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Exploring the MMS Pricing Challenge

THE NUMBER OF OPERATORS OFFERING MULTIMEDIA MESSAGING SERVICE (MMS) IS INCREASING BY THE DAY. TO DATE SEVEN PROVIDERS HAVE LAUNCHED MMS IN THE MARKETPLACE, RESULTING IN A NUMBER OF DIFFERENT APPROACHES TO PRICING. HOW DO THESE DIVERGENT PRICING POLICIES AFFECT THE INDUSTRY? WILL THEY ULTIMATELY FACILITATE FINDING THE OPTIMAL WAY TO CHARGE FOR MMS, OR HINDER USER UPTAKE OF THE SERVICE?



An Overview of MMS Launches

Telenor, the first operator to go live, has been offering MMS since March 12, 2002. It charges €1.30 per sent message irrespective of size. Next to launch was Hong Kong CSL on March 28, which opted for a more complex pricing structure with different rates for different types of messages. HK CSL charges €2 for a branded greeting card and €1.50 for unbranded, whereas picture messages don't cost anything at all.

Offering its service since April 18, Hungarian operator Westel bases its sending cost on the size of the message, much like GSM, in an effort to minimize inconsistencies between operators. Westel's price varies between €0.30 and €1.30 per sent message. Another operator to go live April 18 was D2 Vodafone, which is allowing messages to be sent for free until the beginning of August when it will start charging €0.39 per message. This is close to the €0.45 its sister company Telecel, which launched May 8, will charge when its free-trial period expires on August 1.

On May 21, TIM launched the service saying it will provide it for free until the beginning of October 2002. Last but not least, Swisscom launched on June 3, choosing to wait to charge end-users until the beginning of October, when each message will cost the sender €0.54.

The Irreversible Nature of "Free"

The most recent MMS entrants have chosen to introduce the service through a limited free-trial period. Although it allows customers to familiarize themselves with a service before being charged, this age-old tactic should be used with caution. Think about it. What will happen when a new provider enters the marketplace and offers a free six-month trial? Will existing providers be forced to prolong their honeymoon period? Regardless of the answer, complications are unavoidable as is the fact that it is never easy to change an established pricing structure.

Flat Rate Goes Mobile

Parallel to these MMS rollouts, Orange has taken a very aggressive stance by introducing a flat rate for its GPRS subscriptions. For €6 per month, users enjoy unlimited access to news, entertainment and email! The operator's argument

for the price change definitely makes sense. Overly complex pricing models have served to scare users away from GPRS services. The question now is how the flat-rate policy will affect the revenue potential of mobile data as it certainly offers a cheaper way to send messages between mobile users than any MMS to date. Orange's flat rate currently applies only to its customers in France, but the company clearly plans to extend the pricing model to its other European subsidiaries.

Simplicity Pays Off

Will Orange's move prove to be detrimental to future mobile data revenues or simply an act of sober foresight? Right now GPRS uptake seems to be limping along. Serious action is needed. One thing is clear: the GPRS operators with the simplest end-user offerings are enjoying the healthiest, although still modest, customer growth. Both TIM and Sonera have scrapped monthly fees, allowing them to preconfigure handsets and make it much easier for end-users to get started. Apparently, simplicity pays off.

While flat rates raise several issues, another valid question is who will want to pay for MMS when a very similar message could be sent for free, to the same recipients, using email? The answer may be anyone who puts a higher price on convenience. MMS is, after all, tailored for mobile use while email is not. It all depends on whether or not the average subscriber perceives MMS as being easier and better. And if the alternative messaging technology is free, MMS operators have a significant challenge ahead of them convincing end-users that their service is worth the price! Stay tuned as the MMS challenge unfolds.

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Northstream AB, Strategic Advisory Services

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

NGN Congress 2002
July 24-26, 2002
Sao Paulo, BRAZIL

EU Telecommunications Regulations & Law
July 25-July 27, 2002
Brussels, BELGIUM

Mobile Multimedia Messaging
September 18-19, 2002
Lisbon, PORTUGAL

UMTS - Mobile Internet Congress
October 3-4, 2002
Paris, FRANCE



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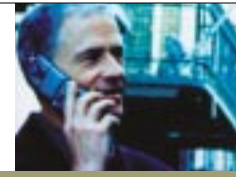
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Argo Annual Meeting 2002

Telesystem-Argo Global Capital hosted its Annual Meeting in Palm Springs, California from April 17 to 19, 2002.

