

Flash report

Some highlight of the wireless telecoms sector in New York

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This paper is made of small reports and analysis that presents some highlights of the wireless telecoms sector in Manhattan, New York, and USA as investigated during the last quarter of the year 2002. By looking at the people in the streets and their attitude regarding telecoms: what kind of mobile telecoms tools do they use ? What is the offer in the voice / data / mobile Internet field ? What kind of new services would be available for the New-Yorkers in the mobile telecoms sector ? Who are the main players, the companies competing in the sector, what are their challenges and how is the battlefield ?

Mobile telecommunication devices

The New Yorkers in the streets can held up to five types of mobile devices to communicate either with voice or messages or to get information:

- Black Berry that is a “pager” with a keyboard and with messaging capabilities;
- Radio that has pure voice capabilities;
- Portable phone (smartphones, cell phones) providing voice, messaging, mobile web capabilities as well as many other nice to have features (music MP3, games, rings...);
- Wireless Card which provide wireless phone capabilities and tools as well as an Internet access for laptop computers;
- Wi-Fi cards which gives messaging and Internet access capabilities for laptop computers or PDAs.

Even if the portable phone tends to be the rule, lots of people held and use two or three, even four types of these devices. All combinations are used such as a Black Berry with a Radio and a PDA with Wi-Fi card. For example, the CEO of a company that needs to support customers or employees in the field must choose between dozens of two-way pagers, Web-enabled phones, and wireless PDAs. What’s worse, the expected lifetime of these devices-is typically less than 12 months, in part because better models are constantly being introduced. Increasingly, the distinction between voice and data is blurring, especially given Web-enabled cell phones capable of supporting voice-to-voice, voice-to-synthesized speech, text-to-text, and text-to-synthesized speech communications. The convergence of the technology becomes a must: small, light, with large high-definition color screen, a usable keyboard, plenty of memory, high speed Internet access, music capabilities, high performance battery...

By looking at the mobile phones wireless subscribers we see that gap between the USA and Europe market penetration rate is reducing. But with more than 135 million wireless subscribers at the close of 2002, the United States still has a long way to go before it reaches the 150-percent penetration rate of some Western European countries, where many people have more than one cellular phone. The United States is not yet at the 70-percent penetration rate that seems to be a turning point. Nokia reduced its forecast for 2002 because cellular penetration has peaked (in some large markets) and replacement demand is slowing. The question is whether people will buy new handsets to get new applications they don't know about yet.

M-commerce could push U.S. penetration rates RCR Wireless News, 4/29/2002, Vol. 21 Issue 17, p26, 3/5p, 1c

THE WALL STREET JOURNAL 12 MONDAY, SEPTEMBER 23, 2002

“The Wireless Web, How to develop and execute a winning wireless strategy” Brian Bergeron McGraw-Hill 2001 ISBN 0-07-137359-4

Services

Most of the carriers advertise and provide advanced services for the portable phones. But as anybody who uses a cell phone knows, the wonder of being able to make a call anytime, anywhere lasts only so long. You soon take it for granted and in place of wonder comes irritation: at dropped calls and dead zones, at incomprehensible calling plans and hidden fees. Well, brace yourself for new feelings of wonder-and a whole lot more irritation. Wireless technology is advancing rapidly and with it comes a host of new gadgets services. For instance, phones that let you take digital pictures, and then e-mail them. Or phones that can send and receive messages - a hot service in Europe - that is set to invade the U.S. Or high-speed wireless Internet networks for your home.

THE WALL STREET JOURNAL Lawrence Rout 12 MONDAY, SEPTEMBER 23, 2002

Let's have a look at what is the offer as advertised by the main carriers in New York as in autumn 2002.

Basic applications and services

The basic applications and services advertised by the main carriers includes:

- Voice advanced features
- Send and receive e-mails and instant messages (SMS) or ... chats
- Play full-color action, adventure, casino, puzzle and sports games
- Download and assign unique images to use as screen savers
- Personalize phones by downloading and assigning different ringtones to numbers in the address book.
- Shoot digital pictures with a camera then share them wirelessly
- Access the client's company e-mail (Microsoft Outlook or Lotus Notes), calendar, business directory and personal contacts in real time.

