VeriSign®

DATA SHEET

KEY BENEFITS

Visibility
Get accurate and reliable track-and-trace information about all products in the supply chain.

Applicability
Enables many valuable supply chain management applications heretofore impossible.

Compatibility
Works with, rather than replacing existing product information resources (e.g., GDSN).

Interoperability
Based on current and emerging EPCglobal Network standards.

EPCglobal Network Architecture Overview

The EPCglobal Network™ is a suite of network services that enable the seamless sharing of Radio Frequency Identification (RFID)-related data throughout the supply chain. Contrary to traditional point-to-point connections, the EPCglobal Network was designed to scale to support the massive increase in data volume that results from an RFID-enabled supply chain.

Although companies have successfully implemented internal RFID solutions that have captured efficiencies within the enterprise, the greatest promise of the EPCglobal Network is the ability to extend the benefits across trading-partner boundaries.

As you explore the variety of options in implementing the EPCglobal Network, it is critical to understand the basic elements of the network and how they enable the discovery, storage and secure access of RFID-related product information.

Discovery	Object Naming Service	Directs general requests for authoritative product manufacturer information in the EPCglobal Network.
	EPC Discovery Service	Directs requests for trading partner-specific data about EPCs, thereby enabling "track" and "trace."
Storage	EPC Information Service	Stores and retrieves serial-number-specific product information about products as they move through the supply chain.
Secure Access	EPC Security Framework	Authenticates users identity on the EPCglobal Network, thereby controlling access to various information services.

+ Object Naming Service (ONS)

The ONS is an authoritative directory service that routes requests for information about Electronic Product Codes™ (EPCs) between a requesting party and the product manufacturer. These requests can be routed to a variety of existing, or new, network-based information resources. Examples of existing information resources might include Product Information Management (PIM) systems, Enterprise Resource Planning (ERP) Systems, Global Digital Synchronization Network (GDSN) Datapools, or the EPC Discovery Service.

The ONS resolution process takes the Manager ID (unique ID assigned to a manufacturer) and returns one or more network locations (e.g., Uniform Resource Locator or URL) where information about that object resides.

This service makes it possible for multiple trading partners to locally create, retain, and control specific information about a product as it moves through their "field of view" in the supply chain.

Architecturally, the ONS has two layers. The first is called the Root ONS, which is the authoritative directory of manufacturers whose products may have information on the EPCglobal Network. The second layer of the ONS is called Local ONS, which is the directory of products for that particular manufacturer. This layer handles queries directed to the manufacturer.

The ONS resolution process is thus composed of two steps. The ONS resolver first looks up the Manufacturer in the Root ONS, and then receives in return the network location of that Local ONS for that manufacturer. The resolver then looks up the product in the Local ONS for that manufacturer, receiving in turn the location of one or more information resources for that product, including EPC Information Service (EPC-IS), EPC Discovery Services, ERP systems, PIMs, or GDSN Datapools.

When a manufacturer registers its Manager ID into the Root ONS, it needs to associate that registration with the location of its Local ONS.

+ EPC-IS

The EPC-IS is the network-based service that stores, hosts, and provides access to serial number-specific product information that is enabled by RFID. This is one of the many information services to which the ONS may route queries. In some implementations, the EPC-IS provides the full information database that stores this serialized data stream. In other cases, the EPC-IS may only consist of a Web-services interface that has been added to an existing product data store. While ONS is only be deployed by manufacturers, EPC-IS may be deployed by all trading partners who wish to track EPCs that move through their field of view.

+ EPC Discovery Service

The EPC Discovery Service enables efficient track-and-trace capabilities through the EPCglobal Network. The EPC Discovery Service is the registry of every EPC-IS that has information about instances of a certain object or global trade item number (GTIN).

As a product moves through the supply chain, it may pass through the fields of view of many different trading partners, each of which may record some observable "state" information about that product. Each of these EPC-IS instances then register their "knowledge" with the EPC Discovery Service that services that manufacturer.

When track-and-trace information is required for an item, the EPC Discovery Service provides a list of the EPC-IS instances that contain information. Each of these EPC-IS instances can then be queried so that the information can be aggregated into the complete chain of custody.

+ EPC Security Framework

The EPC Security Framework provides a hierarchy of certificate authorities (CAs) and individual trading partner networks. Each application or company in the trading partner community can therefore be issued a digital certificate that can be used at run-time to authenticate their identity. When coupled with the fine-grained access control at the EPC-IS, this allows trading partners to control which of their trading partners have access to what types of information.

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