

Digital camels: The hunger for more data on passive RFID tags.

Why do we really need additional data?

By Nicholas Tsougas

What happened to the Electronic Product Code™? Currently, there are many efforts and debates ongoing in the International community regarding “user memory” on passive RFID tags. Without reservation, we require greater visibility and management of objects, but do we really need or require additional data other than the pure “license plate” that was originally envisioned to track and identify items throughout the Supply Chain?

Let’s briefly look at case studies where additional user data is at the core of the implemented RFID solution. Take the U.S. Department of Defense, for instance. Its use of an active, data-rich RFID tag (128Kb) -- to identify a 20/40ft container or 463L air pallet as to content level detail – is linked to the extraordinarily challenging conditions often found in a theatre of operations. Here, connectivity, business process anomalies and the timely criticality of information accuracy drive the need for this data-rich approach to the tag and systems architecture. Conversely, the majority of the cargo within these containers is tracked with a purely serialized tag; since all of the detailed object data is forwarded to the In-Transit Visibility (RF-ITV) servers when the tag is written. .

Let’s look at the Aerospace industry. Why are the industry’s giants and their affiliated associations moving to expand the data content within a semi-active tag? Surely they do not have connectivity problems. Their plants and warehouses do not move 300Km overnight to a different location. Yes, commercial aircraft do travel about the globe, but they are in constant communication with an aircraft monitoring its maintenance requirements and providing data in real-time. In fact, they have a fixed satellite dish pointed to the sky 24/7.

Let’s take this a bit further. Would tags survive the intense maintenance cycle that a black box, aircraft engine or circuit card may have to endure? And for what reason? Just to have a portable database on the item, which, by the way, would be out of sync with the authoritative database once data was deleted or changed. Why do we have digital transactions such as the 856 ASN flowing through the Supply Chain? The Internet can handle these transactions today and we can even encrypt this data exchange. Without a doubt, we would have a heck of a time attempting to encrypt a passive RFID tag today and securely passing the algorithm up and down the Supply Chain.

Now let’s move to the Pharmaceutical industry. - It is evidently their profound belief that we should have such information as the NDC number, expiration date, amongst other data requirements on the “user memory” portion of the passive tag. Will this provide the highly sought after ePedigree for that product? The recent back tracking by the FDA regarding a mandate for placing passive RFID for tracking is a perfect example. They have approached the issue as a “wait and see” with additional testing and studying. And why is this happening? Because the passive RFID tag is clearly not the answer for

ePedigree; - the answer is found in the authoritative database and protocols for its access. The tag can be a purely “serialized” number to track it throughout the Supply Chain.

Now let us go beyond the data. First and foremost, it was my impression that end users and the RFID industry wanted the \$0.05 passive RFID tag. By adding memory and complexity to the read-write cycle, we introduce cost that will eventually be passed to the consumer. Adding costs and increasing the complexity of tag data management assure that we will never achieve full scale implementation and world-wide adoption that is critical as we move toward item-level tagging on a global basis.

Lastly, with additional data on any tag in the Supply Chain, whether active or passive, we expose a greater risk to security of the product and most importantly, the privacy of the individual. What a novel thought we have here: that - we could actually secure the extended data set and privacy will readily win the day. It would be far easier to secure the data behind a firewall, take less time to read the tag as it travels, be less vulnerable to becoming outdated, and with greater access to the Supply Chain.

I challenge the RFID enthusiasts out there to find a way to leave the data on a passive RFID tag as a “license plate” only as it was originally conceived by Dr. Brock and others at MIT. It will be a cheaper implementation and we will get world-wide adoption without the worries about privacy and security. Why are we arguing this issue at all? Let’s move out!