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This November 16th, 2006 Issue:

*****SNS*** SPECIAL LETTER: PAYING BY CELLPHONE**

Provided by: Technology Alliance Partners

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The Second Annual SNS New York Dinner

To All SNS Members,

You are personally invited to the Second Annual SNS New York Dinner, at the Waldorf=Astoria Hotel, on December 12th, 6.30 - 9.30 pm. We have chosen this dinner as the venue for the first look at the Top Ten Predictions for 2007, and participants will be joined by global press for the event. After my remarks, we'll have an off-the-record Q and A session on Issues Important to You and Your Company.

Last year we sold out, and we expect we will again this year.

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Publisher's Note: I first met Joe when he had been seconded by Motorola to be liaison to the then-young Teledesic satellite project (almost) launched by Billg and Craig McCaw. I figured he had to be smart for Motorola to have picked him to ride herd on 1,000 satellites and two billionaires, and that judgement has been borne out over the years. Today he runs his own outfit.

Not long ago, we got together and he talked at length about paying by cellphone, a dream I (and Nokia, and the rest of the world) have had for years. FiRe 2006 attendees will recall my conversation with Qualcomm CEO Paul Jacobs about this same question (you can view this interview on the SNS Media Page, accessible from www.stratnews.com). While everyone seems agreed that the operators are holding this technology back (in the U.S.), my bet is that one will see what is going on in Japan and elsewhere, wake up, and finally let me convert my bulging wallet into a slim phone. I can't wait for the day that Joe describes. - mra.

PAYING BY CELLPHONE

By Joseph A. O'Neill

Short-range wireless: a very neat, new way to pay

There has been quite a lot of attention, excitement, and yes, some debate, about the potential for Near Field Communications (NFC) enabled cellphones to make the way we buy things at the point of sale significantly better, faster, and more convenient. How does it work? Who benefits? How do we separate the hype from the reality? Will it really change the way the way we pay and the way we use our cellphones? (Is there anyone in the world who doesn't do either?) These are some of the questions we will explore.

A small sample of recent press includes:

"Thanks to NFC, it's cards today, phones tomorrow," says ABI Research. "Describing contactless cards as an 'intermediate' step, a research company is projecting that 50% of cellphones -- some 500 million units -- will carry NFC capability by 2010, allowing the phones to be used not only for payments at points of sale, but also able to access information from smart objects." (Contactless News, May 22, 2006)

MasterCard and 7-Eleven Launch NFC Trial: "During the trial, participating consumers will download a contactless-payment application to their mobile phones, enabling them to use the phones just as they would NFC-enabled contactless payment cards . MasterCard is recruiting customers of 7-Eleven's Speak Out mobile phone service for a trial that lets them download a contactless-payment application allowing their phone to function as a PayPass-enabled MasterCard credit card." (RFID Journal, November 7, 2006)

Now you can go shopping with your mobile phone: "Mobile phones have brought us voice, data, and even television. But handset manufacturers say the next big thing is using phones for shopping and ticketing. Manchester City fans are at the forefront of this predicted development: 200 season-ticket holders are trialing a system through which they "show" their... handset to an automatic reader to get into a game, instead of handing a card to a gate attendant. Within 12 to 18 months, claim handset makers, this Near Field Communication (NFC) technology, which allows the handsets to buy and store low value electronic tokens (such as sport and transport tickets), will start being standard on new handsets." (The Guardian, Thursday, October 19, 2006)

