The value of the mobile wallet

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Overview

Virtual wallets have evolved significantly over time. It was perceived as an eCommerce payment application, a browser tool and most recently as a preference, identity and payment enabling technology for mobile data services. Until recently, the virtual wallet was essentially a technology looking for a viable market. A flawed motivation behind many wallet schemes contributed to their eventual demise. In the case of eCommerce wallets, the banks and card organizations promoting the systems were motivated by a fear of displacement by large technology companies and small Internet companies. These wallets proved to be secure and stable but were also difficult to install and use. The wallets promoted by the technology giants, as Microsoft and AOL were easier to use and install but were critically lacking a genuine user requirement to induce consumers to adopt them in any great numbers.

The case for mobile wallets is considerably more compelling in that they address a real need and deliver significant advantages to every participant in the mobile data experience, from network operators, to financial institutions, to merchants, and to users. One of the principal inhibitors to the mass adoption of mobile data services and mCommerce is ease of use. Users have been reluctant to embrace the mobile Internet in large numbers partly because of the keyboard and screen constraints and because of fears over security issues. With the emergence of high-speed mobile networks, such as 2.5G and 3G, there is a sense of urgency among network operators and service providers to accelerate the use of data services on mobile devices. The server-based mobile wallet addresses most of the major factors inhibiting the mobile Internet to date delivering an application that is secure and easy to use. Not all mobile wallet schemes are the same. There are two main wallet types, client wallets and hosted wallets. There are advantages and disadvantages to both of these, but hosted wallets address the important criteria most successfully.

Firstly, hosted wallets are inherently more secure as a network operator or financial institution manages them and is stored on a secure remote server. Secondly, the same wallet can be invoked on a variety of mobile devices. Most importantly, hosted mobile wallets offer levels of utility to the user in the form of payment options, personalization and identification that greatly enhance the mobile experience. For any mobile wallet scheme to achieve mass adoption, it must be interoperable and compliant with industry-wide standards. Likewise, unless it complies with major security standards, it is likely that certain services will be unavailable to the user a potentially damaging scenario. By addressing these issues, it is almost certain that the mobile wallet will become one of the most important enablers of the mobile Internet.

Mobile wallets bring much more than simply payment to the mobile customer. The most successful mobile wallets will enable the user to manage their mobile lifestyle.

Internet: Desk to Palm

The Internet has had important inflexion points that have marked its evolution. Undoubtedly, the launch of the Netscape browser in 1994 marked the point at which the worldwide web moved into the mainstream. Suddenly, this unknown network became a medium that people could use. The subsequent launch of Yahoo's portal technology later that year added another layer of utility, allowing users to find areas of interest quickly and easily. The third inflexion point came with the launch of Amazon.com, the first global Internet only retailer.

The transition of the Internet from an information gathering and sharing medium to a viable means of exchanging goods and services, changed the face of the Internet forever. Since this point, analysts and researchers have scrambled to make predictions about the size of the eCommerce market.

Forrester Research has estimated that eCommerce will account for 6 percent of total US Gross Domestic Product by 2005. It also predicts that global business to business and business to consumer transactions will reach $8 trillion by 2004.

The growth of the Internet has coincided with another major phenomenon – the introduction of the mobile phone. The growth in the number of cellular subscribers has eclipsed that of any other technological development in the 20th century, including the Internet. There are nearly 1.5 billion cellular subscribers, compared to less than 150 million in 1997. Despite the current economic downturn, this figure is predicted to grow to over 2 billion by 2004. The mobile phone and the Internet remained largely distinct and separate until the Japanese wireless network operator, NTT DoCoMo, launched its i-mode 'always-on' mobile Internet service in February 1999.

The viral growth of imode had an enormous impact on people's perception of the viability of high-speed mobile data networks. As of mid-2001, the number of imode subscribers had grown to almost 28 million, and that number continues to grow at approximately 300,000 per quarter. The success of i-mode is set to replicate elsewhere in the world, particularly as network operators rush to deploy 2.5G and 3G services for their customers. Bank of America Securities estimates that the number of wireless Internet subscribers will reach 400 million by end of 2003.

As data services on mobile networks increase, the types of Internet services that have proved popular on desktop PCs will undoubtedly migrate to wireless devices. More interesting, though, is the range of mobile-specific applications that are emerging, from signing documents on the move using a secure mobile identity, to paying for auction items using SMS messaging.

Virtual Wallet: An eCommerce Tool

In the frantic "land grab" that has characterized the last five years of the Internet boom, traditional institutions have struggled to claim a significant stake. Bill Gates, Chairman of Microsoft, quoted that "banks were dinosaurs" facing certain extinction at the dawn of the brave new world of the Internet. The only positive note for financial institutions was the fact that the vast majority of business-to-consumer eCommerce was conducted using their credit cards. However, this involvement is viewed as passive and vulnerable to displacement, threatened by new economy companies that had a direct relationship with Internet users.

The origins of the first Internet wallet stem from this battle for Internet dominance. In an attempt to grab a foothold on the Internet, financial institutions worked with the card organizations, Visa, MasterCard and American Express, to devise a strategy that would give them a decisive role in the digital world. The first product of the industry-wide alliance was the security standard, SET (Secure Electronic Transaction™) in 1996. The standard relates to transaction data sent between the consumer, merchant, issuing and acquiring banks. SET was designed to supersede the SSL (Secure Socket Layer) specification devised by Netscape.

Banks and card companies hoped that the publication of the SET standard would give them the same control of the eCommerce transaction chain that they enjoy in the physical world. SET, however, failed to generate the momentum required to make it a ubiquitous security standard. There are plenty of reasons for this, but the most obvious was that consumers were not as concerned about security as was once claimed.

