MOBILE REVOLUTION

A white paper by

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Executive Summary

For many 2009 and 2010 were years marked by struggle and hardship. The economy was the great equalizer. Both individuals and organizations were impacted to varying degrees. The majority of forecasters had it right: it would be years of hunkering down and waiting. Senior level executives followed this directive with most tightening the proverbial belt and watching with hushed breath as the bold storm slowly blew across the landscape.

Many initiatives and programs that were slated for development were placed on the backburner if not totally scratched. As a consequence, exploratory research and spending shrank. IT departments were forced, by and large, to make do with existing operating systems. Whereas talk used to be "when" a new software or hardware application was going to be adopted and rolled out, 2009 was a year with the word "if" sprinkled into speculative conversations.

A major "when" that turned into an industry "if" was mobile based operations. In 2006, organizations were dedicating resources into determining how best to invest in such technologies. In the time since, cell phones morphed into smart phones. The latter has tremendous capacity for facilitating tasks from advanced banking applications to entertainment such as games and real-time video streaming with a near-limitless marketing capacity.

According to market research company Gartner Inc. smart phones represented 14 percent of overall unit sales to end users in 2009, which marked a 24 percent increase from 2008. By the end of 2009, the International Telecommunication Union estimates that mobile cellular subscriptions worldwide would reach approximately 4.6 billion. In the United States, there are roughly 270 million cellular subscriptions which accounts for 82 percent of the population.

While the economy is rebounding from a significant downturn, the decade known as the "aughts" produced the most technological advancements in history. As the nation, and the world, forges into 2011 and beyond, progressive entrepreneurs will look for ways to capitalize on advancements within accepted technologies. Microsoft and Apple have built on this model for decades with respective approaches to the personal computer.

Now major PC vendors like Dell, Acer and HP are joining the race with handsets. HP, for example, recently announced its iPAQ Glisten, a feature-rich 3G world Smartphone that meets the increasing demands of modern mobile professionals. Dell Computers launched its Dell Mini 3 smartphone. Acer introduced neoTouch, which is a new addition to its growing line of Windows Mobile 6.5 handsets, based on 1 GHz Snapdragon CPU.

Industry analysts agree that it was due to social networking sites such as Facebook, Twitter and LinkedIn that consumers and executives alike demanded higher speed and connectivity in handheld devices.

The devastating earthquake in Haiti that killed thousands proved to be a game-changer in how the public donates relief funds. Nearly 2.5 million people texted $10 pledges for Haitian relief to the American Red Cross in the first week following the quake which was the largest number ever to take action for a mobile giving campaign. Whether or not this is a tipping point regarding how mobile banking is perceived by the public, it demonstrates that ease of use is key to greater market acceptance of mobile banking via text messaging.

The bottom line: the market to watch is mobile phone applications. However this is a wide net to cast. The purpose of this report is to investigate not just the technologies but rather emerging applications and ramifications.

Who to Watch

As noted earlier, Google, Apple, Facebook and Twitter were among pioneers in the aughts. YouTube was left off that list because it was absorbed by Google in 2006 for $1.65 billion in a stock-for-stock transaction. Thus, it makes sense to watch these forward-thinking industry giants and leaders to see how they are approaching the mobile market. It comes as no shock that they are starting with a younger demographic that is eager to learn and explore.

Recently, students at Ball State University in Indiana were given the unique opportunity to put their media skills to use for Google and its answer to smartphones like iPhone and Blackberry: the Android. Paul Gestwicki along with his computer science class spent their fall semester developing applications which included an Etch-a-Sketch clone and an English-to-Spanish tutoring system.

Applications or simply "Apps" are big business, and more so that hardware sales. Last year, iPhone users downloaded an astounding two billion applications. Apple is not the only game in town, all other smartphone makers are cashing in on the application revolution. It is estimated that mobile applications market will reach $9 billion by 2011.

Leading applications include mobile games. Costing less than a dollar and expanding exponentially, mobile gaming generated millions in revenue. It also served to redefine the gaming landscape which in part defied the longstanding of graphic-heavy games in offline machines.

In separate year-end reports (2009), the Washington Post and the San Francisco Gate noted that Smartphones and wireless phone applications topped respective technological trends list. According to the Washington Post, new user-friendly hardware such as the iPhone and new sources for wireless phone applications such as the Apple App Store helped expand the popularity of smartphones beyond the traditional realm of businesses and into consumer markets.

"Mobile security devices in some respects are a big challenge at the moment," said Roel Schouwenberg senior Antivirus Researcher, Kaspersky Lab Americas which is a developer of Internet threat management solutions that protect against all forms of malicious software including viruses, spyware, hackers and spam. "In 2006 and 2007, financial institutions in Europe and the United States were all talking about mobile banking applications," he continued. "The economy over the last eighteen months put this movement on hold but we are starting to see a change."