What NFC is, and is not

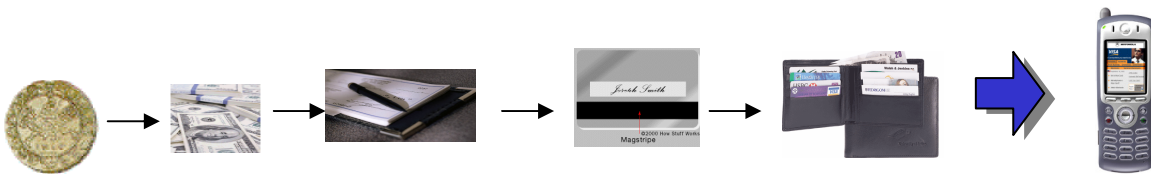
The NFC chip is contained in the phone and communicates with a contactless reader at the point of sale via short-range wireless, up to 10 centimeters' distance. The transaction does not take place over the cellular network, but rather it communicates directly from the phone to the reader via short-range wireless. Instead of using a plastic credit card with

a magnetic strip to communicate with the card swipe reader (which in turn connects to the point-of-sale terminal), with NFC we would simply tap our NFC-enabled phone, which contains our credit-card information, on the contactless reader.

The NFC Forum provides a proper definition of NFC itself:

“NFC technology is a short-range, standards-based wireless connectivity technology. It allows consumers to perform safe contactless transactions, access digital content, and connect electronic devices with a single touch. For example, consumers with NFC-enabled mobile phones can leave their wallets at home and use their phones to make contactless financial transactions, enjoy electronic access to transportation networks.” (NFC Forum press release, August 14, 2006)

“Near Field Communication (NFC) technology evolved from a combination of contactless identification and interconnection technologies. NFC operates in the 13.56 MHz frequency range, over a typical distance of a few centimeters. The underlying layers of NFC technology are ISO, ECMA, and ETSI standards. NFC technology is supported by the leading mobile device, infrastructure and technology manufacturers and by all major payment providers, and it is compatible with millions of contactless cards already in use worldwide.” (NFC Forum Press Release, October 5, 2006)



The evolution of payment technology

Alright, I am a history buff, and if you want to talk about payment technology, I’m going to start at the beginning -- around 3500 BC, to be precise. That may not sound interesting, but it will be very helpful in understanding how the latest developments in payment technology today are just one more continuation of “technology” advances that have occurred throughout history. Similar risks, benefits, conveniences -- and yes, fraud -- that we face today have occurred during many of the preceding payment technology advances.

Humankind has benefited enormously from our willingness to trade with one another, an ability which has been limited only by our proximity to one another, the necessity of a stable and peaceful environment, and the technology available at the time. Throughout the majority of the human experience, direct trade of physical goods has been the norm. But storing wealth in bushels of wheat and in large numbers of goats and sheep came with many risks: goats and sheep have a defined “shelf-life,” after which their value rapidly diminishes, and wheat and barley are subject to degradation due to mold, insects, and rodents. Fraud became rampant as unscrupulous traders proffered old, sick sheep and young, more valuable ones, etc.

Coins are very clever

In early history, many attempts were made to store value in more convenient items, such as beads, shells, and even reeds. We must thank the brilliant Sumerians for the invention of portable money in the form of standardized carved shells, dating back as far as 3500 BC. Shells were a bit fragile, and coined money, made from metal, was introduced there in the 7th century BC. Coins did not rot, mold, or die -- and better yet, their value was clearly marked and standardized. Of course, early fraudsters had an unsavory habit of filing tiny bits off the edges of the coins. In response, some clever coin makers fought back by creating serrations on the perimeters of the coins (a tradition that continues on many coins today). Even worse, some people would coat cheap metal with more valuable material, or substitute a similar-looking, but altogether fake, metal..

Paper is handy

Coins served us quite well until very recently, when the spread of strong national governments was so powerful that they could issue pieces of paper that people would accept and use in place of coins. The governments simply made a promise that the paper could be redeemed later in precious metals.

Very recently, people came to accept paper money that had no metal backing at all; simply the faith (fiat) in the currency and its government. Since governments could now create money, they tended to make a lot of it, which created a byproduct we all are accustomed to: inflation. Paper money, like coins, had a number of problems, not the least of which was the fact that carrying around large amounts of it made one the target of highwaymen, stagecoach bandits, and later, subway muggers. Very talented but not very creative artists have made a lot of money in the counterfeiting industry. The invention of the very-high-quality laser printer is not helping the situation, either.

