual developers or organizations can define their schema based on the Framework. They can submit the schema to BizTalk.org for review and verification. As long as the schema passes the verification test, it becomes a valid BizTalk Framework schema and can be registered and stored on the BizTalk.Org website. The BizTalk.Org Web site provides an automated submission and validation process. A steering committee composed of software companies, end users and industry standards bodies oversee the operations of the BizTalk.Org. Developers can use the schema as long as the schema is published for public use. However, organizations also have the option of publishing their schemas in a secure area in BizTalk.Org for private use between trading partners.

The BizTalk Framework

The BizTalk Framework is where XML meets business. The Framework is based on XML. It includes a design framework for implementing an XML schema and a set of XML tags used in messages sent between applications. A BizTalk schema is a XML meta data used to describe the data structure of a Business Document. For example, the structured data of customer in the above XML example can be formatted to the BizTalk schema as shown in Figure 2.

Figure 2. BizTalk Schema for Customer

```xml
<?xml version="1.0" ?>
<Schema name="customer.xml"
  xmlns="urn:schemas-microsoft-com:xml-data"
  xmlns:dt="urn:schemas-microsoft-com:datatypes">
  <ElementType name = "customerID">
    <datatype dt:type="string" />
  </ElementType>
  <ElementType name = "customerName">
    <datatype dt:type="string" />
  </ElementType>
  <ElementType name = "address">
    <datatype dt:type="string" />
  </ElementType>
  <ElementType name = "telephone">
    <datatype dt:type="string" />
  </ElementType>
  <ElementType name = "customer">
    <element type="customerID" />
    <element type="customerName" />
    <element type="address" />
    <element type="telephone" />
  </ElementType>
</Schema>
```
The tags of the schema in Figure 2 such as `<Schema>` and `<ElementType>` are defined in the BizTalk Framework. With these tags, we define the Customer schema contains a customer record with customerID, customerName, address and telephone with their corresponding data type (e.g. string).

Applications communicate with each other by agreeing on using a specific schema. Based on the schema, a BizTalk Document is formulated. Eventually, the BizTalk Document will be embedded in a BizTalk Message that will be used to communicate with other applications. The BizTalk Message contains the different components as depicted in Figure 3.

A BizTalk Document is a well-formed XML document, i.e., it contains a boilerplate format that uses tags to designate and separate different components. For instance, a BizTalk Document is partitioned into two sub-components, the BizTalk Header and the Document Body. The Framework does not provide the document body; it is the application developer who codes the document body using tags defined by a published schema. The BizTalk Header contains routing information about where the message should go, and where it has come from as well as the manifest that carries supporting information including images, attachment files and other binary data. For instance, consider the BizTalk Message shown in Figure 4. The message is generated from the Customer schema in Figure 2. Lines 1-2 are the XML version control and schema name. The header is from lines 3 to 27, which has two subsections: delivery and the manifest. Delivery basically tells the source and destination of the message. The manifest can contain some other supportive attachments. The BizTalk Document is from line 28 to line 42. In this case, the tags from Customer schema are used to code a customer's information.

The BizTalk Server

A BizTalk Message similar to the one in Figure 4 is generated by the application of the organization, e.g. ABC Co in Figure 5. The application forwards the Message to the BizTalk Server that is a MicroSoft product. The BizTalk Server will then process the Message by attaching the transport control and other security measures to it. The Message is routed to the BizTalk Server of the recipient trading partner, e.g. XYZ Co. Upon receiving the Message, the BizTalk Server of XYZ Co will examine and dispatch the Message to the application of XYZ Co. The BizTalk Server is still under development.
Concluding Remarks

XML may be the future of the Internet. However, organizations using XML need to know the schema, documents, and business processes supported by other organizations and applications in order to move information over the Internet. BizTalk provides a framework for developers and organization to publish their schema, documents, and business processes at BizTalk.org and make possible application integration for business-to-business e-commerce. In addition, BizTalk provides a repository for BizTalk schemas.
The BizTalk Framework allows developers to eliminate three elements found in application integration, namely transport selection, calling convention, and data format. The transport envelope of the Framework eliminates transport selection, delivery information eliminates calling convention, and the BizTalk schema defines data format. Moreover, the BizTalk Framework makes it easier for developers to map from one business process to another and makes the adoption of electronic interchange using the XML standard possible. More important, the BizTalk Framework provides the EDI community a platform for migrating their existing interchange standards to XML.

Microsoft will publish XML schemas to BizTalk.Org for public use and, thus, will allow organizations to share their schema as well as to discover existing XML schema they can use in their applications. Some see BizTalk as Microsoft's attempt to control the e-commerce platform while others welcome a standard for exchanging data between applications.

Reference