Short messaging service, which provides an average of 10 percent of the revenues of European wireless providers, has great potential in the United States now that the three major barriers to its widespread adoption are beginning to fall: inability to send SMS from a phone, lack of interoperability among carriers and bucket pricing instead of pay-per-message pricing. "No one anticipated the negative impact that technology fragmentation in the United States would have on the adoption of SMS. The FCC (Federal Communications Commission) sanctioned seven standards, and four made it to market," said Paul Hanna, vice president of marketing for MobileSpring Inc., New York, which provides a framework for seamless SMS interoperability.

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RCR Wireless News, 4/29/2002, Vol. 21 Issue 17, p26, 3/5p, 1c

All the carriers provide show rooms in their cell phones sales offices so that you can test all these features. Not surprisingly the result is the slowness of the systems so that many applications are unusable.

Advanced applications and services

The customers of the major carriers can subscribe advanced applications and services. They can now experience adapted full-color graphic versions of popular Internet sites on their portable phone. They get access to information provided by content providers including: Entertainment (E!online), news (CNN to go), sports (ESPN.com), weather (weather.com), finance (Fidelity, Bloomberg) , travel (Sabre), shopping (Amazon.com) and other tools (Google). Some carriers have setup alliances with Microsoft in order to provide access to all MSN features: MSN News (by MSNBC) to read stories and scan summaries on world, national and local events; MSN Sports (by ESPN) to follow all the teams with up to the minute NFL, NBA, NHL and MLB scores and headlines; MSN Travel (by Expedia) to check

the status of all flights, view a travel itinerary and get door-to-door driving directions; MSN Money to track the financial markets (E*Trade), get the latest stock quotes and manage portfolios; MSN Calendar to view appointments, check meeting locations and add birthdays and other events. MSN Entertainment to find movie show times, purchase concert tickets (Ticketmaster) and check horoscopes and lottery results; MSN City Guides (SuperPages) to search for local businesses, banks, ATM (Go2), restaurants (Zagat) and to check weather forecasts (The Weather Channel) and news for any area. The users can also browse the web and search for sites (Pinpoint) and check their e-mail (MSN Hotmail).

Up to now, most of these applications still remains “providing information”. The commerce or even purchasing applications are rare and here again the systems are so slow that many applications are unusable. We are still far away of the so advertised “instant access to information, instant reservation...and so on”. However we would like to report some smart applications and prototypes which can contribute to help m-commerce become a reality.

Micro payments

GPRS-based billing systems.

“Upaid Systems” has developed a billing system that network operators and content providers can use for real-time rating of transactions over GSM and GPRS networks. Reverse billing via GSM - as with text messages - works fine for micropayments but up until recently there has been no system to make larger payments via a mobile. It looks like the market will grow quickly if the payment systems put in place will not require the consumer to upgrade their phone (Bernt Ostegaard, Giga).

Computer Weekly, 2/28/2002, p18, 1/4p, 1c

Wallet – Credit card

AT&T Wireless has an m-wallet feature for its new mMode service, which allows subscribers to add purchases to their monthly bills or charge them to a credit card. NTT DoCoMo offers a service that let mobile phone users buy Coca-Cola out of vending machines.

Wireless Internet Magazine, 8/19/2002, p38

Transaction services company Alliance Data Systems, fuel company Alon USA and mobile commerce firm Cellenium partnered to build the Cellerate mobile payment system. The companies will debut their mobile wallet concept this summer at Alon USA’s FINA gas stations in Texas. “The mobile payments system can make transactions more secure,” Lee said. He explained that the system can ask for additional authorization by requiring users to enter a PIN sent over SMS (short message service) as well as a credit card number. Cellenium said it plans to extend this system, eventually, to offer mobile payments for parking, DVD rentals and tickets to entertainment events.

Wireless NewsFactor Dan McDonough, Jr June 24, 2002.

Using SMS and GPS, Swapcom is testing a system that would permit customers of a premium-class SMS service to send a message to a special four-digit number, which automatically would bill them for a non-telecommunications service, like tickets to a movie they are about to see.