Close to one-hundred participants, mostly investors and carrier representatives, gathered for a two-day meeting to review the performance in 2001 and outlook for 2002 of GSM Capital Limited Partnership and Argo II: The Wireless-Internet Fund Limited Partnership.

Working sessions were mainly focused on portfolio analysis, industry trends and management strategies. Several portfolio companies, some of them based on the West Coast, were invited to present their competitive approach and business strategies for adapting to a highly challenging marketplace.

Although the wireless industry continues to suffer from the economic downturn in the high-tech sector, the outlook remains promising. Significant opportunities exist for wireless operators to improve their cost structure and generate new revenue streams, especially with wireless data finally kicking off.

The event also provided participants with the perfect venue for meeting and exchanging ideas with industry and financial experts. Several complementary outdoor activities were also featured during the two-day event, each presenting unique networking opportunities to those in attendance.

Top 10 Issues of Wireless CEOs

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- Some manufacturers claim that the fate of the telecom industry lies in the hands of the operators. But how can operators possibly afford the necessary investments to reverse the current slump? Perhaps operators should begin by focusing on increasing the use of services and technologies available today, and by optimizing services already popular on the Internet and elsewhere. How many users have an ICQ or MSN account today? How can they continue to chat while on the move? Why not maximize GPRS's "always online" capacity and combine both worlds?
- In the previous edition of ARGO ScoreCard, we reported that only 10% of GPRS terminal users actually utilize GPRS. With the number of GPRS-capable terminals increasing rapidly, some operators are reporting growth, although far from satisfactory, in active usage. Unfortunately, many GPRS operators still require users to endure cumbersome registration and start-up procedures. One or zero-click processes are urgently needed, as are suitable services for early adopters, traveling laptop users and PocketPC/Palm users.
- A handful of operators have launched trial MMS services with a great deal of emphasis on prices rather than services. In fact, some only provide a bearer and no services! The MMS toolbox has far more to offer than SMS, so let's be creative and prepare for mid-2003 when there will be sufficient attractive terminals for a mass-market uptake. But let's not fool ourselves, or others, about real video MP3 files, etc.! They will never be delivered by MMS, ever. To avoid a WAP-style backlash, let's keep expectations realistic and then deliver on them!
- Enterprise offerings remain focused on voice-centric services such as W-PABX, while significant unexploited potential exists in mobile access to business critical systems, including email and sales support systems. To tap into this promising market, operators need to partner with providers of these systems and solutions.

- Given that these services are very different from subscription sales, the sales organization will have to be retrained and reorganized to sell mobile data services. But ask yourself how many corporate users can easily send an SMS directly from their desktop today? Or how many can read or listen to their corporate email in their mobile terminal? Therein lies the potential!
- Many operators are questioning whether location services can survive on their own or whether they should be combined with other services? While some operators have launched location services, we have yet to see any real success stories. With innovative independent developers, easy and coordinated APIs, support for location when roaming, and integration with messaging services and games, we still believe that location information can drive usage and revenues. But before we drown in technology, let's ensure a sound business model is in place!
- Many 2.5G (GPRS) operators will soon face fierce competition from aggressive greenfield 3G operators. What game will the new competitors play? Can we expect a price war on voice services? For greenfielders, churn will be the key strategy. Will there be fancy new services and terminals? What about content? Have they blocked our access to popular content? Expect a dirty war! Strategies for fighting this war are needed to maximize GPRS investment returns, access 3G investments, and hold on to existing clients. With the first true 3G launches planned in Europe this autumn, the time for sustainable strategies is now!
- Some regulators will use fines and other means to try to force operators to respect their commercial 3G launch dates. Others are willing to accept the fact that 3G is delayed and have deferred the time limits. For operators, huge savings are to be made by postponing procurement and rollout as late as possible in areas where demand for 3G services will be low. If regulators really

