

New Technologies For Contactless Payment Emerge As Industry Waits For NFC Phones

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By Stephanie Bell

As the industry waits for Near Field Communication technology to reach the market, other mobile-payments technologies are being tested all over the globe. These products work by integrating technology similar to NFC into existing mobile handsets.

But while NFC chips enable two-way communication with other NFC chips to support the downloading of information such as mobile coupons or reward points, the emerging technologies, including microSD chips and integrated contactless-payment antennas that attach to phones' SIM cards, do not. Time will tell whether that makes a difference in driving the contactless mobile-payments market.

NFC has been so slow to emerge primarily because card brands, issuers, mobile operators and handset manufacturers have been unable to reach agreement on how to divvy up the revenues. As such, over the past few years observers have predicted the technology would emerge "within two years," and an agreement still has yet to be reached. However, many experts and companies are not yet giving up hope of an impending NFC rollout ([see story](#)).

In fact, some mobile-phone operators are getting closer to launching phones with NFC chips built in. Nokia Corp. plans to include an NFC chip in all of its smart phones in 2011 ([see story](#)). Additionally, many observers believe Apple Inc. soon will develop an NFC-enabled iPhone, citing the company's hiring in August of mFoundry executive Benjamin Vigier, who has played a key role in developing mobile payment applications for PayPal Inc. and Starbucks Corp ([see story](#)).

Meantime, some mobile-industry and payments-industry players separately are coming up with their own systems, which may provide a more cost-friendly option even when phones with NFC chips are available. Mobile carriers AT&T Inc., Verizon Wireless and T-Mobile USA earlier this month announced a collaboration on a payments system, along with Discover Financial Services and Barclays PLC ([see story](#)). The companies are planning to test the system in three U.S. cities, including Atlanta, by yearend. Visa Inc. and First Data Corp. have collaborated with technology companies DeviceFidelity Inc. and Tyfone Inc. respectively to develop contactless-payment components consumers insert into the microSD slot on their mobile handsets ([see story](#)).

MicroSD is a format for removable flash-memory cards commonly used in mobile phones, media players, digital cameras, some newer global positioning devices and can communicate with smart phone applications. First Data plans to hold trials with issuers for Tyfone's device called SideTap later this year and into 2011. Visa's pilots will take place in markets where its payWave contactless product is available, and the card brand recently announced a collaboration with Bank of America Corp. and U.S. Bancorp ([see story](#)).

MasterCard Worldwide, however, is taking a different approach. The card company recently partnered with France-based chipmaker Gemalto NA to use its N-Flex technology, which is a wafer-thin 2-inch piece of plastic that sticks to a mobile phone's SIM card and wraps around the phone's battery.

“Once connected to the SIM and wrapped around the battery, the plastic NFC wrapper device—the N-Flex—enables a mobile phone to turn into a contactless-payment device, Jean-Louis Carrara, Gemalto vice president of business development for telecommunications, tells PaymentsSource.

Mobile-phone operators upload MasterCard’s PayPass contactless service into the SIM card, which also can support other payment applications such as transit-ticketing platforms, Carrara notes. Overall, “the integrated antenna and NFC chipset that connects to the SIM or a universal integrated circuit card is the best way to turn a phone into a payment device,” Carrara says. A consumer’s payment information may be directly uploaded on to the universal integrated circuit card, which stays inside the phone at all times, Carrara notes.

Therefore, if a consumer eventually gets an NFC-enabled phone, he can throw away the N-Flex device but keep the SIM card to use in the new phone. This way, the secure element—the payment information—stays in the phone through the card, Carrara explains.

In the case of NFC, the integrated circuit card must be able to send a command to make a payment. Carrara says. The integrated circuit card receives the payment information from the trusted service manager, “which continues to remote manage the payment application throughout its lifecycle,” Carrara explains. However, payment occurs with a direct connection between the integrated circuit card and the contactless point-of-sale terminal directly without involvement of the trusted service manager and the wireless network.