M-commerce could push U.S. penetration rates.

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As we know, the credit cards organizations are deeply concerned by the payment capabilities provided by specialized applications on mobile phones, especially because carriers can use their billing system to charge the client who by an item any where. MasterCard identifies three wireless features that will create the most initial value for

consumers: 1. Transaction notification: This allows consumers a to receive immediate notification via mobile device that a transaction has been completed, whether that transaction was made at the point of sale or remotely. 2. Easy-click favorite buys. This provides one click shopping from a mobile device for repeat purchases. 3. Personalized promotion alerts: This forwards personalized promotions to consumers' wireless devices on from pre-selected merchants. Mastercard's goal is to combine these features with payment methodologies that allow multiple channel and multiple-device execution from any location at any time. MasterCard sees itself as a solutions provider to consumers, merchants, and financial institutions. "We're uniquely positioned to support mobile commerce transactions better than any alternative payment scheme because of our global network infrastructure, fast processing capabilities, 18 million acceptance locations, and our ability to settle transactions quickly while managing fraud and payment risk," Mr. Munro with MasterCard says.

CREDIT UNION MAGAZINE, march 2002 www.cuna.org

Booking

Restaurants

A fast food restaurant franchise offers distance access to the order system that is on a PC. The main benefit of the system for customer is order accuracy and shorter waits for their food. The restaurant's owner gets even more. The PC is tied into his inventory system, helping him track exactly what ingredients have been used, how much, and what supplies he needs to order. The system automatically tabulates checks, eliminating math errors that used to cost him money.

Laundry machines IBM

IBM recently announced a partnership with USA Technologies that will deliver some 9,000 Web-enabled, "smart" washing machines and dryers to college campuses, eliminating much of the laundry day hassle through remote access by computer or cell phone. Dubbed "e-Suds," the System replaces traditional coin-operated technology with technology that enables students to pay with the swipe of an ID card or by using a mobile phone. Students can visit a Web site to find out when a machine will be available and can select functions, including soap and fabric softener dispensing. When the load is done, they are notified via an e-mail sent to a mobile device or PC.

Wireless NewsFactor, Jay Wrolstad, September 4, 2002

The trend is the switch from information providers to transactions facilitators but the main problems are still the lack of user friendly easy to use interfaces and the highly limited speed of the systems. Let's have a look at the technologies used to set-up the telecoms networks.

The way of being online and mobile

2G / 2.5G / 3G

As we know, 2G networks provide basic data capabilities as well as the ability to message between devices. 2G wireless devices can display text only on small screens, making it hard to deliver rich Internet content. The impediments to data entry make interactivity more difficult and drive reliance on menus.

The migration to 2.5G networks, which occurs in Europe in 2001-2002 and the United States in 2002-2003, provides major advancements, including instant-on access, packetized data, voice channelization and higher data throughput. 2.5G networks can deliver much more substantive financial services applications including complex account activity, wireless appraisals, instant credit scoring and on-site claims adjustments.

3G networks, which are expected to appear in 2005, will provide even higher data throughput, improvements in security, and global coverage, enabling new wireless services.

To be able to compete the carriers have improved the basic technology they use. They have introduced first the CDMA 2000 1x that can offer CDMA operators high-speed data transfer, and EDGE - for enhanced data rates for global evolution - that allows GSM networks to offer third-generation, or "3G," services. The state of affairs is as follows:

AT&T Wireless : Edge (2003)
 Cingular Wireless : Edge (2003)
 Nextel Communication Inc.: CDMA2000 1x (Jan. 2002)
 Verizon Wireless : CDMA2000 1x (Jan. 2002)
 VoiceStream : Edge (2003)
 Sprint PCS Vision : CDMA2000 1x (Aug. 2002)

THE WALL STREET JOURNAL M. Newmann 12 MONDAY, SEPTEMBER 23, 2002

But all these networks and systems remains slow. The need for speed and full Web capabilities induce the implementation of alternative networks such as Wi-Fi. The same trend is also occurring in Europe and Switzerland where the carriers also offer the Wi-Fi alternative.

