Getting Started with RosettaNet

Summary

RosettaNet is a non-profit consortium dedicated to the collaborative development of messaging standards to enable business processes within the high-tech, telecommunications and logistics industry sectors. Founded in Silicon Valley in 1998, RosettaNet has affiliates in Europe, Asia, and Australia. GS1 US is the parent organization of RosettaNet, which is known for their promotion of barcode and RFID specifications.

The RosettaNet specifications are used in a number of High Tech solutions packages from SAP. There are messages from RosettaNet required by the solutions packages that are not available anywhere else. These solutions packages are designed to streamline supply chain management processes, reducing costs and improving time to value, particularly in the semiconductor manufacturing process. SAP is also heavily engaged in the foundational specifications such that the RosettaNet community will be able to leverage the Enterprise Services Architecture from SAP.

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Author Bio

Mark Schenecker has more than two decades of professional experience developing, designing and implementing solutions for inter-company business processes. In his role at SAP, Mark drives B2B Standards development. Mark participates in numerous standards development organizations to define and promote emerging standards and is a board member of the EIC, OAGi and RosettaNet standards development organizations. A frequent speaker on technology and supply chain business processes, Mark is the author of several patents and industry standards. Mark has written numerous articles on technology issues, software development and business process management and is also the author of a book on e-Commerce, published in 1999 as well as a contributor to the *Supply Chain Management Handbook*.

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Background

RosettaNet was founded in 1998 in Silicon Valley as an independent, non-profit consortium of companies in the high tech market sector. The specifications are targeted at the automation of high tech business processes, particularly the various characteristics of manufacturing. In the last ten years, there have been dramatic changes to the high tech industry as wholesale parts of the supply chain have been outsourced to organizations throughout the world. RosettaNet addresses the information exchange challenges of outsourced design, manufacturing and service in addition to the traditional core business processes. The objective of RosettaNet consortium is to enable the mass adoption of business-to-business (B2B) integration across the global supply chain through open business process standards.

In 2002, RosettaNet was acquired by the Uniform Commercial Code Council (UCC), publicly referred to as a merger. UCC is best known as the organization that drives the sales and distribution of barcode numbers in the United States. Barcodes are pervasive in the retail sector and UCC viewed the acquisition of RosettaNet as a means to expand into other vertical industries, specifically high tech manufacturing. Since then, UCC has been renamed GS1 US (United States) and RosettaNet is a part of the family of GS1 US standards organizations that also includes 1SYNC and EPCglobal US.

GS1 Global, headquartered in Brussels is the parent organization of GS1 US (United States) as well as 102 country-specific, member organizations. Globally, all of the GS1 organizations promote barcodes and electronic product codes (EPC) in their country. However, there is some confusion with respect to business messages as GS1 Global promotes their own eCOM set of messages which directly competes with the GS1 US RosettaNet Partner Interface Process (PIP) messages. GS1 US promotes RosettaNet PIP messages but also appears to endorse eCOM specifications as well. While the GS1 organizations wrestle with the conflicting approaches, adoption is clear indicator for SAP. eCOM messages appear to have little or no support in the marketplace, on the other had, RosettaNet is considered by many to represent the largest implementation of XML standards, (although it pales in comparison to EDI and EDIFACT). There are 7,000 documented implementations of RosettaNet Partner Interface Processes.

Overview

RosettaNet boasts over 500 member companies from across the globe and is counted as one of the largest vertical industry standards development organizations in terms of membership. The most active companies in the consortia are North American and there is a strong presence in Asia. This corresponds to the outsourced manufacturing trends where the physical assembly of high tech products has shifted to countries such as China, Singapore, Malaysia and Taiwan. RosettaNet has affiliates in Europe, Asia, and Australia.

The consortium is organized into councils that each represent a part of the high tech business process. The councils include semiconductor manufacturing, computer and consumer electronics, electronic components, telecommunications and logistics. In addition, there is a solution provider council which SAP currently chairs. RosettaNet is actively looking to expand into other related industries, particularly manufacturing industries such as automotive, chemical and aerospace.

