

argoscorecard

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**Statistics from
3GSM World
Congress in
Cannes**

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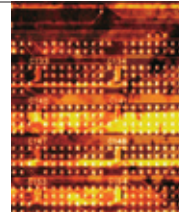
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Predicting the Future: Statistics from 3GSM World Congress in Cannes

- Cell phones have become the world's best-selling cameras and popular devices for accessing the Internet, playing music, recording and playing video, and organizing personal information. Wireless has evolved into the most important platform in consumer electronics and will be a primary focal point for innovation in coming years according to Rich Templeton, COO for Texas Instruments: "We're not far from the day when smartphones are projected to outsell laptop and desktop computers combined."

- Five million 3G users by the end of 2004, 40 million by year-end 2005 and 100 million in 2006. Overly optimistic? Not according to Rudi Lamprecht of Siemens. Comparing the rollout of GSM with that of 3G, Lamprecht pointed

out that the two million subscriber mark for 3G was passed in 2003, a benchmark which GSM took twice as long to achieve.

- There are now more than one billion human beings with GSM phones out of a total of 1.4 billion global mobile subscribers. 55 million new subscribers were added in China in 2003.

- Operator lethargy could be responsible for slow take-up of GPRS services, in particular roaming services, according to Bengt Nordstrom of Swedish wireless consultancy Northstream. "Only 2.5 per cent of GSM subscribers use GPRS-based services, compared to the 15 percent of CDMA subscribers who use 1x," said Mike Woolfrey, research director at EMC.

Portfolio Company Profile

Sylantro Systems Corporation provides the industry's leading telco-grade applications server platform, used by carriers for hosted PBX, IP Centrex, voice VPN and consumer VoIP applications. Successful deployment of Sylantro's solutions has resulted in the greatest market coverage in their product class.

Service providers are beginning to see revenues and market share erode due to increasing pressure from new competitors for their consumer base and from premise-based IP solutions for their business market. To compete against these threats, providers must offer compelling new applications. Sylantro's ready-to-deploy applications and standards-based, telco-grade platform give service providers the basis for a wide range of new offerings, creating revenue streams beyond simple access and transport.

Sylantro's rich suite of hosted applications and development tools allows service providers to quickly and efficiently roll out new differentiated services. These solutions enable service providers to offer high-value, high-margin services that can fully replace on-site phone systems, leverage data networks with new voice VPN services, or support primary-line VoIP and other consumer offerings.

Sylantro is managed by a team of telecom industry veterans, combining applications expertise with telephony and data communications experience. The company has built strong relationships with systems integrators and providers of complementary products and technologies, such as IBM and Siemens.



SYLANTRO®

Pete Bonee
President & CEO

Sylantro's customers include SBC, Level 3, TeliaSonera, GoBeam and BroadVox, among others. Investors are Argo Global Capital, Accel Partners, BCE Capital, Mayfield and Vanguard Venture Partners.

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UPDATE on Portfolio Companies



CEREBRUS SOLUTIONS LIMITED AND DIGITALROUTE

Cerebrus Solutions Limited, a leading provider of advanced fraud management solutions for the global telecommunications industry, and DigitalRoute, a leading provider of convergent mediation solutions, announced the fourth deployment of DigitalRoute's MediationZone™ together with Cerebrus Solutions' fraud management system. Under the brand name Cerebrus Interface Manager (CIM), Cerebrus Solutions includes MediationZone as the environment for building and maintaining all external data feed interfaces, as well as executing extensive pre-processing within CerebrusRE. By deploying DigitalRoute's MediationZone in this manner, Cerebrus Solutions significantly increases the value of their fraud management solution by delivering shorter implementation lead times, greater self-sufficiency and lower total cost of ownership (TCO) to service providers.

HOTSIP AB

Hotsip AB, a global leader in multimedia applications for SIP infrastructure, and wx3, a Swedish operator, announced that Hotsip's server and client products are deployed and commercially launched by wx3. Hotsip has provided its Hotsip® SIP Application Server, Hotsip® Presence Engine and Hotsip® Active Contracts PC to wx3. These SIP-based products, together with SNOM products, provide the basic infrastructure for wx3's telephony and multimedia service offerings.