Wi-Fi (802.11b)

In New-York, Manhattan, it is not unusual to be able to be connected to four or five Wi-Fi networks should you have the access rights: district wireless Wi-Fi networks such as mid-town Manhattan, Bryant Park; Building wireless Wi-Fi networks such as towers networks, airport networks, railway station networks ; and private wireless Wi-Fi networks. The Starbucks / T-Mobile / Compaq offer is one of these examples. Once the notebook computer or PDA is wireless-enabled, the customer must just launch its Internet browser from within any connected Starbucks or other T-Mobile Wireless Broadband location. The customer gets high-speed wireless Internet access. And once he get connected, he can check its email, surf the Web at super speed or download the files he need for its next meeting.

As we know, these networks have distance limitations but Wi-Fi stretches its boundaries. The communications equipment maker Proxim became the latest company to sell high-powered Wi-Fi networks that travel long distances, essentially providing buyers with an "ISP in a box". These versions of wireless networks using the Wi-Fi, or 802.11 b, standard create a wireless zone of up to 12 miles long, far beyond the usual 300-foot-radius range that Wi-Fi typically achieves. Overkill for use inside a home, where most Wi-Fi networks are now found, the long-range Wi-Fi gear is meant for small Web service providers. It lets them beam long-range signals outside, particularly to sell broadband access in rural areas where DSL (digital subscriber lines) or cable broadband service haven't reached. Proxim's product, priced from about \$2,000 to \$6,000, will include all the equipment necessary to become a small-scale network provider. The price differs depending on the quality of equipment and add-ons that a buyer may want. Each kit can serve about 250 customers.

Special to ZDNet News Ben_Chamy

URL: <http://zdnet.com.com/2100-1105-959955.html>

The Wi-fi is an alternative in NY but main problems clearly remains in the true voice capabilities (voice over IP and adapted devices such as voice compatible PDAs), the complete and reliable wireless zones coverage, the lack of security, the true mobility in the sense of the ability to go from one Wi-Fi network to the other without being subscriber of all these Wi-Fi network operators, and the billing (consolidation of all the bills in one clear bill per month).

Let's now have just some lights of the battlefield where we find carriers, content providers, software manufacturers, hardware manufacturers and so on.

The battlefield

We just provide here some lights of the very complex situation in this battlefield. We will talk about the carriers and some of their challenges, the applications developers and services providers, and finally an example of the technology options investigated by components manufacturers.

The carriers

First we must report the competition between the carriers who advertise in every streets, avenues or squares. Sprint, Verizon, AT&T (with AT&T Wireless), NTT DoCoMo, SBC Communications (with Cingular Wireless), Deutsche Telekom (with T-Mobile) and the others carriers are playing in a highly competitive market. Although the stocks of American wireless operators are in the doldrums, the domestic market still has the legs for substantial future growth and development, but not without first clearing several significant hurdles. "The United States is transitioning from 2.5G to 3G, but this will take a lot of time. The (securities) markets are wary of developments and promises made, although we are seeing ARPU (average revenue per user) rise in certain markets. I think we are in the second inning of a nine-inning game."

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In 2002 these carriers faces an important challenge that is the license auction. Mid august 2002, over a dozen economists employed by some prestigious universities urged FCC Chairman Michael Powell to release Auction 35 bidders from their financial obligations in the troubled auction. Fourteen economists, from institutions such as the University of Maryland, Brookings Institution, University of Chicago and Massachusetts Institute of Technology, sent a letter to Powell saying that the FCC's current policy toward Auction 35 is a "negative stimulus package for a wireless industry desperately in need of recovery." Despite getting most of their down payments back, Auction 35 bidders such as Verizon Wireless would be liable for billions should the Supreme Court rule the auction still valid. Verizon plans to submit a similar economic study showing the negative affects of the "bid overhang" to the FCC soon.

Economists Weigh In On Auction. Wireless Week, 8/19/2002, Vol. 8 Issue 31, p4, 1/8p

Wireless telecoms can not be just seen and analyzed as a separate segment. Most of the carriers compete on the fix telecom networks segment, the mobile telecom networks segment, the Wi-fi networks segment and cable networks segment trying to provide the best bandwidth for voice, data, video and transactions applications capabilities.