- want to force coverage in these areas, the fines will have to be substantial. We now have real-life confirmation that the most important success factor for long-term 3G success is 2.5G!
- Operators discovered that using two or more infrastructure suppliers was an effective way to drive down GSM prices. Some are brave enough to try this from the start with 3G. But do tight schedules and user expectations allow for any interoperability problems? Don't lose sight of your key objectives or be overly eager to lower prices. Network interoperability issues will be plentiful enough without inviting them into your front yard.
- Public WLAN services combined with 3G and GPRS is an even hotter topic than it was a few months ago. The WLAN industry has changed its competitive stance and is now actively approaching mobile operators with suggestions for blending the two worlds. Operators like DoCoMo and KDDI in Japan are already launching bundled services. The question is no longer if, but how and when mobile operators will take advantage of public WLAN opportunities and what the true market for these services is.
- The technologies and services mentioned above are key to the success of our industry. On a more general level, however, wireless CEOs also need to think about their role in the value web and how to optimize their company's efficiency. New services and technologies require organizational changes as well as new partnerships and ways of working. Many of today's operator processes are not aligned with what is needed to develop, implement, and sell these technologies and services.

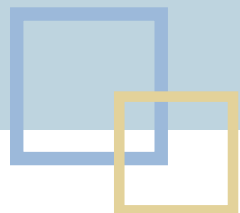
For further information or to contact Northstream, please call Mr. Tommy Ljunggren, Co-Founder, at + 46 8 56484800 or visit www.northstream.se.

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WEBRASKA MOBILE TECHNOLOGIES SA

Webraska Mobile Technologies SA SmartZone Applications have been selected by E-Plus to launch the first i-mode™ location-based services (LBS) in Europe. The LBS services will feature ten of the most popular SmartZone Applications for consumers, including the ability to search for restaurants, cinemas, ATMs, hotels and more.

Webraska has also been chosen by TelePointer to provide server-based software solutions supporting the launch of integrated end-to-end wireless navigation, fleet management and LBS to the corporate sector and automotive after-market. Other service provider agreements are in negotiation to facilitate the spread of Webraska's new and competitive IP-based automotive and corporate offering across Europe and the United States.



Empower Interactive Group, Ltd.

Empower Interactive Group, Ltd., the leading provider of dedicated application messaging infrastructure software solutions, has launched the Application Messaging Service Centre (AMSC) at CommunicAsia in June. The AMSC will answer the need of mobile operators for purpose-built technology to cope with the explosion in application messaging, from games and alerts to adverts and competitions.

The AMSC will provide mobile operators with a highly reliable and scalable solution that can carry in excess of 1000 application messages per second. The AMSC is complemented by Empower's recently launched VMR (Virtual Mobile Redirector) platform, which enables high-volume messaging between applications and subscribers across any mobile network for the first time.

The VMR allows operators to increase revenues dramatically by providing application messaging services to customers registered on other networks. When AMSC is combined with the VMR, Empower will enable operators to deliver high-performance application messaging to businesses and consumers across all networks.



WEBRASKA MOBILE TECHNOLOGIES SA

Webraska Mobile Technologies SA announced the launch of its new SmartZone Geospatial Platform 2.0. Major innovations in this release include: full support for in-car voice and GPS-enabled wireless navigation applications for on-board terminals and wireless PDAs; dynamic map generation incorporating real-time color overlays of traffic conditions and events; color map generation in MMS-compatible 4 bit gif format; full support for all SmartZone Applications for Web, WAP and SMS resulting from the merger with AirFlash Inc.; and a new WCF data format for compression and viewing of vector map data using Webraska's patent-pending advanced compression algorithm.

Webraska will be among the first companies in the world to deliver a fully standards-compliant platform in the second half of 2002.



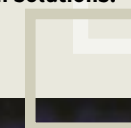
Norwood Systems Ltd.

Norwood Systems demonstrated the Plantronics Bluetooth™ headset integrated with its award-winning wireless office communication platform EnterpriseMobility™ at CEBIT 2002. Norwood showed how the headset can be used to create a wirefree and handsfree user experience through voice recognition capabilities. Norwood also illustrated how it can be integrated with a PDA using dialing functionality. EnterpriseMobility allows a Bluetooth-enabled headset, mobile phone or PDA to be linked wirelessly to the corporate voice and data network, enabling employees to remain in communication when moving freely about the organization. It also lets them update office applications, such as calendars, contact details or emails, without needing to be at their desks.

ProQuent Systems (formerly Avian Communications, Inc.)