Personal checks changed men's fashion

Personal checks became so popular in the late 19th century that gentlemen rarely ventured out without their personal checkbook. Men's suit coats even came to be modified to include an internal checkbook pocket. (Though few of us carry checkbooks anymore, the pocket is still there, and is very useful for carrying one's eyeglasses.) The demise in the use of checks for normal transactions is caused by many factors, including the ease with which a check can be "washed" by criminals in order to change the amount and beneficiary from, say, \$25 to Home Depot to \$2,500 to Surfboard City in Cabo San Lucas.

The convenience of credit cards was another factor in the check's decline, but the main reason we stopped using checks was because when you were in the Express Line at the Kroger supermarket and took out your checkbook to write a check, the people behind you said bad things about your mother. Another problem was the inherent risk involved in taking a piece of paper that displayed your address, your bank name, your checking

account number, and worst of all, your signature, and handing it to a complete stranger and walking away. A new solution had to be found.

Credit cards help us *spend*

The widespread use of computer technology as well as economic prosperity led to a brand-new financial concept: that retailers, and later banks, would “lend” money to individuals to make ordinary purchases. Approved customers would do this by simply identifying their bank and account number. The number was hard to remember, so banks (and merchants) were kind enough to give us metal cards, which, like everything else, later became plastic, and which included our account number and name. This information was displayed in raised letters so that, with the miracle of carbon paper, the account number could be captured and copies made available to all.

In order to speed things up, some clever folks decided to imprint the account number and some other important information on a magnetic strip on the back of the card. Now, by a simple swipe of our card we could purchase our goods and be on our way to exceeding our credit limits even faster.

Once we swipe, the reader magically checks to make sure our account is valid and the payment is authorized. This wonder has also created one of the world’s largest industries: credit-card fraud. Credit cards are so popular, and so many are sent in the mail today, that desperados, hoping to become creditworthy, rifle our mailboxes and steal the cards. This is particularly sad because now we have the added inconvenience of turning our mailboxes into mini lock boxes. Just what we need -- another key to carry around.

A further inconvenience is that now we’re saddled with a 6-inch-high stack of pieces of plastic. So, we perform a kind of credit-card “triage”: we carry the frequently used cards in our wallets, the ones we occasionally use are in the top dresser drawer, and the rest of them heaven-knows-where. This is very sad for the banks and retailers of the third category, who really went to a lot of trouble to get us to accept the cards, and now we don’t even use them. And, like the checks we previously used, we have the insecure practice of handing our credit card with our name, account number, and signature to a total stranger, praying that they aren’t running 12 swipes when they take it to the back of the restaurant.



The rise of cellphone point-of-sale payment

This brings us to an idea that has been brewing for a few years. It's called "contactless payment" via a radio-frequency chip that is read by a contactless reader. It is a new type of credit card with an embedded RFID chip, and it performs transactions even faster than a credit card. Instead of swiping our card with the magnetic strip, we "tap" our card, which contains the embedded RFID chip, on the contactless reader, and away we go. Many folks believe that we can go even a step further, by embedding a chip in the cellphone, using it to communicate directly to the contactless reader at the point of sale. Voila! No more stack of credit cards to manage. All of the credit-card accounts are stored in the phone. The technology behind this is Near Field Communications -- a very handy chip that both sends and receives data to the user.

Security is on my mind

Well, what about security in this new cellphone-based contactless payment system, you ask? Good question: after all, there is and has been fraud in each type of payment technology throughout history. Is this going to make us more secure? What happens if we lose our cellphone -- will someone use it to buy even more surfboards in Cabo on our account? A perfectly good question.