The applications and services

The operating system software manufacturers and the basic application software manufacturers enter the mobile phone market. They can either make alliances or compete against the mobile phones manufacturers leaders who have set their resources in improving the systems and software on their mobile devices. We can report an analysis of the Microsoft and Nokia situations.

The direction of both computing and communications, on the Internet and in mobile telecoms, is towards open standards : communication devices are less useful if they cannot talk to each other. Makers of pocket communicators, smart phones and whatever else emerges will thus have to compete on design and branding, logistics, and their ability to innovate around such open standards. At the moment, these considerations seem to favor Nokia more than any other company. But Nokia faces a direct challenge as Microsoft leads the computer industry on to

its turf; its continued dominance of the mobile-phone industry is by no means assured, since it is not based on the ownership of proprietary standards. Microsoft, for its part, will try to exploit its dominance of the PC industry to help force its way into the new market. But it may well fail. Either way, there will be no need this time round for any repeat of the long-drawn-out antitrust cases, against first IBM and then Microsoft. Instead, the collision of the computing and mobile-phone industries seems likely to lead to a surge of innovation, as the two camps fight it out to create a truly personal computing and communications device, with far wider appeal than the misleadingly named personal computer. And as these titans slug it out, it will be consumers who emerge as the winners.

The Economist November 23rd 2002

Most of the applications regarding the financial sector are information supplies. Some more advanced transactions are emerging. For the financial service providers, the potential strategic options within the wireless opportunity landscape could be:

- Business model extenders: Business model extenders move existing products and service to wireless, as typified by wireless trading and account access.
- Operational extenders: Operational extenders use mCommerce applications to reduce cost of service, such as by providing mobile customer relationship management.
- Market creators: The third option, market creators, involves products and services that build new transactions, markets and channels.
- Value chain annihilators: Then there are value chain annihilators that create entirely new product categories such as the mobile, automated insurance adjustor.
- Product inventors: Finally, there are product inventors that create new offerings that redefine customers, products and services to create a sustainable competitive advantage. Examples include a proactive securities advisor, mobile open finance and pay-by-the-mile insurance.

Creating Winning M-Commerce Models in the Financial Services.
By M. Giometti; D. Ragas; W. Shipley and M. Whitehead, Accenture

Components

An other interesting move is the one regarding the Intel R&D project that will lead to Radio capabilities in Intel chips.

In February, Intel Corp. unveiled a plan called Radio Free Intel that aims to incorporate a tiny radio into every microprocessor the company ships within seven years. In the process, Intel hopes to rewrite the rules of the wireless and yank the rug out from under the top manufacturer of wireless components, Texas Instruments Inc.

By using its production clout to turn out the radio-equipped chips in huge numbers, Intel hopes to turn them into a commodity, making them so cheap that they become the chips of choice for a host of devices from cell phones to personal digital assistants.

But that's just the beginning. Intel has visions of universal communications humming in the background of everything we do. If radios can be made tiny enough to fit on a computer chip, just about any thing - personal computers, cars, digital cameras, even clothing and crops - could be equipped to send and receive data, possibly without the help of a fixed infrastructure.

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Clearly, most of the players have to consider strongly alliances with providers (components, devices manufacturers, software manufacturers, content providers, ASPs) or even will merge with competitors.

Concentrations

As the technology is still immature players must carefully weight the options to partner with solution providers, integrators and ASPs. Moreover, the fragmentation of the sector and the financial resources required to compete leads to concentrations, alliances and M&A. We can

already see cross-sectors alliances such as MSN (Microsoft) and Verizon Wireless, Microsoft and Sprint, or T-Mobile / HP-Compaq / Starbucks, and Microsoft T-Mobile. In January 2003 FCC scheduled to phase out wireless cap limiting how much spectrum wireless companies can own in a single market, a move that could set off a round of industry consolidation. The trend for that consolidation is clear and some players already setup alliances such as Verizon Wireless that is a joint venture of Vodafone Group Plc. (UK) and Verizon Communications Inc. (US)

The Federal Communications Commission, THE WALL STREET JOURNAL