The trusted services manager works behind the scenes to make the entire process of downloading a payment account to a mobile phone both efficient and secure. “A trusted service manager knows both banking and mobile-phone security and systems and connects multiple banks and operators while ensuring consumer credit card information is completely secure,” he adds.

MasterCard is testing the device in Singapore in collaboration with DBS Bank, EZ-Link Pte. Ltd. and StarHub, a mobile operator based in Singapore. Gemalto may sell the device, but some banks also may be interested in selling it, depending on the region, according to Gemalto. Gemalto declined to say how much the device costs.

Gemalto also declined to comment on whether the N-Flex is more cost effective than MicroSD. However, while the N-Flex may become competition with MicroSD, both options will enable consumers to keep their current mobile phones once NFC-enables phones are more widely available. But many experts believe MicroSD is the better choice for consumers.

One disadvantage of integrated antennas is that “they may not be user-friendly—something a consumer can attach on his own,” Todd Ablowitz, president of Centennial, Colo.-based consulting firm Double Diamond Group, tells PaymentsSource.

If a consumer drops the phone and the card and antenna come loose, consumers most likely would require their mobile-network operator to reinstall them, Ablowitz adds. This may be both time-consuming and costly if the phone operator charges a fee to fix the problem.

Moreover, “one size wouldn’t fit all,” Deepak Jain, DeviceFidelity president and CEO, tells PaymentsSource. The wrap-around antenna would need to come in different shapes and sizes to accommodate different phones, Jain explains.

With microSD, one size does fit all because the slot on each phone is the same size. The only thing different is the payment information placed in the device, which is personalized to each consumer. Plus, contactless-enabled microSD may be used as a storage device and as a component to enable consumers to make contactless payments with their mobile phones, Dom Morea, First Data division manager of mobile commerce solutions, tells PaymentsSource. For example, consumers may use microSD as a memory card to save pictures or additional data from their personal computers.

Additionally, microSD “provides a good pathway [to NFC] because it does not require consumers to learn a new technology, Morea notes. “Consumers can ease in to learning about the technology with the chip, which may be something they have used in other devices such as digital camera,” he says.

The overall concept behind microSD is that the chip “can come in an envelope from the bank with the consumer’s account already on it,” Dave Wentker, Visa head of mobile products, tells PaymentsSource. Consumers just insert the microSD device into their phones and use a specific contactless-payment application such as Visa’s payWave. Consumers also may password-protect the application for extra security, Wentker adds.

If the consumer is a client of a certain bank, “the microSD chip may be used as a companion device for a specific credit card, which consumers may use at merchants who accept contactless payments. Plus the chip also can support debit cards and may be able to carry some prepaid and gift card accounts as well as private-label cards all on the same microSD, Morea says.

MicroSD also seems to be the preferred option for banks, Ablowitz says. Mobile-phone carriers, however, are probably “more likely to go with an [integrated circuit card] option because then the carrier is the sole controller,” he notes. Banks do not want to have mobile-phone carriers owning the payment device. Additionally, financial institutions need to have a business relationship with the mobile-phone operator to share in revenue, and that is not often the case,” Carol Grunberg, marketing director at Portland, Ore.-based Tyfone Inc., tells PaymentsSource.

“Financial institutions want something in return for sharing the revenue with the mobile-phone operators such as taking on the fraud liability. Traditionally financial institutions are the most well versed in managing fraud, as it’s part of their core competency,” Grunberg adds. “Therefore, a neutral solution such as mobile contactless payments via a memory card format enables neutrality where both the issuer and the telecommunications company can benefit.”

Gemalto most likely will sell the “embedded solution” through mobile-network operators, but card and technology companies may distribute microSD devices through operators, financial institutions and retail channels such as electronic stores, Morea says.

Despite the industries’ preference toward one technology or another, while both microSD chips and integrated antennas may end up becoming the preferred interim technology while the work to produce NFC phones continues, “consumers really just want to do everything with their phones,” Wentker says. And while the race to NFC chips has begun, “it probably will be 10 years before NFC becomes a default feature in every phone,” Jain surmises.