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Bank of America Deploys RFID in Data Centers

The financial institution is using EPC Gen 2 tags to inventory its computer servers and other IT assets, and to record whenever any are removed from and returned to a data center, so that all equipment can be accounted for.

By Mary Catherine O'Connor

Oct. 30, 2008—There's very little in the way of good news coming out of the financial services sector these days. But William Conroy, head of Bank of America's enterprise architecture division, thinks radio frequency identification has the potential to produce some. That's why he is leading the firm's deployment of passive, EPC Gen 2 tags for tracking computer servers and other high-value IT assets in its data centers, as he explained to attendees at the EPC Connection 2008 conference earlier this month.

The company has deployed the technology at 14 of its 38 data centers to date. It is now working closely with the Financial Services Technology Consortium's newly formed RFID special interest group, to develop an industry-wide RFID standard for asset tracking, which Bank of America believes will help spur adoption of the technology (see Banking Group to Set RFID Roadmap).

"We have incredible IT demands...and keeping track of servers is not something that we compete [with other banks] on," Conroy says, "so we'd like to drive the entire industry as a group [toward using RFID for tracking IT asset]." In fact, he adds, any company that operates a data center can benefit from employing RFID to track assets. The major producers of IT assets, such as IBM and Hewlett-Packard (HP), know this as well, of course. That, Conroy says, is why some Bank of America IT asset vendors will begin placing RFID tags on IT assets before shipping them to its data centers, so that the bank can begin utilizing the tags to identify the assets from the moment it receives them, and so that the vendors will be able to improve their own shipping operations. He predicts this might begin in early 2009.

William Conroy

The FSTC special interest group, Conroy says, is close to finalizing documentation that will serve as an RFID roadmap for other financial services firms—or companies in other industries—looking to employ RFID to track IT assets.

"Banking could be a real leader in data centers [adopting RFID]," John Fricke, the FSTC's chief of staff, told attendees at EPC Connection.

Conroy knew he wanted passive tags, rather than the more expensive active (battery-powered) technology, for the Bank of America deployment, and also knew he preferred a standards-based solution that would operate well in the metal-rich environment of a data center. In addition, he wanted to employ mobile RFID interrogators that employees could use to count inventory, instead of installing a series of fixed-position readers around each server rack and throughout the data centers. This latter solution, he

says, would be cost-prohibitive.

Rather than conduct a typical, months-long proof of concept of the technology, Conroy chose an RFID vendor and struck a deal. "I did a contractual arrangement," he explains. "I told vendors, 'Come in [and deploy an RFID system at a data center], and if you can prove you can make it work, I'll pay for it.' That way, the risk for us was very low, and they had some skin in the game. I wanted to balance the risk. [The vendors] wanted access to a real data center in order to [install their tags and readers] in an environment that they usually don't have access to."

Conroy declines to disclose the name of the vendor the company chose, but says the tags are built into a form factor customized for use on IT assets—it provides a buffer, he explains, that prevents the assets' metal frames from interfering with RF signals. He also confirms that the hardware is EPC Gen 2-compliant.

The mobile interrogators are mounted on carts that employees wheel up and down rows of server racks and other assets within the data centers, in order to read the tags attached to assets. And portal readers, mounted around the doorways leading into and out of the facilities, collect the IDs of tags attached to servers and other tagged assets as they are removed from and returned to a data center, so that all assets can be accounted for.

Internally, Bank of America identified three main business areas where it will benefit from automating the tracking of its IT assets: operational efficiency, risk mitigation and regulatory compliance. Within the data centers that have deployed the RFID system, Conroy says, employees are already enjoying significant time savings when conducting periodic inventory. To inventory a row of servers at a data center, he explains, workers previously used handheld bar-code readers to scan each server's bar-coded label. Now, using a mobile reader mounted on a cart, they can walk down a row and collect the inventory in just 10 seconds.

In terms of risk mitigation, knowing the location of servers and other hardware holding customer data is a business imperative, Conroy says. Being able to more quickly identify the assets using RFID, relative to bar-code scanning, offers a clear benefit, he adds, though one that is difficult to quantify. According to Conroy, Bank of America is also beginning to utilize the readers in the data centers to identify the magnetic data-storage tapes that are moved into and out of those facilities on a regular basis. He says the system may be upgraded to trigger an alarm when a portal reader detects a magnetic tape being removed from a data center before it is properly cleared for removal.

Thirdly, having up-to-date, accurate inventory data simplifies the process of complying with Sarbanes-Oxley and other regulations designed to account for corporate assets.

But the RFID system also offers the bank a better method for tracking the shipping and receiving of the IT assets it purchases. This higher level of visibility will lead to faster payment and order discrepancy resolution with vendors, Conroy says. In addition to attaching an RFID tag to each IT asset vendors ship to Bank of America data centers, the vendors' advance shipment notices will also include the unique identifier encoded to each tag. When receiving the shipments, the bank will then reconcile the tag data with those numbers listed on the notice.

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"This can trigger the employee receiving the goods to clear the invoice—if the shipment is correct," Conroy says. The bank's accounting system can thus be prompted to issue payment for the assets, while the equipment is transferred to a staging area, where it is readied to be put into operation. RFID readers installed at the receiving dock, and in the staging area, will also expand the asset visibility throughout the data center.

Once tagging IT assets becomes a common practice, Conroy says, it will also be easier for banks to integrate IT equipment into their data centers that are acquired through mergers and acquisitions. The manual steps underway to account for IT assets resulting from Bank of America's recent acquisition of brokerage firm Merrill Lynch, for example, would have been automated.

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