

Tag, You're It

IN MANY WAYS:

Retailers such as Wal-Mart are currently using RFID technology to track inventory. Other uses include toll collection, tracking of library books and tracking of luggage by airlines.

Radio frequency identification technology may soon help insurers track documents, stolen items, patients, medical histories, prescription drug use and more.

by Lori Chordas

In Cincinnati, two employees of video surveillance company CityWatcher.com have a new way of entering the company's secure data center. They've traded in their traditional security badges for human implantable microchips that provide them access to the facility.

While it sounds like something out of a science fiction movie, widespread use of implantable microchips may be closer to reality than people think. Radio frequency identification technology is fueling that reality.

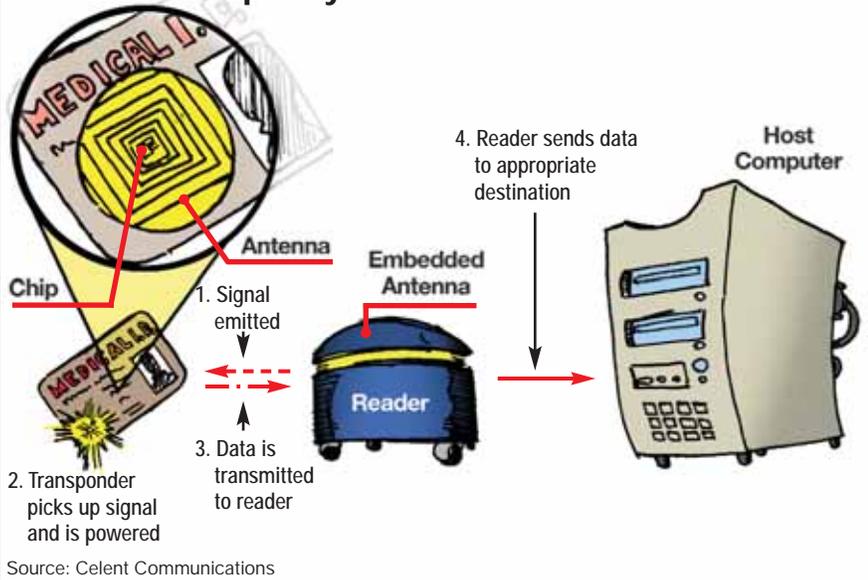
RFID, an often passive technology that doesn't require human interaction to scan information, is an automatic identification method that relies on storing and remotely retrieving data using RFID tags or transponders. An RFID reader can extract location and product description data from a tagged item every 250 milliseconds.

Several industries, such as manufacturing, health care and retail, have jumped on the RFID bandwagon. Insurance, for now, is receiving only a few indirect benefits, but

Key Points

- Radio frequency identification is an automatic identification method that relies on storing and remotely retrieving data using RFID tags or transponders.
- Industries such as manufacturing, retail and health care are now using RFID, but insurance has yet to make a big leap to the technology.
- Future uses across the industry may include loss recovery, automobile identification, document tracking, and tracking patients, medication doses and hospital equipment.

How Radio Frequency Identification Works



some experts believe RFID may soon aid insurers in loss recovery, automobile identification and document tracking, as well as in driving down health-care costs by providing more accurate medical records and tracking patients, medication doses and hospital equipment inventories.

Ready or Not: Here It Comes

According to a recent Celent report, RFID tags, also called transponders, are small devices containing an antenna and a chip with identification and other information. Tags can be attached to any physical object, ranging in size from a giant earthmover to a mini-debit

card on a key chain. A second device—a reader—continuously sends radio signals to any tag within range. When the tag picks up the signal from the reader, it's powered and sends its information to the reader.

Enthusiasm about the technology has fluctuated over the years. "There have been periods when RFID was the next big thing, followed by times when it didn't live up to the hype," said Jeff Woods, research vice president for Gartner's Enterprise and Supply Chain Management. But that's changed, he said, and now the technology is living up to some of the promises that have been made for it.

Wal-Mart is one of the companies reaping the benefits of RFID. In 2004, the mega-retailer set a self-imposed mandate that pallets from its top 100 suppliers bound for Wal-Mart or Sam's Club include RFID tags.

Worldwide RFID revenues are set to soar above \$7 billion by 2008, according to a recent study by international marketing consulting and training company Frost and Sullivan. The company predicted that by the end of 2005, more than 5 billion consumer packaged goods would have RFID tags.

Global market intelligence provider IDC estimates that one trillion RFID tags will be in use by 2012.

About 20% of RFID users surveyed in an AMR Research report cited savings on labor from RFID, while 25% reported reduction in inventory levels, a 3% to 4% increase in sales and 80% reduction in theft and fraud.

