

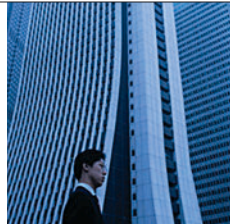
argoscorecard

Volume 2, No. 1, September 2002



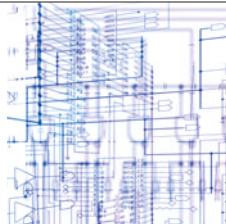
POSITIVE SIGNS IN CHALLENGING TIMES

1



Update on Portfolio Companies

2-3



Case Study

Scouring the Horizon for WLAN Business Opportunities

4

POSITIVE SIGNS IN CHALLENGING TIMES

No doubt this summer has been a challenging one for most of the players in the global "wireless game". Words of consolidation, rationalization, cost reduction, renegotiations of licensing agreements, 3G delays, etc., were rampant throughout the warm season. Nevertheless, there have been several positive signs arising in the market. Data is finally coming out of the "hype cloud". The successful I-mode services are making their way into Europe. Several operators in Asia are experiencing good results with the launch of Multimedia Messaging Services (MMS), while dozens of MMS-related contracts have been awarded by operators in the rest of the world.

Operators have also been getting ready for the busier second half of the year with plans to introduce color handsets, new PDAs, etc. And the best news is probably on the revenue side where the Average Revenue Per User (ARPU) has finally started to stabilize. There are even signs in the United States of ARPU beginning to increase again, thanks to the recent commercial launch of SMS interoperability and new data services.

All of these positive developments indicate that there is light at the end of the tunnel. Once the financial sector has completed its reorganization, the industry will be ready to deliver on its promises. Both the consumer and business markets are poised for growth and, more than ever, the Argo team will be there to support the wireless industry in achieving its goals.

Top 10 Issues of Wireless CEOs

Provided by

- In the last issue of ARGO ScoreCard, we discussed the question "When will things start to look up for the telecom industry?" Today things look even worse now than before the summer and the first 3G operators have "fallen". There are, however, a few positive signs and the industry may not be totally on the wrong track. Camera phones are selling above expectations, some GPRS markets are starting to move, SMS revenues are still increasing, and so are handset sales figures. Still, only the fittest will survive and this is definitely the time to be cost effective without losing momentum.
- The media that once hyped 3G (and GPRS) are now trying their best to slaughter it. Every sign of a delay in 3G, and there are many, is taken as proof of its failure and imminent collapse. In many countries, rollout is, however, progressing aggressively and contracts are signed for service platforms and content rights. So, without a doubt, 3G will happen! After all, the 3G-network status today is very much like GSM was 10 years ago. While delayed a few years compared to initial, unrealistic targets, 3G will definitely be launched in the coming years.
- Even if 3G is on a slow track, the engine, that is the operators of the telecom industry, clearly needs an injection of fuel to pick up speed or even avoid stalling out altogether. Politicians and regulators are slowly realizing this fact and are trying to find ways to ease the operators' burden and foster a healthy industry, companies and job opportunities. Network sharing, relaxed launch requirements and a pragmatic approach by all players should make it possible to get the wheels rolling at a reasonable speed.
- We are all suffering from the lack of trust in this industry. The stock markets do not trust our accounting, the investors do not trust our growth projections, and the general public never got what the media or we promised. Now is the time to showcase the good examples and success stories. Maybe it is also time to join forces to make sure that interoperability issues are solved as quickly as possible. Progress and growth are far more important than finding the bad guy!
- GPRS takeup is slower than expected in most markets. There is still a lack of services offering easy email, intranet and Internet access. The services need to be simple to use for consumers, easy to implement for enterprises, and customers need to understand what it will cost them. While virtually everyone agrees with these statements, few are doing anything about it.
- The wireless industry is still only paying lip service to the concepts of "ease of use" and "convenience" for the end user. The transformation will not be easy, and we have a long way to go. The industry has to appreciate that five clicks on a keypad to activate a service is four too many, and that a service is too complicated if you need to call customer care to activate it through a download. The solution is not to have a well-educated sales force, but rather to deliver products and services that are so simple they don't need to be explained by anyone.
- In the last issue, we also discussed the need for integration of Internet service, like instant messaging, into the wireless world. This is already a reality in Japan with I-mode. Users of I-mode will soon be able to connect to ICQ, MSN and Yahoo services while on the move. This is the way to not only learn from Internet success stories but to actually make wireless a part of them!
- What will be the killer application for MMS? Transfer of pictures from terminals with a camera is definitely a strong candidate. Even though there are very few GPRS terminals with cameras available, the demand seems to be a lot higher than the capacity to deliver. In Japan, DoCoMo has shipped more than one million camera phones. Surely that cannot only be due to the fake tourists that were used to promote the GPRS phones!
- Public WLAN remains in the headlines of our industry magazines. But is there a viable business case for Public WLAN? How big are the actual target markets and how will they use the service? Looking at the figures and doing the calculations, it is definitely not a strong case unless you have other reasons to build your network and offer the service!
- 3GPP has just "finalized" the new release of the 3G standard, Release 5 (R5). We all know that it will take time before we can expect support for any of the new R5 features, but it might be worth it to ask yourself a few questions ahead of time. Does the new standard offer anything that could make my network more efficient? Can I save costs by avoiding unnecessary investments today if I know what is coming tomorrow? The answers will all depend on the current situation and the strategy ahead.