One result of the arrival of the SET specification was the introduction of a digital wallet that contained the user's digital identity along with various payment instruments. These

digital or virtual wallets were designed to have the same branding and loyalty effect as plastic credit cards. This first wave of SET wallets suffered from consumer indifference. The wallets were beset by technical difficulties; the wallet set-up process was very time-consuming (up to 15 minutes) and, in some cases, necessitated downloading a two-megabyte file.

Chastened by their experience with SET wallets, financial institutions and card organizations reverted to SSL-based Internet payment instruments. Banks such as Barclays in the UK, Citibank and Bank One in the US, as well as Discover Card Services and American Express, all launched SSL-based wallets in the late 1990s.

At the same time, large and small high-tech companies launched their own wallets in competition with these financial institutions. The large companies, such as Microsoft and AOL, positioned their wallets as de facto eCommerce portals. They hoped that by adding services, such as storing credit card numbers and passwords, they could draw more users to their portal sites. Smaller technology companies, such as Gator and Brodia, acted as third-party aggregators of the user's financial information and preferences. The wallets could be downloaded free from the company's website and the software was stored on the user's hard drive. The perceived benefit of these wallets lay in the fact that they were not linked to any retail site or card organization. This allowed the user to pay on any site that was held in the wallet company's database.

Despite the wide range of wallet offerings, none managed to achieve the mass acceptance that their owners had hoped for. The one simple reason for this is that users continue to be unconvinced that PC-based wallets fulfilled a compelling need. Most of the major eCommerce sites, such as Amazon.com, have added features that ensure the payment form filling is done automatically, obviating the need for a digital wallet.

Why mobile wallets are different

The Internet wallets discussed earlier predate high-speed mobile data networks. Promoted as consumer convenience tools, they rarely added enough value to the eCommerce experience to gain widespread popularity. Ostensibly, PC-based wallets failed to traverse the benefit/inconvenience axis despite the growth in eCommerce volume from zero to $50 billion in less than five years. Mobile wallets fulfil a very different need and seem destined to achieve the growth required to succeed. The reason for this optimistic assessment is simple: mobile wallets are critical enablers of mCommerce and other data-related services. Forrester Research estimates that the mobile wallet market will be worth $22 billion by 2005. This growth will be driven by the fact that mobile devices were never designed to support enhanced data-related services.

Unlike PCs, mobile devices have small screens and lack a proper keyboard. Both of these factors significantly reduce the chances of users completing a mobile transaction with multiple payment pages.

The second crucial difference between PC-based Internet access and mobile data services is "Personalization has generally been an option on the Web, but it will be a requirement on the mobile Internet. A mobile device is a constant personal companion and mobile customers will personalize these devices to reflect their needs…" In other words, the mobile device by its nature lends itself to spontaneous and time or location-sensitive services, such as auctions, road-tolls or emergency purchases. The growth of short messaging service (SMS) illustrates mobile phone users' willingness to embrace non-voice-based services. SMS has already been identified as a viable channel for mCommerce in advance of the rollout of 2.5G and 3G data networks. MasterCard, the credit card association, has announced plans to support SMS-based payments.

The most fundamental difference between a mobile wallet and a PC-based wallet is its potential to facilitate applications beyond mCommerce. Because of its niche appeal, PC-based wallets have tended to focus on facilitating Internet payments. Mobile wallets from established vendors allow functions beyond secure payment transactions, including personalization and user identification.

As well as these functions, there are wide ranges of applications that can be supported with a mobile wallet. The types of applications that are supported by mobile wallets merge identity, messaging, security, payment and mobility. With a secure, server-based wallet, users can use their phone to check and manage their stock portfolio on the move; deliver confidential documents using a digital signature; pay for train or airline tickets and download the ticket onto the phone. In addition, the emergence of complementary wireless technologies, such as Bluetooth and 802.11, will facilitate more applications. For example, a user's PDA could be used to scan and pay for goods at a supermarket with transaction information uploaded to the store's data centre via a Bluetooth link between the device and a series of nodes in the store. These applications are not in the realm of science fiction; trials are currently taking place in Asia using a server-based wallet to scan supermarket products.

The Mobile Wallet in Action

Its Friday evening and I am on my way home from work. I am stressed because I m supposed to be going to the movie with my friend and I know that if the traffic is bad then I will be late, there will be heavy queues and we probably wont get to see our favourite movie. Then, I notice an ad in my evening paper sign up for a mobile wallet and purchase cinema tickets from your mobile phone — this is exciting! There are options to register by SMS, web, or by calling customer care — I decide to use SMS. I send a

message to the prescribed number and receive a message in return informing me that I can now start using my mobile wallet. I am then sent a message with my secure wallet PIN with an invitation to browse online from my mobile phone — I m on my way! I browse the cinema listings, sure enough there is a 20:45 showing of our movie, and there are tickets available. I select the movie / time / two tickets and press confirm payment. Within minutes, I receive my tickets straight to my mobile phone and they have seat numbers — simple! I call my friend who is now waiting for me outside the cinema. I tell her that I am running late, I will be there in 15 minutes but in the meantime, I am forwarding a ticket to the movie to her mobile phone. Passing the lobby queue, my friend presents the ticket and goes directly to her seat. I will join her during the trailers. After the movie, I receive a message asking me if I liked the movie and if I would like to buy the soundtrack — it was a great soundtrack and I decide to buy it using my mobile wallet. What a great movie and what a great evening!

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