Business-to-Business Connectivity and Emerging Protocols for E-Biz

Daniel Dias
IBM T. J. Watson Research Center
Yorktown Hts, NY
email: dias@us.ibm.com

Summary

For many years EDI served as the dominant protocol for e-biz over private networks. Due to the rapid spread of the Internet, several new Business-to-Business (B2B) interaction protocols have become popular, e.g., Open Buying on the Internet (OBI), RosettaNet, and Vendor-defined protocols such as Ariba’s Punchout process. We will describe these protocols, with an emphasis on their similarity and differences. B2B marketplaces are emerging as hubs through which suppliers connect to buyers. We outline the connectivity requirements between these marketplaces, and the Marketplace-to-Marketplace (M2M) protocols that are required.

We show how all of these emerging protocols can be specified in XML using a trading partner agreement (TPA). The TPA specifies three layers in the B2B protocol: The transport, document exchange and business protocol layers. Essentially, the transport layer provides a choice of transport such as HTTP, SMTP, FTP, and specifies related information; the document exchange layer handles different message formats, transformations, application level security including authentication and non-repudiation, and provides services such as audit trails and document repositories; the business protocol layer specifies the sequence of the B2B interactions, responsiveness criteria, and error handling.

From the TPA, an instantiation of the B2B protocol can be built. We describe a Business to Business Protocol Framework (BPF), on which different protocols across autonomous businesses can be instantiated. Our work has the potential to decrease the time of implementation of e-biz solutions. BPF provides a comprehensive set of tools and enablers for ease of specification, configuration, plug-in, customization, and execution of a set of TPAs between business partners. It is the gateway and coordinator across intra-business and inter-business processes, (e.g., between the buy/sell component of a local business, the remote businesses, and the back-end systems). The protocols are expressed as an electronic TPA in XML using a higher level authoring tool and are registered to the BPF server along with the internal business processes for setting up such B-B interactions. BPF uses database services for various functions including guaranteed delivery, recovery and message repositories. As examples, we show how OBI and Ariba’s punchout processes can be specified with TPAs and implemented with BPF.