ProQuent Systems announced a strategic relationship with Funk Software to bring subscriber intelligence to mobile data offerings by enabling wireless operators to offer enhanced service personalization and control. The two companies are combining forces to deliver targeted data services to wireless carriers with ProQuent Mobile Services Switching Point (MSSP™) and Funk Software's Steel-Belted Radius® suite of RADIUS/AAA solutions. ProQuent MSSP is the first in a new class of network elements that gives the wireless network operator the ability to collect information or trigger services based on the content and state of a mobile data user's IP session.

ProQuent Systems has also partnered with Speedwise Technologies Ltd. to help wireless service providers optimize their networks for the targeted delivery of mobile data services. Wireless service providers will benefit from enhanced management capabilities in an optimized multi-application environment through a combination of the unique intelligent networking architecture of ProQuent MSSP platform and Speedwise's market-leading optimization solutions.



Cambridge Positioning Systems Ltd.

Cambridge Positioning Systems Ltd. is already expanding the location software integration facility it opened just six months ago in Cambridge, UK, in order to meet the increasing needs of global handset manufacturers. The facility provides testing and integration services for the company's pioneering E-OTD (Enhanced Observed Time Difference) technology, accepted by US GSM operators as the standard location solution. E-OTD offers a key benefit to handset developers as it requires only a small software modification, while other solutions also necessitate costly hardware changes.



DIGITAL BRIDGES LTD.

Digital Bridges Ltd. announced a strategic partnership with Openwave Systems Inc. (Nasdaq: OPWV), the worldwide leader of open IP-based communication infrastructure software and applications. The alliance includes a strategic investment in Digital Bridges by Openwave and gives Digital Bridges priority access to emerging Openwave technology.

Digital Bridges also recently made the Hot List of Europe's 50 most innovative tech firms featured in the latest edition of *Time Digital*. The company was included in the prestigious list for building the technology and developing partnerships that are helping kick-start the global wireless entertainment industry.

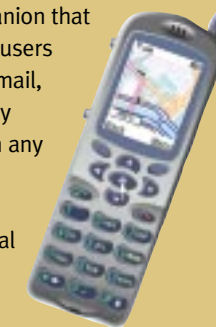
And Digital Bridges is also making its mark with games on the go, starting with alpha dog Scooby-Doo, who hits cell networks such as Alltel, AT&T, Sprint and VoiceStream in June. In addition to other Cartoon Network character-based phone games in the works, the company is also in the process of creating four Men in Black II games due later this summer. Digital Bridges has signed a deal with Columbia to create themed content based on the sequel for mobile phone users across Europe and Asia, including games, ring tones, icons and logos.

Cambridge Positioning Systems Ltd.

Cambridge Positioning Systems Ltd. has integrated its Cursor™ E-OTD location-based technology with Nortel Network's Mobile Location Center, providing both operators and subscribers with highly accurate E-911 capabilities.

SenseStream Limited

SenseStream Limited has introduced BENTO EX, a mobile companion that enables Microsoft Outlook users to access their corporate email, calendar, company directory and personal contacts from any mobile device. BENTO EX allows users to view, reply, and delete their email in real time without having to synchronize when they return to the office.

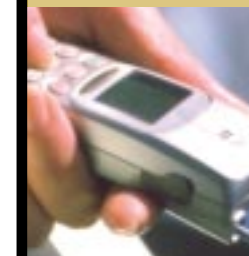


Iperia Inc.

Iperia Inc., the leading provider of Session Initiation Protocol (SIP)-based communications and messaging solutions for next-generation networks, has been selected by Denwa Communications to provide SIP-based visual voicemail service. Iperia's ActivEdge™ software has been integrated into Denwa's SIP-based telephony platform to enable a unique new voicemail service for subscribers.

Hyperchip Inc.

Hyperchip Inc. has been selected as one of the world's top 50 private companies by *Red Herring*, further evidence that Hyperchip's PBR-1280 core IP system is a disruptive technology poised to shape the future of the Internet.



LGC Wireless Inc.

LGC Wireless Inc. has named Ian Sugarbroad as its president and chief executive officer. Mr. Sugarbroad joined LGC

Wireless from InterWave Communications International, Ltd., a manufacturer of compact GSM microcellular equipment he helped take public. Before his role at InterWave, Mr. Sugarbroad spent more than 15 years building Nortel Network's Wireless Division.