For further information or to contact Northstream, please call Mr. Tommy Ljunggren, Co-Founder, at + 46 8 56484800 or visit www.northstream.se.

Northstream™

Scouring the Horizon for WLAN Business Opportunities

WLAN IS CURRENTLY GENERATING INTEREST IN BOTH THE MEDIA AND WIRELESS INDUSTRY. WHILE NUMEROUS POTENTIAL BUSINESS OPPORTUNITIES EXIST FOR WLAN TECHNOLOGY, THIS ARTICLE EXPLORES TWO OF THE MOST HOTLY DEBATED APPLICATIONS: PUBLIC WLAN AND OFFICE WLAN SOLUTIONS.



Public WLAN: Unpredictable Service Demand and Availability

Public WLAN services typically target corporate travelers whose mobility pattern is relatively predictable and manageable in terms of Public WLAN coverage in so-called "hotspots" (high-density places like hotels, airports and railway stations).

A high density of traveling business people, however, does not necessarily translate into high demand for corporate WLAN access. Battery limitations, privacy and ergonomics are factors that may limit the actual demand for access in public areas, as well as "competing" solutions such as 3G, GPRS and fixed access.

Well-Defined but Small Target Markets

Laptops will continue to be the dominant device using WLAN, at least for the foreseeable future, which is why initially Public WLAN services focus on business users. The Public WLAN business opportunity is somewhat restricted to the hours business people spend outside their offices, accessing corporate networks or the Internet from their laptops.

The bundling of Public WLAN in the product portfolio may help mobile operators, especially greenfield 3G operators, attract customers. Bundling could provide the best possible service to customers by combining WLAN and 3G capabilities. All wireless data usage could eventually stimulate more demand for wireless service, creating a long-term positive impact on both the WLAN and 3G business cases. The exact impact needs to be evaluated and quantified in time and money in order to justify investments in Public WLAN networks.

Office WLAN: An Undisputable Opportunity

Offices meet all criteria for hotspots in terms of traffic volume and work environment requirements. Office WLAN offers flexibility in terms of roaming capabilities in an office work environment. Companies working on flexible cross-functional projects will most likely gain from having a wireless work environment that stimulates dynamic teamwork.

The wireless office concept will naturally gain market penetration over time, creating the expectation that laptops should enjoy network connectivity irrespective of time and place. Yet few will accept to pay any premium on in-office WLAN traffic, making this market unattractive to operators. While an operator could offer to also carry traffic generated by external visitors in the office, these additional traffic volumes will, in most cases, not justify the investment needed. The advantages for an operator appear to revert to the indirect gains from various service bundling offers. The business case for a

wireless office in isolation appears to be primarily for system integrators and infrastructure suppliers.