At a recent technology conference, International Data Corp.'s Chief Research Officer John Gantz said the IT recovery could be best defined as slow and steady. Marginal growth is expected in most areas expect mobile. To this end, he noted that two thirds of new growth is forecasted in high growth categories such as wireless data, smart handhelds, application software and hosted infrastructure services.

According to IDC, for the first time in history, 2010 will experience 1 billion mobile Internet users and also 500,000 mobile phone applications. As a result, Gantz said there will be a "developer war like you've never seen." The number of mobile technology is expected to triple. In 2010, 470 million 3G phones are slated to be shipped which marks a 97 percent year-over-year increase from last year. While a lower percentage by more than half, 160,000 4G phones are set to ship officially marking the marking the beginning of the 4G cycle.

From a global standpoint, the United Nations released a report projecting that the world's population will grow at an annual rate of .77 percent over the next five years. Under this model, the world population will be 6.9 billion in 2013. ABI Research finds that over the next five years 5.3 billion, or 76 percent, of the world's population will be mobile phone subscribers. With a quickly expanding pool of users, organizations offering or facilitating mobile banking services will be positioned for great success.

Perhaps the best U.S. model to study is Bank of America. In November 2008, less than 20 months after launching services, BOA had 1.5 million active mobile banking customers.

There are countless companies providing the platform for mobile banking applications such as mainframe information transformation and delivery solutions; SMS/SSMS messaging; PAT (Phone Authorized Transfer) mobile payment solutions; prepaid mobile financial services; text message balance inquiry and alerts; and wireless application protocol (WAP). Companies leading the way include CASI Software, ClairMail, Clickatell, CPNI, Fiserv, Gemalto, Telrock and IBM, among others.

Software vendors are uniquely positioned to enable mobile services for financial institutions. To this end, many vendors are aggressively developing partnerships with specialist mobile applications service providers, such as the aforementioned, or developing their own platforms, including capabilities for mobile international remittance and domestic person-to-person payments.

Mobile Management and Security

As is the case with expanding enterprise, effective management is essential to sustained growth and success. As smartphone manufacturers sell an increasing number of units, a greater need for cell phone management develops. As more businesses and employees execute an increasing percentage of their work via mobile devices, organizations will be forced to seek out telecom software and other solutions to help manage smartphone expenses and deployments.

Using Apple iPhones as an example due to its popularity, we can take a closer look at mobile management issues. The iPhone supports Microsoft's ActiveSync, a program which allows mobile users to coordinate their devices with settings on their Microsoft Exchange mailboxes via a password. According to technology magazine Network World, this approach can lead to new security concerns for many mobile management professionals as business networks take on an unprecedented numbers of new mobile devices.

The magazine summed it up this way: "By the time we're all singing Auld Lang Syne, another 50 million smartphones will have joined the worldwide business environment." As a result of security concerns, more executives are investing monies into the research and development of telecom software that helps to mitigate threats. This is not an investment that can be put off until the economy fully rebounds. Organizations are forced to keep pace with security related issues or face breaches that could potential be fatal to continued operations.

Leading software security solutions track every smartphone that tries to connect to company servers. In addition, mobile management software solutions can help enterprises reduce the cost of managing devices, and reduce waste and overage on monthly wireless bills.

In what many analysts feel was a poor move by Microsoft, Google was given a license by the former for its ActiveSync. Google used this for e-mail, calendar and contact synchronization from its cloud services to iPhone and Windows Mobile handsets. Google also used the technology to provide Exchange Server sync with Google Apps, so that businesses could use the hosted service instead of Outlook. Once again Google is on the forefront of the Sync movement which is defining its mobile handset and mobile cloud strategies.

This development has given greater strength to Google's Android Smartphone which realized 3.5 percent of total market share in its first year. To this end, applications and security based software related to this phone (and future generations) will be a quickly growing market with endless opportunity.

Part of the reason security measures are lacking in the mobile banking/SMS field is due to the failing economy which took the financial industry's collective eye off this all-important defense movement. Until there is a "break though year" with mobile banking applications, the threat levels remain somewhat low as there is no incentive from hackers

and others to develop threats aimed at security weaknesses. "99 percent of all malware created is created for monetary gain," said Schouwenberg.

"The amount of malware for mobile devices is almost nonexistent with only a couple of thousand and these are local and regional versus thousands of malware per day in Windows (operating systems)," Schouwenberg continued. "This potentially means that some financial institutions will have the attitude that there is no security problem."