CAMBRIDGE POSITIONING SYSTEMS, LTD.

Cambridge Positioning Systems, Ltd., a leading mobile location technology developer, and Andrew Corporation, a leading global supplier of communications systems equipment and wireless caller location systems, have established a strategic partnership to develop high-accuracy location solutions for the global GSM and 3G markets. Under the terms of the agreement, Andrew will license certain CPS caller location technologies, including CPS's Matrix technology, to create a new generation of caller location products. Andrew anticipates that the new products will offer significant performance and cost advantages for applications such as commercial location-based services and public safety.

ONMOBILE SYSTEMS, INC.

OnMobile Systems, Inc. provides true mobility by delivering a multi-modal platform and applications to telecom operators, enterprises, mobile virtual network operators (MVNOs) and application service providers (ASPs) worldwide. OnMobile recently crossed the five million wireless user mark in India with innovative multimodal value-added services. Leading Indian mobile operators including Orange-Hutchinson, Bharti (Singtel affiliate), Idea Cellular (an AT&T affiliate) and others are tapping into a new source for value-added services (VAS) revenues using OnMobile's multimodal solution. Multimodal technology integrates SMS, MMS, WAP and speech recognition to make consumer VAS applications easy to use, leading to fast adoption, rapid market penetration and high-margin operation revenues.

EMPOWER INTERACTIVE GROUP, LTD.

Empower Interactive Group, Ltd., a trusted supplier of mobile data services infrastructure products for mobile operators, has been selected as the Application Messaging Platform provider for SMART Communications Inc., the largest mobile operator in the Philippines and one of the world's leading users of SMS technology. Empower is delivering a high-capacity, carrier-grade Messaging Service Platform (MSP), which will enable SMART to rapidly add and manage hundreds of content providers using multiple protocols from a single system.

SYLANTRO SYSTEMS CORPORATION

Sylantro Systems Corporation announced that European service provider alwaysON has deployed its Virtual Telephony solution, a new service for business users that is based on Sylantro's telco-grade hosted communications applications and servers. In conjunction with the announcement, alwaysON also revealed the United Kingdom's largest rollout of IP Centrex services to date. In a contract exceeding \$7.5 million USD (£4 million GBP), alwaysON will provide its Virtual Telephony solution to Avanta Managed Services, a leading U.K. managed office provider.

Sylantro Systems Corporation and Polycom, Inc. announced that they have reached the next milestone in bringing advanced standards-based business phone features for SIP (Session Initiation Protocol) to the market. The initiative, led by Sylantro, Siemens, Polycom and others, will result in a wide range of IP endpoints with business-class capabilities, giving carriers and end-users alike new choices – with the assurance of interoperability now and in the future.

VOLUBILL SA

VoluBill SA, the leading provider of data services charging software for mobile operators, announced it has extended the capability of its Dialog Control and Charging Platform (D2CP) to encompass Push-to-Talk (PTT) technology in readiness for mobile operators' plans to roll out services in Europe and Asia in 2004. VoluBill is proud to introduce this capability in partnership with IndTeleSoft, a leading provider of mobile SIP solutions.



NARAD NETWORKS, INC.

Argo Global Capital has invested US\$7.4 million in Narad Networks, Inc., a provider of broadband access solutions that leverage MSOs' existing HFC assets.

www.naradnetworks.com

**new
investments**

WORLD WIDE PACKETS

Argo Global Capital has invested US\$5.7 million in World Wide Packets, a provider of Ethernet access networking solutions.

www.worldwidepackets.com

NewsFlash

DIGITALROUTE AB

DigitalRoute AB, the leading next-generation mediation software vendor, and Cap Gemini Telecom Media & Networks France, the global sector organization of Cap Gemini Ernst & Young that helps telecommunications, media and entertainment industries, were recently selected by Tunisiana, Tunisia's fastest growing mobile service provider, to deliver convergent mediation. The contract includes the licensing, implementation and support of DigitalRoute's MediationZone™ convergent mediation platform.

