Chapter LXXXVII
Business-to-Business (B2B) Integration

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BUSINESS-TO-BUSINESS (B2B) INTEGRATION TECHNOLOGY

Businesses world-wide started exchanging electronic business messages with each other around 1970. This coincides with the emergence of wide-area computer networks. Immediately businesses realized the potential in sending electronic messages instead of paper letters in order to conduct business electronically with each other. Computer networks provided a significant increase of transmission speed, less failures due to message loss and direct processing of mes-

sages upon receipt without error prone manual transcripts from paper to computer terminals or vice versa. Overall, business interactions became a lot more reliable and efficient.

The direct processing capability of electronic messages enabled the seamless integration of the messaging environment and the back end application systems. The electronic integration of businesses was achieved this way and the technological basis was called Business-to-Business (B2B) integration technology. However, B2B integration technology was not affordable to every business independent of its size due to its high

deployment and maintenance cost. Therefore, only large businesses with an information technology (IT) department could afford electronic B2B integration. Smaller businesses continued to rely on paper letters or fax transmissions; later on email was used, too, in order to send and receive business data.

Today it is commonly accepted to exchange electronic messages between businesses as the complexity of the technology and the cost are both reducing significantly. Current trends are to make B2B technology even more accessible to every business independent of its size through ubiquitous Web technology in combination with the standardized markup language XML. This new technology is called Web Services and all software vendors readily provide solutions (Alonso et al. 2004), (Bussler 2003).

HISTORICAL BACKGROUND

Value Added Networks (VANs) started providing the transport of electronic messages between businesses around 1970. VANs are dedicated networks and since their service is very reliable they still are extremely popular today and widely used. VANs do not support direct communication between businesses. Instead, businesses have to upload and download messages asynchronously from VANs. VANs provide a persistent mailbox system where every partner has a dedicated mailbox storing the electronic messages addressed to it. Based on their behavior VANs are an asynchronous network for exchange of messages. In addition ('value-added') they provide services like storage, backup, and billing. This technical implementation allows businesses to send and receive the messages independent of each other's communication availability. This is very important as the availability of the business partner is not necessary in order to communicate business data.

Through the emergence of VANs Business-to-Business (B2B) integration was born (Bussler 2003). VANs made a big difference in competitiveness since businesses could rely on the extreme high speed of electronic data transmission compared to paper-based communication through postal services. Different industries embarked on B2B integration through at that time new form of communication.

It became immediately apparent that it is not advantageous at all for businesses to define their own message formats and send them over VANs. This would require a business to deal with all the different message formats defined by all its business partners if every of it would provide its own message format. A by far and significantly better approach was to standardize the message formats across businesses so that a business could use the same message formats across all its business partners from the same industry. In specific industries message definition standards have been developed for over 30 years now. An example for the supply-chain industry is EDI (ASC 2007), one for the banking industry is SWIFT (SWIFT 2007) and one for the insurance industry is (ACORD 2007). These standards are called B2B standards and enable the fast integration of a business with other businesses in the same industry. A business can comply with the standard and by that it is ensured that the message exchange with the other partners is interoperable. The standardized message formats ensure interoperability. Of course, one business might be involved in several industries and in this case the business has to support several standards. However, in general it is limited to one standard per industry.

While the message formats have been standardized, the technical software implementations for B2B communication have not. Every VAN is providing its own communication software for uploading and downloading the messages from the mailboxes. In order to allow messages to be automatically processed by back end application

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