Let's start with what happens today when we lose our wallet, packed with credit cards, and compare that with what would happen in an NFC cellphone-based scenario. Losing a wallet means saying goodbye to cash and credit cards (unless we live in Seattle, where the finder will quickly mail the wallet back). Well, when we first discover our wallet is gone, we call the credit-card company; it, in turn, issues a helpful directive in its system advising it to refuse any further transactions on that card. This works great, except that there is the inevitable lag between losing the wallet and canceling the account, and the fact that some retailers still aren't always online and might accept the card, which is now being used by the thief. Not a loss to us, since our friendly credit-card issuers usually protect us here, but it is a loss and an inconvenience nonetheless.

Now let's talk about security in the use (and loss) of an NFC-enabled cellphone. First, there is no card that is handed to the clerk. No account number is shown to her, and no signature is revealed. The data is communicated by short-range wireless (less than 4 inches). OK, then, what happens when the phone is lost? The security in that case is as good as the regular credit-card system but actually goes one better. You go ahead and call the credit-card issuer, and the account is canceled, but in this case, it would be possible to perform an over-the-air "lock and wipe" of the cellphone. It's like digitally finding your stolen wallet and cutting up the credit card over the air, right before the big surfboard purchase can be made.

New companies such as Perlego Systems have client/server software for mobile devices that will perform "backup," "lock and wipe," and "restore" functions to the phone nearly instantly. One more thing: remember the desperados breaking into your mailbox to steal your new credit cards? With NFC, you would simply dial a designated number, input a passcode, and your account data would be sent via secure encryption directly to your

cellphone. No need to send credit cards through the mail. Maybe we won't need to lock our mailboxes anymore!

Proximity payment via cellphone NFC: Who benefits?

With NFC, our credit-card number is stored in a mobile cellphone which is always with us. The embedded NFC chip, which communicates to the contactless reader, conducts the transaction. From a consumer perspective, the mobile device is easily accessible and convenient. Merchants like the fact that the transaction time for a payment via a mobile device is fast. This results in faster service and shorter lines at checkout registers and drive-through lanes. Merchants also like having to handle less cash.

What are the benefits of an NFC contactless payment?

- Consumers can carry all of their “credit cards” in one convenient place; the fat wallet goes on a serious diet
- Consumers enjoy the convenience of electronic payment for transactions that formerly were made with cash; no more fumbling around for the right cash/change
- Retailers might enjoy more efficiency via faster payments and lower costs due to handling less cash
- Financial institutions benefit from the conversion of cash transactions to an electronic transaction, thereby increasing their revenue
- Cellular carriers may find that cellphone use is even more vital, thereby increasing “stickiness” and reducing churn
- The cellphone is more valuable, justifying a higher price from both the cellular carrier and the cellphone manufacturer; value-add enabling software can be deployed and enhance the user experience

Some final “Deep Thoughts”

The cellular telephone has become an integral part of how we live and how we communicate. We are at the tail end of an era in which the phone is used primarily for point-to-point voice and text communication. We are in the middle of the era of high-speed data and entertainment applications. The mobile device is quickly becoming an indispensable tool to make our daily lives richer and more convenient. NFC can revolutionize the capabilities of the cellphone by allowing “things to things” communications. Payment is really just the first major application; other applications are then only limited by the bounds of human imagination. The applications now being deployed, such as contactless payment, may be only the tip of the iceberg of future applications.

Ultimately, any new change in the way we do things must be driven by a people who find that the new technology makes their lives easier, more secure, more economical, more convenient, or more fun. The next change in payment technology may spring from our love affair with our cellphones and our desire to use them for lots of helpful things beyond talking... reading email, for example, which we now do en masse.

We might finally forget about that ever-growing stack of plastic. Payment lines could be reduced, enabling us to get our low-fat triple mocha latte even faster. With cellphone-based payment, CRM could be brought down to the individual consumer level. Tie-ins with GPS could allow us to press a button and get walking directions to our bank’s nearest ATM. Cellphone makers could benefit from the added value of the mobile device as well as the software for over-the-air provisioning and security services. Cellular carriers could enjoy increased data traffic for payment-related services.