GENERAL WIRELESS

General Wireless, provider of two-way eSMS to Europe's leading operators, announced the availability of eSMS Executive for Lotus Notes and Outlook Express, in addition to MS-Outlook. eSMS Executive enables mobile operators worldwide to access the profitable and emerging eSMS market by providing a full service for sending, receiving, replying and forwarding SMS in all major email programs.

HOTSIP AB

Hotsip AB, a global leader in multimedia applications for SIP infrastructure, announced that Hotsip's server and client products are deployed and commercially launched by TeliaSonera as a residential IP-based telephony service. Subscribers to the service can make free phone calls to each other, while calls outside the service will be charged like an ordinary phone call. In addition to telephony, the end-user can benefit from services like video-call, presence information in a buddy-list, forking incoming calls to many devices and the possibility to send instant messages.

CAMBRIDGE POSITIONING SYSTEMS, LTD.

Cambridge Positioning Systems, Ltd. and ZTE Corporation, China's largest publicly quoted telecommunications equipment manufacturer, announced the signing of a major marketing and development agreement to deliver Matrix high accuracy location-enabled mobile handsets to the global GSM market. The agreement represents a world first in the integration of CPS's "user plane" Matrix software into a standardized GSM handset.

CEREBRUS SOLUTIONS LIMITED

Cerebrus Solutions Limited, a leading provider of fraud management solutions for the global telecoms industry, announced two new contracts (one in South America and one in Eastern Europe) and a number of imminent new orders.

DIGITAL BRIDGES, LIMITED

The dbi publishing division of Digital Bridges, a world leader in the creation and distribution of mobile entertainment solutions, announced an agreement with Universal Studios Consumer Products Group to publish mobile games in Europe and the United States based on the hit Universal Pictures film franchise "The Fast and the Furious".

KABIRA TECHNOLOGIES, INC.

Kabira Technologies, Inc., the leader in high-speed software and service platforms for telecommunications services, announced a partnership with Eigentek, a new company that is pioneering automated emotional involvement solutions for mobile operators. By combining their technologies, this partnership offers operators the first automated method to generate ongoing and persuasive dialogues over mobile devices that can achieve measurable changes in customer behavior at an affordable cost.

NUERA COMMUNICATIONS, INC.

Telkomsel, the market share leader in cellular telecommunications services in Indonesia, has deployed IP-based voice compression network infrastructure equipment from Nuera Communications, Inc. to help meet subscriber growth and reduce operating expenses. As the first cellular service provider in Indonesia to deploy IP-based voice compression technology in its network, Telkomsel uses Nuera ORCA® GX-8 voice over IP (VoIP) media gateways to interconnect the mobile switching centers (MSC) within the Telkomsel GSM network.

PROQUENT SYSTEMS CORPORATION

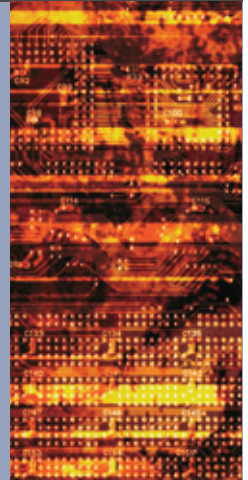
ProQuent Systems Corporation, a developer of wireless networking infrastructure, announced the appointment of Louis Piazza as Chief Executive Officer. Prior to joining the company, Mr. Piazza held the position of CEO at Gotham Networks.

WATCHMARK-COMNITEL

WatchMark-Comnitel, a leading provider of wireless service assurance solutions, announced the appointment of John J. Hansen as Chief Executive Officer. Prior to joining the company, Mr. Hansen served as Secretary of Technology for the State of Colorado and was the founder of Metapath Corporation, which was sold to Marconi PLC.

Push-to-Talk over Cellular: It will indeed work over GPRS!

PUSH-TO-TALK IS A "WALKIE-TALKIE-TYPE" SERVICE IMPLEMENTED OVER CELLULAR NETWORKS. US OPERATOR NEXTEL FIRST INTRODUCED THE SERVICE ON ITS IDEN NETWORK ALMOST TEN YEARS AGO. SINCE THEN, THE SERVICE HAS GROWN STEADILY IN POPULARITY, CREATING QUITE A BUZZ IN THE INDUSTRY. OTHER OPERATORS ARE NOW INTERESTED IN LAUNCHING PUSH-TO-TALK SERVICES. THIS ARTICLE POSITIONS THE SERVICE AND DISCUSSES WHETHER GPRS NETWORKS ARE SUITABLE FOR PUSH-TO-TALK.