Insurance Bound?

Insurers have been slow to explore RFID, but Donald Light, a senior analyst with Celent, said there's good reason for that. "The technology so far has limited application within insurance because the industry has few transactions and even fewer physical encounters compared to other industries, such as banking and payments."

Insurers are beginning to experience some indirect benefits from the technology. "One of its major uses is to

RFID vs. Bar Coding



Many people compare RFID to bar coding, but RFID is more than that. "It's essentially intelligent bar coding," said Jeff White, president and chief executive officer of RCD Technology, which manufactures RFID tags. Insight Research predicts that current bar coding technology will be replaced by 2013.

RFID's advantages over bar coding:

- Greater read accuracy. According to the Center for Interactive Advertising at the University of Texas at Austin Web site, RFID tags have a read accuracy rate of 98% compared with 85% for bar code tags.
- Durability. Unlike their bar code counterparts, tags embedded with RFID chips can still operate if torn or otherwise damaged.
- Greater amount of data. "You can't get to item level specifics like serial numbers with bar codes," said White.

"While bar codes can describe a product and when it's shipped, RFID can extend beyond that and tell when and where a product was built, by whom, materials used in the process and what lot it came from."

- Elimination of manual intervention and sight lasers that bar codes rely on.

Not everyone is convinced RFID is an end-all solution. While the technology is inevitable, it's not the inevitable replacement for bar coding, said Jeff Woods, research vice president for Gartner's Enterprise and Supply Chain Management. Companies with well established bar coding solutions should continue to use them. "RFID doesn't do a good job at replacing bar code systems because it's too expensive, and bar coding is more suited for highly-structured, highly-disciplined, highly-engineered business processes," Woods said.

track things," said Mark Blowers, senior research analyst for The Butler Group. For instance, some airports are using RFID to track baggage—a potential benefit to insurers through reduced claims, he said.

Some experts believe it's only a matter of time until carriers see more widespread use of RFID. The technology, for instance, may be a solution for accurately identifying high-value objects, including automobiles and their parts. "VIN numbers, for example, can be altered or erased. RFID could lead to more efficient and better levels of theft prevention and recovery in claims," Light said.

While Nationwide Mutual Insurance Co. isn't currently using RFID, it speculates that the technology might be used in development of mileage-based products or delivery of claims services, said spokesman Charley Gillespie.

RFID could also be used as a home inventory tracking system. "Individuals could tag items of value as opposed to filling out lists of content they want insured. Agents could then walk through a home with a reader to pick up information from the RFID-embedded tags to get an instant inventory," said Jamie Bisker, global insurance industry leader for IBM Global Business Services' Institute for Business Value. Claims adjusters could use lists in the event a home is burglarized or destroyed by fire or natural catastrophe.

RFID could also extend into the commercial sector, Bisker said. Some stores are already using RFID technology in their supply chains and could keep track of inventory to help eliminate lost, stolen or misplaced items, which is also a good defense in the fight against fraud, he said. "It's a way to reduce premiums by leveraging the devices to con-

trol claims leakage. It will keep costs and premiums down, and such savings could be passed on to consumers."

Insurers may benefit in their own back offices. Folders and forms could be tagged to track documents, check their authenticity and locate missing pieces of information. "Next to the legal

Things won't move forward overnight. Instead, insurers will likely have to wait until other industries get the ball rolling, Light said. "Because RFID's positive impacts on the insurance industry are second-order effects, the industry, with few exceptions, wouldn't likely be handing out RFID tags and readers, but will instead rely on other industries with first-order advantages. Then insurers will go along for the ride." Rather than carriers requesting that insureds put RFID tags and readers on autos, for instance, they would work with auto manufacturers to install the technology in their products, said Light.

A growing number of manufacturers are beginning to do that, said White. In 2003, Michelin began testing RFID transponders embedded into its tires.

A Healthy Prescription

While most health insurers said they aren't yet moving to RFID, the industry may one day reap its rewards.

"For one, it could help drive down costs because it would indirectly cut claims to health insurers," said Blowers of The Butler Group.

One way it might do that is by ensuring that patients get correct procedures and medications. Several pilots are now under way to study how RFID can help manage and track patients and their

course of treatment. In one approach, patient wristbands powered by RFID technology are being evaluated to accurately identify patients and their medical history.

A few hospitals are piloting initiatives to tag medication vials and use readers to make sure the right medications are being given at the right doses, said RCD Technology's White. That equates to huge cost savings for both

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marketplace, insurance and health care have the same level of need and hysteria about missing documents," said Jeff White, president and CEO of RCD Technology, which manufactures RFID tags. "By RFID-enabling all critical files, companies don't even have to open a file to see if it's there. The reader can tell if the files are in the filing cabinet or when someone may have left the building with a document," he said.