In short, NFC contactless payment could be a win-win for all. I personally look forward to not having to worry about losing my wallet, because my payment information is in my cellphone. If it is lost, my phone is “locked and wiped,” and it can be quickly replaced with all the data intact. It’s one more way that technology can make our busy and often stressful lives just a little bit easier.

About Joseph A. O’Neill



Joe O’Neill is President of the Bellevue, Washington-based firm Tiger Mountain Group LLC. The company specializes in strategy and business development for new wireless technologies and mobile ventures. His work at Tiger Mountain Group includes new mobility applications, including mobile device lifecycle management, satellite-terrestrial integration, mobile Voice over

IP, mobile power technology, mobile commerce, mobile social networking, and others.

Prior to Tiger Mountain Group, Joe was the Vice President of Business Development for Motorola's Enterprise Business Development Organization. At Motorola, he worked with financial institutions and others to identify their wireless needs and help them develop relevant solutions.

Previous positions in Motorola include senior director of Business Development, Motorola Satellite Communication Group, where he led Motorola's business development efforts on the Teledesic Inc. global broadband satellite company; and director of Marketing, Network Management Group – Latin America. In that role, Joe served on the board of directors of cellular operator Entel PCS in Chile, served as director of Marketing at Global Telecom in Brazil, and served on the management boards of Cedotel, Norcel, Movitel, and Baja Cellular in Mexico.

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I would like to thank Joe for taking the time to lay out the benefits and liabilities of this nearly-inevitable technology trend. Bill Gates has been talking about the Wallet PC, I've been talking about the e-Phone, and many other folks have been talking and waiting for a new payment world that is almost upon us.

I would like to add one more wrinkle to Joe's description of the phone and its security: authentication on the phone itself. I would like to see something like a finger/thumb swipe bar, so that the phone knows You are You. This isn't expensive, would make the phone useless even before you realized you had lost it, and would pay for itself by reducing theft. It would then add the efficiencies of keying by phone, as you could open your house, office, car etc., with your phone as well. And we'd be able to throw away another few pounds of pocket-filling antiques.

Your comments are always welcome.

Sincerely,

Mark R. Anderson

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About the Publisher

Mark Anderson is president of Technology Alliance Partners, and of the Strategic News Service(tm) LLC. TAP was founded in 1989, and provides trends and marketing alliance assistance to firms leading the convergence of telecom and computing. Mark is a Seybold Fellow. He is the founder of two software companies and of the Washington Software Alliance Investors' Forum, Washington's premier software investment conference; and has participated in the launch of many software startups. He regularly appears on the Wall Street Review/KSDO, CNN, and National Public Radio/KPLU programs. Mark is a member of the Merrill Lynch Technology Advisory Board, and is an advisor and/or investor in Ignition Partners, Mohr Davidow Ventures, Voyager Capital, and others.

Mark serves as Chair of the Future in Review Conferences, of Project Inkwell, and of The Foresight Foundation. He is also President of Orca Relief Citizens' Alliance.

Disclosure: Mark Anderson is a portfolio manager of a hedge fund. His fund often buys and sells securities that are the subject of his columns, both before and after the columns are published, and the position that his fund takes may change at any time. Under no circumstances does the information in this newsletter represent a recommendation to buy or sell stocks.

On November 29th, Mark will be meeting with top management at Hewlett-Packard, in Palo Alto. On the 30th, he will be meeting with the management of Altiris Corp. in

Seattle. On December 12th, he will host the Second Annual SNS New York Dinner, at the Waldorf=Astoria Hotel, from 6:30pm, during which he will discuss his yearly “Ten Predictions for 2007.”

In between times, he will be contemplating the now-rainiest November in the history of a place famous for rain, in this its rainiest month, which would make this the rainiest month in the rainiest place in the history of rain. Rain. Rain.

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