Push-to-Talk terminals have a push-to-talk button that a user presses to start a conversation. A conversation can be a person-to-person conversation or different types of group conversations, and only one person at a time can talk while other participants listen. One obvious user segment targeted for Push-to-Talk is the "blue-collar" worker that today uses LMR/PMR radio to communicate. Other probable PoC users include segments such as friends, communities, families and corporations. Push-to-Talk is characterized by quick, short and spontaneous communication.

To some extent, it is similar to a telephony multi-party conference call, but there are also many differences. A Push-to-Talk call can be established for a very long time, and still users typically only pay for the resources consumed, e.g., the number of bits transferred carrying talk bursts or the time it took to transfer them. In a traditional circuit-switched call, the resources consumed would correspond to the total length of the call regardless of how much one talks, and typically lead to higher costs for the user. Push-to-Talk conversations can also be much more sporadic and informal, resembling a messaging service with a message sent every so often, and not necessarily requiring a reply from other participants in a call.

Even though one could speculate on the cannibalization aspects, both in terms of traditional voice and messaging services, we do not see Push-to-Talk as a real threat to any existing service, quite the opposite. As was the case when SMS was introduced in scale, Push-to-Talk is likely to have a traffic boosting effect on other services.

The characteristics of Push-to-Talk make it very suitable for packet networks, and it has the potential to help significantly fill up GPRS networks. It is also a forerunner to the peer-to-peer services over IP provided for by the "all-IP" IMS architecture. A prerequisite for mass market introduction of a service is, however, that open specifications exist. OMA is working on a set of specifications for PoC based on input from an industry consortium consisting of Ericsson, Motorola, Nokia and Siemens. Work on the OMA specifications will continue throughout 2004, though Northstream expects that PoC service will launch based on OMA specifications during the second part of 2004. PoC calls between users belonging to different operators and multi-vendor systems on the network side will appear later on.

Northstream sees clear advantages with Push-to-Talk solutions based on the evolving OMA specifications, which will enable interoperability between terminals and networks, interoperability between operators, native PoC client support in terminals, synergies in terminals and networks with other future IMS-based services, and the possibility of using performance boosters such as SIGCOMP for SIP signaling and Header Compression mechanisms for RTP frames carrying speech samples.

So how does PoC perform over different packet networks? According to Ericsson Research, the company's Instant Talk PoC system performs equally well over GPRS, WCDMA and CDMA2000 networks. One can conclude from this that the radio technology used is not the determining factor for a successful deployment. The key lies, however, in tuning the service from an end-to-end perspective. Deployment requires expertise in the whole service delivery chain, including service networks, core networks, radio networks, terminals and the PoC service itself.

Ericsson Research has also provided the following performance figures for its PoC-compliant Instant Talk system based on measurements in labs and live GPRS networks (based on Release 99 3GPP specifications). The figures are typical delays in the case when no established Push-to-Talk session exists:

- Push to tone (from button pushed to when the caller can start talking): 1-2 seconds.
After session initialization, the push-to-tone time improves to approximately 1 second.
- Media delay (from when the caller starts talking until the voice is heard by the recipient): approximately 1 second.

All in all, these figures are promising and indicate that GPRS networks can, if tuned correctly, indeed be used for Push-to-Talk implementations. Now, the end-to-end tuning, the commercial positioning and the handset plans are stories in their own right.

Bo Åström
Strategic Advisor, Northstream

¹PoC (or Push-to-talk over Cellular) is used as a term for systems and terminals based on the OMA standards.

Upcoming Events

Argo Global Capital Annual Meeting

April 28-29, 2004
Boston, MA
USA

Global Messaging 2004

May 11-12, 2004
London, UK

CommunicAsia 2004

June 15-18, 2004
Singapore, Asia

CTIA Wireless I.T. & Entertainment 2004

October 25-27, 2004
San Francisco, CA
USA



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