The RosettaNet Partner Interface Processes (PIPs) are divided into seven broad clusters or groups of business processes. There are segments within each cluster that provide more granular delineation of the business process. The numbering format for PIPs is cluster-segment-number. For example, 3A4 would represent cluster 3 (Order Management), segment A (Quote and Order Entry) and the fourth message which is a Purchase Order Request (3A4).

The seven PIP clusters include:

- Partner Product and Service Review – trading-partner profiles and product-information subscriptions
- Product Information - product design, product change notices and technical specifications
- Order Management – quotation, purchase order, status and management, invoicing and remittance
- Inventory Management - collaboration, replenishment, price protection, reporting and allocation of inventory
- Marketing Information Management - campaign plans, lead information and design registration
- Service and Support - post-sales technical support, service warranty, repair and asset manageme
- Manufacturing - plant floor information to support virtual manufacturing

RosettaNet Specifications

The RosettaNet specifications fall into two categories: Milestone and Foundational.

The Milestone specifications define the structure of message content such as a purchase order, invoice, forecast and other messages required support a business process, particularly business processes between two or more trading partners. The output of a Milestone program is a Partner Interface Process, called a PIP, a term that RosettaNet has trademarked. The PIP information structures form the basic building blocks for the structured exchange of information in an inter-company business process.

Most organizations that have implemented RosettaNet specifications consider the comprehensiveness of the PIPs and the associated Recommended Implementation Guidelines (RIGs) to be the most significant value of the RosettaNet specifications. The structure of the PIPs is defined by a DTD and corresponding message guideline. The message guideline is an HTML document that describes additional constraints and rules for the PIP message – information that is now addressed by XML schema. RosettaNet has been working on revising the PIP structure using XML schema for over two years but only a minority of the PIP messages have been published. The community is having some difficulty transitioning from DTD-based messages to schema-based messages.

The new schema-based PIPs from RosettaNet do not leverage UN/CEFACT core components or the UN/CEFACT naming and design rules. While a number of other vertical industry standards, governments and other organizations are aggressively leveraging UN/CEFACT methodologies, RosettaNet appears to be slow to adopt any technology that is not defined by their internal technical resources. This lack of vision around convergence could seriously impede the adoption of RosettaNet in the future as well as the expansion of RosettaNet into other vertical industries.

The Foundational specifications address the protocols and methodologies for message exchange. The most notable example of a foundation specification is the RosettaNet Implementation Framework (RNIF). RNIF 2.0, published in 2001, is a protocol specification that provides for the reliable, secure exchange of business messages. RNIF is widely considered to be the first internet-based protocol that was both secure and reliable.

However, the RNIF specification was never adopted broadly outside the RosettaNet community. This is typically attributed to the fact that the RNIF specification and PIP message content have some overlap between message content and protocol. In the future, the RosettaNet community is looking for RNIF to

eventually be replaced by Web services, ebXML Messaging Services (ebMS) or Applicability Statement 2 (AS2) as part of the MMS program.

The Standards Definition Process

The RosettaNet Standards Methodology (RSM) provides the core for the governance model at RosettaNet. RSM defines the process for forming, running, validating and finally publishing a specification. The hallmark of the RosettaNet methodology is the validation phase. Each specification must be validated by a number of end-user organizations and solution providers in a production implementation. Corrections are made to the specification before it is submitted to the consortia for vote. Validation ensures that the community gets a specification that works as intended. Perhaps the most valuable aspect of validation is the Recommended Implementation Guide (RIG). The RIG captures the experiences of the organizations that participated in validation. This provides valuable insight into the most effective and efficient means of applying the specification.

