

IT Analysis – RFID: It's Coming - Again...

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As we all know, RFID has been widely adopted by the retail community, who have been looking at how single item tagging can improve inventory turns, speed up trolley pass-throughs at the check-out and give massive savings on the supply chain and better visibility of customer buying habits.

Well, if you do believe that, then you probably believe in the tooth fairy as well, or are part of the big conspiracy theory saying that Tesco is breaking all sorts of civil liberties with its trials of a razor-blade customer buying habits programme.

So, with RFID not having been as successful as the vendors and the press hoped it would be, is it now dead? Far from it, but we need to look at the more rational view of what is happening, what is feasible now, and how the future might shape up.

To this end, I've just spent some time with IBM down at its RFID competency centre at La Gaude in Southern France. Last year, the message from IBM was very technology focussed, with lots of demos of what IBM thought might happen and some proof points from pilots and preliminary implementations being carried out with the likes of Metro, the German retailer.

This year was far more business focussed, and far more pragmatic. IBM now accepts that retail will look first at palletised tagging, as the cost for individual tags remains high, and will complement these with standard bar codes for the individual items—so maximising investments in current software, printers and readers. At the higher value end (e.g. fashion goods, jewellery, etc.), individual tagging is happening—but it's a sub-market, and a pretty small niche at that.

So where does IBM see the hot action? Well, mandated markets are top of the list—Homeland Security mandates that cargo moving in and out of the US must now be fully traceable, and IBM provides the capability to RFID tag containers at multiple levels—the item, the pallet and the container itself, as the law and the financial considerations dictate. These are then combined with sensor technologies to provide things like temperature readings for perishable goods in refrigerated containers, and GPS transponders for tracking the containers. Actuators could be combined with these kits to react in different ways to different issues—for example, setting off a silent alarm and a secondary GPS transponder if the vehicle is hijacked and the primary RFID system is disabled.

Within the general logistics environment, the focus is on company value—advising the companies where additional value can be obtained from current RFID capabilities. For example, a UPS/FedEx or similar could offer standard parcel tracking at the base level (the parcel was at this distribution depot at this time, and then was put on to a vehicle for delivery to you), or could offer RFID tagging of the parcel at an additional cost, with the parcel using the vehicle telematics for data transmission (the parcel is on the M1 at the moment, 25 miles from you with an expected delivery time of 40-50 minutes).

Another area is in the pharmaceutical industry—drug trials require full audit trails from drug manufacturer through distributor via hospital and GP to the end user. RFID enables this to be managed far more easily than other systems. The cost here, although high with the need to tag at a highly granular level, is worth it for companies that are looking at \$multi-million/billion risks in this area.

The local hospital in Nice is trialling RFID in its emergency department—incoming patients are tagged to provide traceability through the department, and readers ensure that when a doctor approaches a patient, the tablet PC they carry shows which patient it is, the existing notes, prognosis, treatment and so on.

Other examples were remote monitoring of assets in the utility industries, using RFID as the asset tags. Also, in many areas including leisure, there is the use of RFID tags as identifiers to central datastores to provide greater information on the item via kiosks—something that can currently be done quite easily through bar code scanning. In another vertical, The US army is using RFID in its armoured vehicle divisions to monitor “stores” (things like armaments, to you and me) on the move.

All very clever, but not exactly the massive uptake and pushing of the envelope that we were led to believe would happen. The rocket science solutions of visions like just being able to push straight through the Tesco check out at 4:30pm bypassing the screaming kids in the queues remain that—an expensive and cost-ineffective vision. But, hey, all of the examples we were shown are happening now, and the infrastructures being installed lay the basis for future capabilities. The future can look exciting, but we do need to keep our feet on the ground. A lot of what is being talked about at the moment won't be feasible (for technological or cost reasons) for some time and the solutions in the future may use RF technologies completely different to those that we think they will

now. However, the combining of RFID (or a similar radio technology) with sensors and actuators (as in the Homeland Security transportation example) shows where RFID-style technologies are likely to go—but along a gentle evolution, rather than as a disruptive event.

One example which to me seemed to combine the future with the present was a fascinating example from a German hospital that treats adolescents with end stage renal disease (ESRD). Existing hemodialysis techniques require the patient to go to hospital three times a week and have an external blood cleansing, which stresses the heart and the body of a patient who is already weak. A different system—peritoneal dialysis—enables patients to self-treat at home but there is a need for information such as blood pressure and body weight to be fed back to a central point so that small changes can be made to the treatment.

This can now be done with a portable device that is plugged in to an embedded catheter in the patients body overnight. The patient takes their own blood pressure reading and weighs themselves and the readings are automatically sent via a slightly modified GSM/GPRS mobile phone to the hospital which can then send back information on how much liquid the device should extract from the patient. Future versions could look at using WiFi where available and ultrawideband (UWB) as it comes through for better power capabilities.

With morbidity rates a fraction of hemodialysis, this is a real world example of mixed sensor, actuator and radio frequency technologies in action. Trouble is, where's the RFID tag? Nowhere—but the technology has been driven by the IBM team responsible for RFID. This could be the story of RFID in the future—RFID becomes a very small part of the overall solution, if it is there at all. The key is for vendors to keep their feet on the ground and solve the problems that people have. If it needs RFID, so be it—if it doesn't need it, then don't shoehorn it in...

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