Office-type WLAN solutions could, however, be offered in hotels, convention centers and other semi-public premises, based on the same principles as WLAN in offices. The site owner remains in control of the offer, ensuring it includes all potential customers and not only the subscribers of a specific operator. WLAN services offered by site owners may also have a positive effect on prices, since the service is not a core business for the site owner but rather a competitive element used for pushing branding, marketing and overall quality.

The Bottom Line on Business Opportunities

As stated above, laptops will continue to be the device of choice for potential WLAN users. The penetration of laptops outside the business segment is likely to remain low due to the relatively high price tags, limiting potential for significant growth of Public WLAN usage beyond the current business segment.

Public WLAN service providers should closely monitor this target group and its usage pattern in order to maximize the business Public WLAN opportunity. Service availability and semi-mobility considerations must be added to the access business model. The suggested business model for Public WLAN is relatively simple: you pay when you use the service and not how much you use it. However the challenge of creating a large base of long-term customers and the benefits from recurrent business should not be underestimated.

There is little or no "hard" value-add in having the Office WLAN as an operator service. Consequently the business case for WLAN office applications resides primarily in equipment and integration rather than access, whereas an Office-type model could very well prosper in the semi-public space, effectively generating indirect revenues for operators.

About Northstream:

Northstream provides operators, manufacturers and other players with independent and unbiased advice on opportunities presented by GPRS and 3G. In addition, Northstream offers recommendations on key technical and commercial issues in mobile data services as well as advises industry players on their strategic position and value proposition.

Upcoming Events

GSM Plenary 48
October 14-17, 2002
Istanbul, TURKEY

CTIA Wireless I.T.
October 16-18, 2002
Las Vegas, NEVADA

ITU Telecom Asia 2002
December 2-7, 2002
Hong Kong

3GSM Americas 2002 and the Mobile Evolution Expo
December 4-5, 2002
Sao Paulo, BRAZIL



Boston-Headquarters
Lynnfield Woods Office Park
210 Broadway, Suite 101
Lynnfield, Massachusetts 01940
USA
Phone: +1 781 592-5250
Fax: +1 781 592-5230

Montreal
1250, René-Lévesque Blvd. West
38th Floor
Montreal, Quebec H3B 4W8
Canada
Phone: +1 514 397-8444
Fax: +1 514 397-8445

London
Parkshot House
5 Kew Road
Richmond-Upon-Thames
Surrey TW9 2PR
UK
Phone: +44-20-8334-8002
Fax: +44-20-8334-8100

Hong Kong
22/F Silver Fortune Plaza
1 Wellington Street, Central
Hong Kong
Phone: (852) 2295 2209
Fax: (852) 2295 3111

CAMBRIDGE POSITIONING SYSTEMS LTD.

CPS has announced the successful completion of a major integration project with Samsung Electronics Co. Ltd. for E-OTD, enhanced safety, location-enabled cellular phones for the US market. The announcement follows testing by both companies at CPS's world-leading integration facility in Cambridge, UK, and subsequent live network testing in the US. E-OTD (Enhanced Observed Time Difference) technology requires only a software upgrade to the handset, providing manufacturers with a highly cost-effective location solution. US GSM operators and equipment vendors have already adopted E-OTD as the location standard.



MORPHICS TECHNOLOGY, INC.

Morphics Technology Inc. has released architectural details of a highly parallel baseband processor that cost-effectively solves the capacity problem. Eschewing the standard DSP-plus-ASIC approach to wireless basestation design, the 3G Baseband Processor 64 uses a multithreaded architecture that separates the control and data planes to make the complex Layer 1 and high-speed data processing completely independent. Morphics designed the processor from the ground up with multiple parallel data flows to get the performance needed for 3G, wideband-CDMA processing. Sampling now to key customers, the processor is built in a 0.18-micron process and delivers more than 500 billion operations per second at 200 MHz. The device consumes 6 watts and can process up to 64 channels at a time. The company plans to introduce a 128-channel version next year.