Radio Frequency ID: Fast Facts



- Radio frequency identification is a wireless data collection technology that uses electronic tags for storing data.
- A similar technology—the IFF transponder—was invented by the British in 1939 and was used by the allies in World War II to identify airplanes as friend or foe.
- One of the first commercial uses of RFID was the tagging of livestock in Europe.
- The first RFID chip was invented in 1969 by Mario Cardullo. His company, ComServ, received the first patent for the chip in 1973.
- Some current uses for high-frequency RFID tags include tracking of library books, airplane baggage, apparel and electronic items.
- Retailer Wal-Mart Stores Inc. has initiatives that involve suppliers affixing passive RFID tags to cases, containers and pallets. Several other retailers, such as Target, Best Buy, Home Depot, Lowe's and Albertson's, have or are also rolling out RFID initiatives.
- Tags are also used for electronic toll collection at toll booths such as California's FasTrak and Florida's SunPass.
- Arby's, Cold Stone Creamery and McDonald's are a few restaurant chains that use an RFID payment method in which cardholders swipe a card past a reader and the system automatically charges them.

Sources: Black Business Association, Center for Interactive Advertising at the University of Texas at Austin, CIO Insight, Smurfit-Stone

providers and payers, he said. “Now some organizations are talking to insurers about having them give hospitals a break if they use an RFID system because this provides for a mistake-free process, cutting costs and extra hospital stays.”

Drug manufacturers also may benefit, such as in situations of drug recalls. The nationwide panic in 1982 when Extra-Strength Tylenol was recalled after several people died from ingesting capsules mysteriously laced with cyanide could have been lessened with the use of RFID. The technology could track individual bottles and target entire lots so that only those bottles affected would need to be recalled.

Industry experts speculate that human implantable microchips fueled by RFID technology may someday have a place in the health-care industry. The chips, with encapsulated RFID tags that are injected into individuals' arms to uniquely number and identify individuals, could be used to track patients or store medical records. In 2004, VeriChip received permission from the Food and Drug Administration to begin implanting RFID chips in humans.

Gartner's Woods said RFID makes it possible for health-care payers to change their relationships and interactions with health-care providers. “Hospitals are ready to adopt RFID, but the question now is whether it's cost effective and how they actually use it.”

Reasons Not to Do It

Cost is often named as a prohibitor to adopting RFID. Although it's estimated that RFID tags now cost about 20 cents to 50 cents per tag, some companies need to get that cost down to pennies to find a good return on investment.

IBM's Bisker said that's changing, however, as RFID-related costs begin a downward spiral.

Insurers also have other concerns. “One of the biggest challenges with RFID is addressing customers' concerns that use of the product may impact their privacy,” said Nationwide's Gillespie.

Consumer privacy advocates are concerned that tags might be used to link purchases to the identity of consumers. RFID chips also are vulnerable to security breaches, especially because they rely on radio waves from readers to provide them power and read information. Readers should be specially encrypted to avoid access to information breaches.

For now, security often is being put on the back burner. “Because a lot of systems now are being deployed as pilot systems, many people are taking a ‘deploy now, secure later’ perspective, and that has huge problems,” said Gartner's Woods.

Bisker said companies should take what he calls a “trusted affiliation privacy sharing” approach. In exchange for value provided via reduced premiums or an added convenience, individuals may be willing to share what they

might consider personal or private information with an insurer.

Into the Future

“It's difficult to predict how the specific technology will be used by the insurance industry,” said Nationwide's Gillespie. “There are many new products like RFID that can be used in a similar manner. The use of this technology will significantly be influenced by its costs and how it'll be perceived by customers.”

White of RCD Technology believes some day insurers will use RFID the same way they currently use wireless technology. “Carriers rely heavily on cell phones and PDAs to assist with claims processes and to download information from remote sites. We'll see that same kind of change in the use of RFID in the industry, and it'll become ubiquitous. No insurer will be left untouched by RFID,” he said.

Some predict that RFID is likely to take some time to become an industry mainstay. “The technology has a large, steep learning curve, and people have to get more comfortable with it before it becomes the norm,” said Joal Storm, marketing development manager for 3M's security systems division. Slowly, she said, RFID is becoming a more mainstream word that people now are understanding.

How quickly RFID moves into insurance will be determined within the context of a particular application, said Gartner's Woods. “The thing about RFID is that it doesn't move as a monolithic technology; rather, each application moves at its own pace. The fact that Wal-Mart is hitting some bumps in the road doesn't really impact the health-care environment or document storage. IT asset management is happening at its own pace regardless of what happens in other industries,” he said. **BR**

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