



Industry Week's **RFID Strategy**

February 24, 2005

TOMPKINS
A S S O C I A T E S



What is the EPC Network?

Designed to ensure global interoperability along the supply chain, its benefits for manufacturers can include labor and time savings

By Chris York, Principal
Tompkins Associates

When UHF RFID tags and communication protocols were designed, the concept of the EPC Network was developed to ensure global interoperability as products moved from manufacturer to distributor to retailer and then to stores. In this column, I closely examine the EPC Network, its various components, how it works and what it means to manufacturers.

The EPC Network consists of three main components: Object Naming Service (ONS), the EPC (Electronic Product Code) Information Services (EPC IS), and the EPC Discovery Services (EPC DS). The Root (or global) ONS is managed by Verisign under contract by EPCglobal Inc., the organization that is developing standards for data synchronization and communication of RFID data for the United States. The ONS is the global directory of EPC Information Services that are publicly available to query for product information. The hosted EPC Discovery Services and EPC Information Services are offered by a variety of vendors.

EPC Information Services are individual companies' databases that contain the details related to a product (commonly referred to in a database as the Item Master Record). Remember -- the EPC itself contains information that identifies the manufacturer (Gillette) and the product class (Mach 3 Razor, Turbo) as well as the object instance (serial number). In this example, Gillette would host a publicly accessible EPC IS that would contain the Manufacturer ID, Object class, SKU number, description, size, weight, packaging and various other data that are appropriate to share with supply-chain partners. Additionally, the EPC IS maintains a record of each EPC status change for that site -- shipment to customer, receipt from supplier, etc., and communicates that status change to the EPC Discovery Service.

The EPC Discovery Service is essentially an electronic chain of custody (or pedigree for pharmaceuticals) for EPC tags. As an EPC tag is encoded and attached to an item, that data are transmitted to the manufacturer's EPC IS. The data, in turn, are communicated to the EPC Discovery Service as well. The EPC Discovery Service interacts with Information Services throughout the life of the product and maintains a history of each status change for the EPC tag.

The current state of supply-chain communication relies heavily on EDI, which is very much a push technology. The downside to this is that if there is a data element one partner needs that is not part of the EDI transaction (or the supplier doesn't use EDI), the partner must find it manually. Once the elements of the EPC Network are in place, this will all

change. As an example, let's look at a contract manufacturer that ships a truckload of new product into the manufacturer's finished-goods warehouse. The contract manufacturer would have established a data record for the basic product attributes in its EPC IS, as well as captured the EPC tag numbers during encoding as the cases came off the packaging line. As the load ships, the contract manufacturer's EPC IS is updated with a status change, and that information is transmitted to the EPC Discovery Service. Additionally, all of the EPC tag information is included in an ASN (advanced shipping notice) sent to the finished-goods warehouse via EDI. Upon arrival, the pallets pass through an RFID scan portal for pallet receiving to update the warehouse management system (WMS) and determine a put-away location for the goods. The RFID edgeware checks the item master record within the WMS, determines that weight and dimensions are missing, and immediately connects to the ONS to find the contract manufacturer's EPC IS. The edgeware then will query the EPC IS for the weight and dimensional information and update the item master record for the WMS before sending the EPC tag numbers to verify receipt. This whole process occurs in less than a second and allows the WMS to have the correct database information to know where to store the new item.

This is just one example of the potential labor and timesavings that can occur when RFID and the EPC Network are fully available. As you begin to investigate the EPC Network, be sure to research the various options and costs for tying into the network. This technology can take several paragraphs to fully explain, and hopefully we can explore other examples in future columns.

***Chris York's RFID column appears twice monthly in IndustryWeek's RFID Strategy newsletter and on IndustryWeek.com. Click [here](#) to register for the newsletter.**