12snap AG

MTV Networks UK and Ireland has forged a partnership with mobile marketing firm 12snap for a wide-ranging deal that signals the music company's growing use of wireless as a marketing medium. The deal calls for 12snap's media sales arm to help MTV generate revenues from its permission-based database of mobile numbers by renting the list to existing and future clients. 12snap will also act as creative consultants on MTV's mobile marketing campaigns to promote new shows. The mobile marketing firm will also give MTV reduced rates for transmission of its campaigns.



KABIRA TECHNOLOGIES, INC.

A recent study by Kabira Technologies, a leading provider of software solutions for convergent networks, estimates that leading US wireless operators could lose as much as \$7 billion, or just under 10% across all revenues, in revenue leakage. Sources of revenue leakage include collection failures, overrun error logs and billing system rejection. Kabira's vice president of marketing and technology strategy Grover Righter offers wireless operators a few words of advice: "Most wireless companies would benefit from working with solution providers to recapture the low hanging fruit in their networks, which translates into about 5% revenue recapture as a reasonable target."

WEBRASKA MOBILE TECHNOLOGIES SA

Grizzli Mobile Systems, one of the leading providers of turnkey fleet-management services in France, has selected Webraska, the worldwide provider of Location-Based Services (LBS) and telematics applications and server-based platforms, to integrate and deploy real-time navigation applications in its suite of productivity improvement solutions.

The new Grizzli-Webraska offering enables fleet managers within the distribution industry to increase driver productivity by sending them destination addresses from Grizzli's delivery route optimization software. Destination addresses are automatically used by the in-vehicle navigation application to provide real-time graphical and vocal navigation instructions to drivers seeking pick-up and delivery sites. The navigation applications have been developed by Webraska using Internet based Distributed Navigation (IbDN®). IbDN® is the company's wireless navigation technology, patented in 16 European countries and the United States.

ALICE SYSTEMS AB

Far EasTone Telecommunications has placed an order for Alice Login, the unique GPRS client software Alice Systems developed for enabling end-to-end security for remote corporate access over GPRS. Far EasTone includes Alice Login in the service package provided to enterprise customers for wireless access to office applications.

Far EasTone has developed a strong service concept to its enterprise customers in close cooperation with its application providers, such as IBM and Alice Systems as well as with its PC-card suppliers and the IT departments of the enterprises. Far EasTone broad customer base will be able to use standard business applications from Microsoft and IBM such as Outlook, Lotus Notes virtually anywhere and with the enhanced capabilities that GPRS offers for remote corporate access.

EMPOWER INTERACTIVE GROUP, LTD.

Empower Interactive Group launched its Application Messaging Service Center (AMSC) at CommunicAsia 2002, held in Singapore from June 18-21, to enable mobile operators to cope with the upsurge in demand for application messaging. This move also demonstrates Empower Interactive's commitment to the promising Asia Pacific markets, having recently opened its regional headquarters in Singapore in April 2002 and signing a broad range of agreements with partners such as Ericsson and Hewlett Packard across the region.

According to the Yankee Group, China alone is expected to handle 400 billion messages a year by 2005, double the present global volume, making the Asian messaging market the largest in the world. Key features of the AMSC include short message peer-to-peer (SMPP) compliance, broadcast messaging and its ability to work across 2G, 2.5G and 3G networks. Capable of processing more than 1,000 application messages per second, the AMSC is also easily managed through a simple point-and-click interface, offering greater benefits for Asian operators looking for a cost-effective, easily integrated application messaging system.

