The Cloud and RFID; making deployments seamless

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Introduction
RFID technology and cloud computing have received a great deal of publicity on the technology hype curve. Radio frequency identification technology (RFID) has been around for decades, dating back to its use in World War II, but only moved into prominent use during the past decade. The technology was thrust into the spotlight in 2003 when Walmart issued its now famous “mandate” that required its Top 100 suppliers to affix RFID tags to the pallets and cases of goods that they shipped to the retailer.

The mandate had some success, but fizzled when suppliers struggled to realize benefits from the technology. Walmart and other retailers then discovered that while supply chain visibility is important, the real sweet spot lies with item level tagging and in-store visibility. Retail isn’t the only industry exploiting the technology. Nearly every business sector, including medical, pharmaceutical, defense and automotive, are embracing the enhanced visibility the technology provides.

The emergence of cloud computing has followed a similar path. Cloud computing has existed for years. In fact, Terso Solutions first began to utilize the cloud in 1998. However, it wasn’t until recently that the cloud became almost a daily topic of conversations in boardrooms and in the media. Already in 2011, two cloud computing firms have been purchased, suggesting that a feeding frenzy might be imminent for companies offering cloud computer services.

The rise of cloud computing is eerily similar to RFID. So it’s no surprise that the two technologies are closely tied. The exploding acceptance of cloud computing is expected to accelerate the adoption of RFID technology over the next 12-24 months. A cloud-based architecture will likely enable a rush to RFID systems by those that deemed the technology too expensive in the past.

What is the cloud?
Of course, hundreds of definitions exist for cloud computing. At Terso Solutions, we view the cloud as Internet-based computing utilizing shared resources including hardware, software and services on an on-demand and an as-needed basis.

By embracing the cloud, enterprises can deploy RFID much faster while avoiding many of the costly up-front infrastructure expenses required for pre-cloud systems. The cloud can help companies to manage the mountains of new data they pull from millions of RFID tags being read each day.

The cloud has even grabbed the attention of the U.S. government, as the Office of Management and Budget has made cloud computing the “default approach to IT” for government agencies. The government hopes to reduce its data center footprint by 40 percent by 2015.

RFID and the cloud by the numbers
According to Saugatuck Technology, every business computing category will move to the cloud by 2015 – with 65 percent or more of all new business application/solution decisions cloud-based or hybrid.
Gartner estimates that over the next five years, enterprises will spend $112 billion cumulatively on software as a service (SaaS), platform as a service (PaaS), and infrastructure as a service (IaaS). Gartner predicts that as adoption of cloud services ramps up, one-fifth of businesses will no longer own any IT assets.

The numbers are just as impressive for RFID. VDC Research says that the global EPC RFID market was expected to exceed $788 million in 2010 and should approach $3 billion within 5 years, growing at a compounded annual rate of nearly 40 percent. VDC reports that about 3.5 billion RFID tags were consumed in 2010, an increase of more than 33 percent over 2009. VDC projects that more than 10.5 billion tags will be in use by 2014, of which 3.4 billion will be used in retail applications.

**Terso Solutions: an early cloud adopter**

Back when the cloud was as ubiquitous as weather terminology and not yet synonymous with the IT industry, Terso Solutions was already taking advantage of the business benefits it offered. Terso embraced many early cloud-based platforms – such as the salesforce.com app for customer relationship management (CRM). Instead of making costly investments in new servers and other infrastructure, Terso used a services-based model and paid for the applications only when they needed them. Like many Salesforce.com users, Terso benefited by sharing resources across the Salesforce.com platform.

Terso’s early adoption of the cloud morphed into using hosted systems to manage the information gathered from more than 800 RFID-enabled cabinets, refrigerators and freezers that the company has deployed for various medical and life sciences customers around the globe. RFID tags placed on items in the storage chests -- used for hospital inventory management and by medical device manufacturers and laboratories to control and monitor high value products -- capture data and send it over the Internet to a centralized data base. After gathering the data on the front end, the back-end process utilizes a hosted business approach to provide global visibility of inventory and item level transaction traceability through an easy to use web-based user interface.

In addition, the ability to integrate this RFID data with existing business systems allowed for automation of standard business processes, which saved significant time and money.

