SDN Contribution

Getting Started with the EPCglobal

Summary

EPCglobal Inc. is a non-profit consortium that drives the collaborative development of Electronic Product Code (EPC) related RFID standards. EPCglobal was formed in 2003 as a member of the GS1 Global family of standards organizations. The EPCglobal specifications are based on RFID research performed at the AutoID Center at the Massachusetts Institute of Technology (MIT), which started in the 1990's. Similar to barcodes, another technology driven by GS1 (specifically the EAN and UCC organizations), EPC specifications have achieved significant industry support

The EPCglobal Network Architecture and its component specifications define mechanisms by which companies can efficiently communicate information about their business processes in real time. The specifications defined by the EPCglobal community are therefore a key part of the Real World Awareness initiative at SAP. To take advantage of real time supply chain data, the EPCglobal specifications have become an integral part of the SAP Auto-Id Infrastructure product (AII) and SAP Supply Chain Management (SCM) solutions. Companies are enabling entirely new business processes with RFID event data, yielding significantly increased efficiency in supply chain operations.

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Author Bio

Steve Winkler is a standards architect at SAP addressing RFID technologies and related business processes. Steve is currently working on the EPCIS specification being developed by the community at EPCglobal. Recently, his concentration was Web services with a special emphasis on XML messaging. Steve has represented SAP in several standards efforts including WS-Addressing in the W3C and WS-ReliableMessaging in OASIS. In addition, Steve coordinated SAP's participation in the Java Community Process and developed the WS-I Sample Application. Previous endeavors at SAP include the architecture and development of a Java XML messaging system for SAP's XI product, a part of NetWeaver.

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The Formation of EPCglobal

EPCglobal specifications are based on RFID research performed at the MIT AutoID Center, now called Auto-Id Labs. The AutoID Center was founded in 1999 as partnership between academic institutions and private companies, including SAP, to define how to best manage a global network of physical items using Radio Frequency Identification (RFID).

EAN and UCC are considered by many as the two organizations that were largely responsible for the adoption and proliferation of barcodes. In 2003, EAN and UCC formed a joint venture called EPCglobal Incorporated to pursue development of open RFID standards and drive the adoption of RFID technology. At the same time, EAN was renamed GS1 Global and UCC was renamed GS1 US (United States). GS1 Global and GS1 US committed $8 million in funding to Auto-ID labs at eight academic institutions around the world. In return, EPCglobal Inc. acquired the intellectual property of the MIT Auto-ID Labs as well as member organization support.

Overview of EPCglobal

EPCglobal drives the development of RFID related EPC standards. The organizational structure consists of the EPCglobal board of governors, which reports to both the GS1 Global management board and the GS1 US board of governors. The EPCglobal board is responsible for setting the strategic direction of the organization and for the final ratification of the standards. The president of EPCglobal reports to the board and is responsible for the execution of strategy. The president has both administrative staff and the architectural review committee to assist in meeting these objectives.

EPCglobal Inc. and EPCglobal US (United States) are distinct organizations. EPCglobal Inc is the only organzation that defines specifications. EPCglobal US is a member organization to EPCglobal Inc and is responsible for the promotion of EPCglobal specifications in the United States. There is some confusion today as a number of resources from EPCglobal US are on loan to EPCglobal Inc.

EPCglobal Objectives

EPCglobal's stated mission is to "make organizations more efficient by enabling true visibility of information about items in the supply chain." To achieve this mission, EPCglobal is in the process of defining the EPCglobal Network Architecture based on the RFID research conducted at MIT. Various components have already been defined by specifications that have been developed using the standards development process described below.

The Standards Definition Process

A request to form a working group is made to the appropriate action group by any representative or group of representatives in EPCglobal. The proposed working group produces a prioritized list of business requests, a use case description, and technical requirements. The Architectural Review Committee (ARC) analyzes these deliverables, focusing on their impact on supply chain architecture, EPCglobal Network Architecture, and any external standards development organizations. After the analysis is complete the ARC produces a

list of standards requirements and a development plan. A working group charter is then formalized and those members interested in participating in the chartered activities sign an IPR agreement and 'opt-in' to the working group.

The working group produces a working draft specification that meets the requirements defined in the charter. The specification becomes a candidate specification when final comments about the specification are collected and addressed during a last call working draft period and a final vote by the working group reaches consensus. The next step is prototyping and testing which validates that the specification can be implemented as defined. Once validation is successful, the specification becomes a proposed specification and is submitted to the appropriate committee for review (BSC or TSC). If the specifications reaches consensus, it is deemed a recommended specification, at which point the Board of governors will review the specification. Ratification by the Board completes the process and the result is a released specification.

SAP Engagement at EPCglobal

The specifications from EPCglobal have already had a profound effect on many supply chains. There are multiple levels to the specifications defined by the EPCglobal community. The process starts by defining the requirements of the community. To support the business processes, specifications are defined to facilitate the capture of event data by hardware devices as well as the solutions architecture.

SAP has over thirty years of experience delivering business solutions for numerous vertical industries. The SAP Industry Business Units (IBUs) and SAP customers participate together in the Business Action Groups (BAGs) to help guide the requirements process. These requirements define how SAP customers expect to streamline and improve their business processes with RFID event data.

At the hardware level, SAP monitors developments in the Hardware Action Group (HAG). The event data defined by the HAG is produced by the RFID devices and ultimately becomes input to the SAP Auto-ID Infrastructure (Aii) product.

At the architecture level, SAP is actively engaged in the definition of technical specifications in the Software Action Group (SAG). These specifications, such as EPCIS, will enable entirely new dimensions to supply chain management and may play a significant role in the SAP Supply Chain Management (SCM) software products.

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