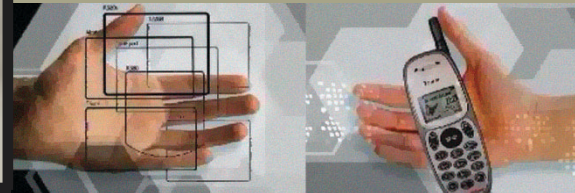
Empower was also selected to power a World Cup SMS game for Orange, one of the world's largest mobile telecommunications companies. Empower's solution enabled interactive, two-way gaming for more than 30 million Orange customers in a number of countries across Europe, including the UK and France. Working with Morse, the European technology integrator and IT services company, Empower delivered a high-capacity, carrier-grade Messaging Service Platform SMS gateway, which handled Orange's entire SMS needs for the game throughout the campaign. Global mobile entertainment services provider Digital Bridges was commissioned to develop and distribute the games in anticipation of this past summer's World Cup. Played in single or multiplayer game modes, the SMS game was among the first World Cup branded games to be available via mobile phones.

EMPOWER INTERACTIVE GROUP, LTD.

Empower Interactive Group, the leading provider of dedicated application messaging infrastructure software solutions to the mobile community, has raised a further € 8 million of third-round funding. The round was led by Digital Networks, with additional investment from IDG Ventures Europe and existing investors Argo Global Capital and Newtonmore Capital Ltd.

DIGITAL BRIDGES, LTD.

Digital Bridges, a world leader in the creation and distribution of mobile entertainment solution has recorded over 10 million WAP user sessions in the past 18 months. Mobile phone gamers enjoyed Digital Bridges' WAP games – both in colour and black & white – for approximately 71.4 million minutes during this period, which add up to 136 years of accumulated gameplay. More recently, Digital Bridges has developed and published a number of highly successful WAP games based on globally recognized licenses such as Star Trek: First Duty and EA SPORTS 2002 FIFA WORLD Cup. Digital Bridges considers branded content a key factor in the development of current and future mobile entertainment offerings, as it will provide a significant shortcut to building consumer awareness.



VOLUBILL

VoluBill, a content and transaction billing mediation supplier, has forged an agreement with customer management and billing software provider Portal Software. Both companies will now work together to produce a solution that can control, manage, and generate bills for content-based services such as WAP, SMS and MMS. This will be achieved by integrating VoluBill's D2CP solution with Portal's Infranet convergent billing platform.

NORWOOD SYSTEMS, LTD.

Norwood Systems, the leader in Bluetooth™-enabled voice and data communications, announced an additional £9.5 million (€ 14.8 million) in venture capital funding led by Deutsche Bank Capital Venture Partners and Cazenove Private Equity. Other investors backing Norwood Systems in this round include Newport Technology Fund and existing investors Argo Global Capital and Innovacom, along with a number of private investors. The capital raised will be used to focus on Norwood Systems' sales and marketing activities and to support and grow its customer base. The funds will also help the company expand into other geographic markets and further develop its product.

HOTSIP AB

Hotsip AB, the global leader in SIP and Presence-based products for infrastructure and application vendors, and Sonera Oyj, the largest broadband operator in Finland, announced that they have signed a commercial deal enabling Sonera to launch new SIP-based VoIP/PSTN and Presence services licensed from Hotsip within their Finnish broadband network. Hotsip's expertise in SIP and Presence-based products provides Sonera with the platform to launch exciting new IP-based services to its end users.

HYPERCHIP, INC.

Hyperchip Inc., a leading developer of core IP systems, announced its traffic management capabilities at SUPERCOMM 2002. Incorporated in its carrier-class core IP system, these algorithms offer unprecedented performance, delivering high-quality bandwidth even during network congestion. This allows carriers to operate at much higher link utilization, greatly reducing operating and capital costs for both the routing and optical layers of a network, and providing major operating advantages to network operators deploying enhanced IP applications. AQUA and SHARE improve on standard industry techniques by delivering continuous system-wide awareness of network-generated congestion, and ensuring QoS policies are respected at every stage of the packet's journey through the system, enabling TDM-quality service in IP networks.