There are avenues to explore such as Secure Sockets Layer (SSL) technology which provides businesses with the capability to process sensitive data while offering privacy to customers meaning that all sensitive information during transmission is secured.

With a trusted SMS gateway provider in place, financial institutions, for example, can ramp up their respective security force by offering FFIEC compliant 2-factor authentication. The user is exposed prior to the transaction taking place. After an attempt to login into bank account via mobile phone, for instance, a unique code for web-based entry is dispatched to the user via a text message. The provided pin code expires within a given time frame (usually a few minutes).

"As soon as mobile banking hits the expected threshold, we will see more security breaches and lots more malware," said Schouwenberg. "For financial customers the biggest concern is usually losing their phone and the data on that phone. In general, which was once the case with people using email by phone, customers do not want to think about a third party accessing their information and that is concern that financial institutions have to address."

Certain analysts refer to the smartphone as the virtual wallet. A recent report from IMS Research stated that nearly 900 million users will complete an estimated 62 billion banking transactions with their mobile phone by 2012. Those organizations that do due diligence and research secure operating platforms will gain more market share as the mobile texting trend becomes as common as phone calls once were.

And the proof is in the pudding. According to report by The Nielsen Company, during the second quarter of 2008, a typical U.S. mobile subscriber placed or received 204 phone calls each month. Conversely, the average mobile customer sent or received 357 text messages per month. This represents a 450 percent increase over the number of text messages circulated monthly during the same period in 2006.

Having the technologies and applications in place is of course necessary but user adoption is essential. Industry analysts agree that ease-of-use is critical which again supports the text message fund raising efforts by the Red Cross after the devastation experienced in Haiti.

Calvin Grimes, Mobile Solutions manager for Fisver said during a recent online Q & A session that "if use of your mobile device to pay for something is harder than pulling out a piece a plastic, consumers aren't going to adopt it."

Fiserv, supporting 11,000 financial institution customers, threw its hat into the mobile ring in 2008 when it partnered with mobile banking specialist M-Com. Today they offer Fiserv Mobile Money which enables consumers to check account balances, generate transaction summaries, make account transfers and pay bills. Grimes said in order to push mobile payments forward, financial institutions will need to provide value-adds such as mobile coupons and reward redemptions.

Text for Money

According to the market research company Gartner Inc., by 2013 more than every third phone sold will be a smartphone. And with the economy showing signs of recovery, progressive organizations are looking forward.

With smart phones becoming the next generation of laptops or Netbooks, the same capabilities of a home PC now fits in your pocket. Checking email, transferring funds and viewing PDF files can be done in the few minutes of downtime one might have waiting for the train.

In countries such as Kenya and the Philippines that lack banking infrastructure, mobile phone banking applications such as G-Cash (Philippines), and M-PESA (Kenya) which is touted as the most successful mobile banking network, are models to explore. The latter technology, developed by Vodafone, has flourished, in part, because two thirds of Kenyans, for example, do not have a traditional bank account. Around the globe, however, adoption rates remain sluggish.

Emerging mobile technologies include lending platforms. While still on a small scale, the U.K. based TxtLoan offers loans by text message. The business model can funnel money into a person's bank accounts within minutes. These loans are small in scale with a typical loan amount averaging a few hundred dollars. For many people it is a bridge loan until payday. The system is straightforward. New customers are credit-checked when they register for the service. Once accepted they are given a pin number with which they can apply for a loan by sending the company a text message. The money is then transferred to their account. The lender recoups payment, plus 10 percent, in seven days. Late payment charge and associated administrative costs are significant.

When thinking about the text/lending possibilities, consider this; in 2008, worldwide, 4.1 trillion Short Message Service (SMS) text messages were sent. This number is growing and many financial institutions are again taking note and exploring "push and pull" options. Examples of push include account balance reporting, credit card activity, and large withdraws on an account. Pull examples include deactivating credit cards, electronic bill payment and stop payments. It is forecasted that loan application via mobile smartphones will gain popularity.

IBM is among companies betting on the future. Big Blue recently earmarked $100 million on research and development over the next five years to improve mobile

communications for businesses and consumers. While IBM has allocated more money for other initiatives such as green efforts (a purported $1 billion), the company is sending a strong signal throughout the market place that mobile innovation for commercial and business applications is the next big wave.

While technology is essential to moving the global mobile banking market forward, barriers such as regulations exist and vary by country. This is due to the fact that nearly all activities involving money transfers are subject to respective regulations especially anti-laundering precautions. Many countries interested in moving forward are stymied due to the resources required to administer regulations and enforcement.

Conclusion

The mobile revolution is at hand. Whereas countless small and large companies are cashing in on mobile/cellular applications, technical consultants with management and security expertise are well-positioned to deploy said knowledge to organizations operating in various industries.

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