

BWH News Letter

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Serialization

Serialization is a term which refers to giving a unique identity to each occurrence of things or people. In retail applications this means giving a unique identity to things like store and warehouse facilities, storage locations within a warehouse, containers, items, coupons, employees, customers, etc.

The barrier to serialization has been similar to the problems faced by weather forecasters. Weather forecasters have based their predictions on actual readings from broad geographical regions of the country. But as actual weather gathering costs have declined, more precise readings of actual conditions within smaller geographic cells have improved the accuracy of predictions.

Retailers have tracked results for specific store or warehouse facilities by assigning an identifier to each building. Storage locations within the warehouse have been tracked by aisle, side, and bay numbers assigned to physical locations. Over the past 20 years, retailers have identified specific customers by their "frequent shopper ID". Up until now, it has been too expensive to uniquely identify other things in the retail environment. Barcodes and RFID numbers now make it economical to assign unique "license numbers" to everything from shopping carts, store locations and pallets of merchandise, down to individual items. Just as importantly, the recognition and capture of these identifiers is becoming cheaper.

Serialization has led to the development of a new vocabulary, used by IT professionals to define the IT user's physical environment. "Instance" and "Object" are terms used reference the specific occurrence of a Class. "Class" is the term used to reference the general description of a thing. A Class contains the attributes that describe an Object such as the dimensions of a shopping cart, the description of an item, or the value of a coupon. In retail applications, the term "item" means the "Class" which contains the attributes for a particular product, brand, net content, and type of packaging. So for each Instance or Object, in

addition to its "serial number" there is a reference to the Class which describes it.

There is no room for "quantity" in the world of serialization because by definition, each Instance of a Class is unique and will be tracked separately. A truck is no longer loaded with "two cases of Green Giant Peas", but instead will carry the Green Giant Peas Case having serial number 529867 and the Green Giant Peas Case having serial number 789317. It is easy to understand how the data capture and recording requirements required by serialization are huge.

Is It Worth It?

Sometimes as an IT advocate I must ask myself whether just because something is possible, is it really worth it? It has been obvious that tracking stores, warehouse locations, and frequent shopper ID's has been beneficial. But the fundamental characteristic of these efforts is that they represent "closed loops". The retailer who is using the data has assigned the numbers and the Objects or Instances are used repeatedly within the business. The same Stores, Warehouses, and Customers are used over and over again by the business processes.

So when considering the economics of Serialization there are really two major types of applications which must be evaluated; "Closed Loop" applications and "Open Loop" applications. Closed loop applications include things like tracking maintenance on shopping carts, tracking assets in a store, or identifying shelf and plan-o-gram locations within a store. Many of these make sense, whether implemented by using barcodes or RFID.

"Open Loop" applications are where the Object passes through the retail channel once. Now, the cost associated with applying the license plate and capturing its value during processing must be justified by a single passage through the channel. As unit cost increases, the expense of product losses begins to compensate for the cost of tagging the items. More expensive items will qualify for serialization sooner.

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In addition to tagging things, there must be the facility to capture the unique identities. Data capture requires the implementation of a company wide network of readers which can capture license plate numbers as things pass various staging areas. If you are using barcodes, then some human intervention may be needed to position the barcode within view of the scanner. If you are using RFID, line of sight is no longer required but you are working with a relatively young technology.

It is still too costly to track most items at the individual unit level. Special situations such as pharmaceuticals may dictate special handling, but in general it is only economical to track items in some form of aggregate. This might be a case or pallet configuration. The other situation are items that are produced and replenished at store level such as scratch bakery or retail meat cuts. Savings in production scheduling and improved backroom inventory management may recover tagging and tracking costs.

So, is serialization worth it? The answer must be a qualified "yes", with the implementation moving from Closed Loop applications that can be supported by a limited reader network (handhelds) and expanding to Open Loop applications covering wider areas with lower unit values.

Implementation Sequence

So given the realities, what sequence of implementation can we expect? I would guess the following applications are most likely ...

Retailers will continue to expand Closed Loop applications for tracking store assets (carts, computers, utensils, etc.), signage and weekly ad display implementation, and plan-o-gram implementation.

Open Loop applications will proceed in two stages. Retailers will begin to use pallet labeling and perhaps even case labeling based on their own number scheme to track the flow of goods to the store and (more importantly) into the backroom. Merely by putting a unique barcode on a selecting label that can be scanned when "un-worked" merchandise is sent to backroom

storage, retailers will get much better control of in-store inventories.

This will set the stage for RFID. By tracking these unique ID's within their computer applications the retailer will prepare themselves for the implementation of RFID when it becomes prevalent. RFID numbers assigned to incoming pallets and cases will be used to route merchandise down the supply chain.

The Ultimate Impact of Serialization

The numbers range all over the place, but there is general consensus that shrink has a huge impact on the cost of retail operations. Serialization has the potential to eliminate the economic gains of theft.

What if each instance of an item had a unique identity? What if a directory of stolen identities could be used to verify the legitimacy of each instance? Just like VIN numbers have made stealing a car worthless (except for the short joy ride to the "chop shop"), a registry of stolen product license numbers would make stolen merchandise worthless. There would no longer be an incentive to steal (at least for resale) because the stolen goods could no longer be sold. Each sale and legitimate reduction of inventory would be captured by license number.

I haven't mentioned it much before this, but serialization has big potential for coupon based promotions. Two problems exist with coupon promotions. First, counterfeit coupons can be created on computers and retailers do not discover them until they are submitted to the clearing house for redemption. Secondly, a "limited distribution" coupon can be duplicated thousands of times and passed on to a "wide distribution" of internet subscribers. Serialization has the potential to impact both these problems. With the network in place to verify serial numbers, retailers can also verify legitimacy of coupons presented at the cash register. This requires a central clearing house for the coupon and serial numbers that presented at the register.