SAP Engagement in RosettaNet

SAP has been a member of the RosettaNet consortium almost since inception. The industry standardized methods and interfaces for integrating supply chain and design partners play a key role in the SAP industry solutions business packages. In addition, SAP developed an RNIF adapter in 2002 and continues to support RNIF implementations. Currently, SAP is a member of the RosettaNet Executive Council, which provides for the overall management and leadership the consortium and also occupies the chair of the Solution Provider Council. SAP has also taken a leadership role in key Foundational Programs. SAP contributed significantly to the development of RAE specifications (TPIR-PIP and TPIR-PF) and was a partner in the validation process which provided valuable insight into the application of the specifications. Today, SAP occupies the Program Director position for the Multiple Messaging Services (MMS) program, which is transitioning the community from RNIF to Web service, ebMS and AS2.

RosettaNet Automated Enablement

The RosettaNet community has recognized that the future of RosettaNet is, in many respects, limited due to the complexity of B2B generally. Simplifying integration, reducing costs, and the emergence of new and promising technologies were the primary catalysts for the creation of the RosettaNet Automated Enablement (RAE) foundational program. The program leverages other standards as well as emerging technologies such that it may be possible to affordably integrate with small and midsize trading partners.

The RosettaNet RAE specifications provide for a vastly simplified integration architecture that strips away the bulk of the manual work associated with B2B integration, eliminating much of the cost and complexity that has limited RosettaNet-based implementations and other B2B projects. There are three core specifications to RAE:

– TPIR-PIP streamlines the manually-intensive PIP configuration processes with a methodology that produces with a machine-readable format - XML schema - that precisely defines the structure of the message.
– TPIR-PF makes it possible for a trading partner to achieve B2B integration with RosettaNet by simply filling out and exchanging an electronic form.
– The RAE Registry specification defines the requirements for posting and retrieving the TPIR-PIP schemas providing the mechanism for managing large-scale implementations

SAP was a key participant in the RAE program, from requirements and design all the way thru to validation where the specifications were tested in an implementation. The NetWeaver infrastructure, from the RNIF adapter to Adobe Document Services (ADS) was used to validate the TPIR-PIP and TPIR-PF specifications. Validation proved that NetWeaver was compliant with the new specifications. More importantly, validation proved that B2B integration could be achieved with small trading partners with the TPIR specifications.

Multiple Messaging Services

Complementing RAE are additional developments that address the need for companies to exchange RosettaNet PIPs via a wider range of messaging technologies.

MMS provides a set of specifications that precisely define how to exchange PIP messages over three message handling systems: AS/2; ebMS version 2 and version 3; and WS-I Basis Profile 1.0 with attachments. MMS defines how organizations can leverage any of the three protocols to execute RosettaNet Partner Interfaces Processes (PIPs). Using MMS, SAP believes that organizations will be able to execute business processes around a single set of PIP messages across many vertical industry boundaries while simultaneously lowering the cost of integration.

Each of the three message handling systems leveraged by MMS has distinct advantages around technical features as well as acceptance in certain vertical markets. For example, AS/2 has features that are ideally suited for an extremely high volume of message exchange. In addition, there is a large installed base of AS/2 users and with MMS, SAP users will be able to leverage their existing AS/2 implementations to extend B2B integration using the more industry-specific messages defined by RosettaNet PIPs. Meanwhile, ebMS is endorsed and used by the automotive and defense industries in some countries, and also benefits from keen interest from a number of countries in Asia.

As for Web services, this is the architectural implementation that fits into the SAP Enterprise Services Architecture (ESA). ESA provides a framework with inherent support for Web services. RosettaNet PIP messages provide the key to making Web services a pervasive tool for B2B integration. The ubiquity of Web services also holds tremendous promise in reducing costs for the small and midsized trading partner. Indeed, all three message handling systems hold the promise of cost reduction and extension into other industries, geographies and markets.

B2B integration can be complex and expensive for any size organization. New RosettaNet foundational specifications have emerged that build upon the larger SOA trend and look to be used in ESA. These next-generation RosettaNet standards have the potential to create a common language and open process that lay the groundwork for companies – in a variety of industries – to affordably build wide-reaching, standards-based global trading networks.

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