The Many Arms of NFC

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While NFC might require a costly infrastructure, it could be used to execute tasks as menial as starting a car to those as large as stopping credit card fraud.

To be sure, contactless payments and ticketing are the breakout near-field communications (NFC) use cases. But while contactless point-of-sale terminals are proliferating in the United States, there's been a general disparity across the globe in deployment of the smart card infrastructure necessary to enable NFC.

The United States has only just begun deploying terminals in the last couple of years, while Europe and Asia have been aggressively pursuing the technology for quite some time.

EMVCO SETS THE STANDARD

Kevin Gillick, executive director for GlobalPlatform, an organization that drives technical specifications for smart card infrastructure that is deployed on NFC-enabled devices, notes that France has been particularly active in NFC deployment. Since 2007, the three biggest French telcos have been taking steps to implement phone-based payment, and in April of this year, Air France announced the launch of a handset-based airline boarding pass that uses NFC.

Gillick said that one of the biggest barriers to implementation of NFC in the United States has been financial institutions arriving at a business case that justifies investment in a pricey infrastructure.

In February of 1999, EuroPay, Mastercard and Visa founded EMVco and developed EMV, the global standard for credit and debit payment cards based on card chip technology. In 2004, Japanese Card Consortium JCB bought in for a 33 percent share of EMVco, and American Express recently joined in February 2009.

EMVco was founded on the principle that smart card-based payments were more secure than traditional magnetic stripe cards. The organization said that an infrastructure that could support smart card payments would drastically reduce credit card fraud. Now, as payment instruments include contactless cards and NFC-enabled devices, EMVCo is committed to delivering secure solutions on these technology platforms as well.

Gillick explains that EMVco and its members set compliance dates and that if a jurisdiction had not rolled out an infrastructure for secure payments by the mandated date, fraud liability would be turned over to the issuer of the card. In the case of the United States, no such liability shift-mandated deadline has been established.

While the rest of the world was quick to develop the infrastructure necessary to support contact and contactless payments for EMV, the United States lagged, arguing that the amount of credit card fraud in the United States was relatively insignificant given the total annual charge card volume.

"There's been no compelling reason yet to move from the magnetic stripe. Even though fraud losses are in the billions of dollars, total transactions are in the trillions," Gillick says.

But Gillick doesn't think that the absence of an EMV application as a fraud deterrent means NFC in the United States will be slow coming. "In fact, what's driving NFC in the United States is payment convenience," Gillick says.

LESS COSTLY HANDSET SOLUTION

Mike Feliciano, senior vice president of business development and sales for Tyfone, maker of NFC infrastructure solutions, agrees that proven ROI has been a barrier to mass deployment of NFC in the United States.

"The barrier is the investment of NFC. Operators and OEMs need to be able to enable phones in a way that generates a proven ROI. The banks seem unwilling to absorb the cost," Feliciano says.

Historically, the paradigm for handsets has involved the complicated and costly solution that involves the OEM embedding the chip directly in the handset. Alternatively, Tyfone's solution embeds the NFC antenna in a removable memory card, leaving the relatively negligible cost to be absorbed by the issuing partner, such as the financial institution or the retailer.

Feliciano notes that about 45 percent of all phones out in the market have memory card slots and that nearly 80 percent of last year's shipments had memory card slots. "A memory card is the most profitable accessory for an operator," Feliciano says. "The operator can reduce the amount of memory in the phone itself and still sell all the multimedia around the phone, which in turn drives data."

"From an operator's perspective, they don't see this solution as disruptive, but rather complementary. They have the same amount of control with a memory card solution as they had with their current embedded solution, and it actually facilitates collaboration between the MNO and other stakeholders," Feliciano says.

Feliciano sees a number of different distribution models for NFC-enabled memory cards. Financial institutions could issue them in the same way that they issue a plastic debit card. The cards could be sold separately on J-hooks at retail locations, or they could come bundled with the handset directly from the operator or sold as an accessory.

"The interest we're seeing is really from the carriers as much as it's from the financial institutions. What's great is that this solution actually facilitates collaboration between an MNO and other stakeholders," he says.

OTHER TECHNOLOGIES

Infrastructure or not, the days when NFC had to prove itself as a technology are pretty much a memory. Hans Reisgies, chairman of an NFC Forum Webinar held last fall, acknowledged as much, turning the focus on the business model. "The key now to NFC mass-scale deployment is the business model that brings together all these new ecosystem partners," he said. Given the growing number of use cases outlined at that Webinar, the ecosystem is undoubtedly growing.

Reisgies highlighted some of the more interesting ways that NFC could be used in the future. From passing your phone in front of a prescription bottle for dosage and safety information to unlocking and starting your car, NFC isn't just for contactless payments anymore. In fact, NFC may actually be the next step in hastening the wireless industry's dream of bringing to market an uber-device that will integrate with seemingly every moment of the consumer's waking life.

NFC can actually be used to initiate other technologies, says Peter Preuss, NFC Forum marketing chair and a senior manager at Nokia. "NFC can be used as a carrier for Bluetooth or Wi-Fi. You take your photographs and you want to display them on the TV? You touch the camera to the TV screen and they connect automatically."

"Nurses working in homes can check in and check out at the homes that they visit just to protocol their work schedule. Touch an RFID tag on a patient's bracelet or bed with a phone and that provides the nurse with the information for that particular patient. And then the nurse touches the tag again to check out," Preuss says.

With the use of radio frequency identi-fication (RFID) tags, NFC's uses are seem-ingly endless. Using the NFC antennae, a smartphone can be passed over items with embedded tags and then display a video related to that product. A visually impaired person could walk through a grocery store, passing a phone over items embedded with RFID tags. Using voice technologies, the phone could actually speak the names of the products as well as ingredient and dietary information.

The NFC Forum's Web site lists possible NFC-enabled machines and devices, including turnstiles, mobile phones, vending machines, parking meters, cash registers, medical equipment, ATMs, office, house and garage doors and personal computers. And that's to say nothing of the number of items that could be embedded with RFID tags. Imagine turning on a street light with a cell phone by simply walking by on a dark night.

Preuss says healthcare monitoring is already in use, and hotels have gotten in on the game with contactless cards. It's only a matter of time before smartphone users will check in with and use their devices as keycards for their hotel rooms.

So it appears that Americans' insatiable appetite for convenience will indeed drive NFC into the mainstream. And while most consumers won't even realize that they're using NFC, their shiny new smartphones most definitely will.