The cloud-based system requires no software, and is easily accessible with a web browser. It provides item level inventory visibility at customer sites, detailed information on who removed inventory and when, global expiration date management that includes reporting and alerting, and temperature reporting, alerting, and logging.
Benefits to operating in the cloud

By using the cloud, enterprises gain numerous advantages when deploying RFID technology, notably lower IT costs, the elimination of costly infrastructure requirements, more frequent technology updates, and a faster overall rollout with a quicker path to ROI.

Cloud-based solutions eliminate costly and laborious up-front infrastructure requirements which often result in RFID deployments being taken off the shelf or delayed. Additionally, hosted RFID systems allow already taxed IT staffs to concentrate on other vital projects without having to provide support to RFID initiatives.

By embracing a cloud-based system, enterprises receive state-of-the-art software, and more frequent upgrades than would likely be offered by your own company. Typically the cloud offers users more functionality, and many offerings are set up to be on a service based billing platform where customers pay monthly for the functions they used during that period. Cloud-based platforms also provide better security features, since security is often a core competency of the platform provider.

Of course, users also gain the ability to share information with multiple partners, and are not just limited to closed loop systems or those within the four walls of the enterprise. And they also benefit from the ability to throttle up their usage when they need it, and throttle it back down without significant cost.

RFID and the cloud: Use cases

The list is endless when it comes to use cases for RFID and cloud computing. Inventory management, asset management and a host of supply chain applications are prime candidates for hosted solutions. In fact, look for the supply chain management sector to widely embrace RFID and the cloud this year and continuing into 2012.

Already, pallet management firm CHEP utilizes cloud-based “hosted” solutions to manage its inventory of RFID-enabled pallets as they are transported around the globe. Data from the RFID tags and the bar codes of products stored on those pallets is collected and then stored in CHEP’s outsourced cloud-based solution. After data is scanned and pushed to the cloud, brand owners can send messages and alerts about the products being shipped, such as temperature requirements, product expiration data and final shipping instructions.

Coca-Cola is also leveraging the cloud to analyze the data collected from its RFID-enabled Freestyle vending machine drink dispensers. The machines dispense more than 100 categories of soda, juices and waters, and each is equipped with 30 RFID-enabled flavor cartridges. Readers assigned to cartridges record usage patterns, and data is sent through a wireless network to a centralized repository. Cloud computing allows Coca-Cola to harvest that information and view demand for certain flavors, as well as managing the inventory of cartridges in real-time.

The exploding growth of social media applications is fueling the expansion of cloud computing from a bottom up end-user level. RFID-enabled social media applications like EpicMix are in their infancy, but
their use is expected to skyrocket in the upcoming months. EpicMix allows skiers at Vail and four other Colorado resorts to share skiing information with their friends on Facebook and other social media platforms. Hundreds of RFID readers placed strategically throughout the ski resorts collect data from the RFID-equipped season ticket passes. That data is mined through the cloud, allowing skiers and the mountain to keep track of data like vertical feet skied, terrain covered and days on the mountain.

**Terso will deliver engaging cloud services**

The cloud-based architecture is expected to enable scalable RFID, eliminating one of the biggest roadblocks to previous adoption of the technology. Solution providers are leveraging the cloud to deliver solutions that make RFID and the data mined by the technology more valuable than ever before.

In the not too distant future, cloud based systems will essentially act as RFID data brokers, solidifying the notion that global RFID implementations should be simple. Cloud-based RFID solutions are ideal for remote and mobile RFID systems, as well as local implementations. They allow users to combine not only internal RFID data, but the RFID data that is generated outside the four walls of the business.

By using the cloud, your application does not have to worry about RFID device drivers, remote device communication, device management and normalizing of RFID events. Instead of focusing on the infrastructure of dealing with RFID and remote RFID devices, users can focus on writing applications to a single point in the cloud.

Cloud-based tools require no on-site installation, no waiting for tech support and, in general, no hassles. Quite often, you can be up and running with an 8 to 12-hour turnaround time for installation. Cloud-based systems often mean no capital expenses, assured reliability, and significant reduction in time to get your system up and running. Throw in the high likelihood of constant up time, and a hosted solution is clearly a win-win.

In the end, it’s all about spending less time tackling the complexity of distributed RFID and spending more time building value-driven inventory applications and harnessing data that makes your company more efficient and more profitable.
Terso Solutions is a leading provider of automated inventory management solutions for tracking high-value medical and scientific products in healthcare and laboratory supply chains. With no hardware to purchase and no software to install, our integrated RFID solutions can help eliminate manual processes, improve regulatory compliance, and reduce stock-outs and expired products.