

# The Evolution of Wireless Gaming and Java

## WIRELESS GAMING DOWNLOAD SERVICES

WIRELESS GAMING SERVICES BASED ON MOBILE APPLICATION DOWNLOAD (E.G. JAVA) HAVE BEEN AVAILABLE SINCE 2001, WHEN THE FIRST OPERATORS TESTED MARKET ACCEPTANCE USING EARLY HANDSET MODELS. SINCE THEN, MOST MAJOR OPERATORS HAVE LAUNCHED WIRELESS GAMING SERVICES BASED ON APPLICATION DOWNLOAD.

To use such services, customers usually browse a games catalogue (either stored in the handset or available on the mobile portal) and choose a game for download. Once the game is stored on the handset, they can play it offline on the handset, or online to interact with others or play against a game server.

Experience from Japan shows that Java-based games are one of the few profitable content services. Companies such as G-mode have managed to achieve profitability very quickly with a price structure that acts as a low barrier to user download of the games. G-mode's games are available on all three networks in Japan and have increased traffic considerably.

## JAVA 2 MICRO EDITION : THE DE-FACTO STANDARD?

Java 2 Micro Edition (J2ME) is Sun's Java version designed for mobile networking devices. Such devices usually provide limited resources (power) and input/output methods (small keyboards and screens, poor sound quality). Virtually all major vendors offer handsets that support J2ME with its current MIDP 1.0 profile. MIDP version 2.0 was finalized recently, although the first compatible handsets are not expected before mid-2003.

Given J2ME's limited capabilities when it comes to supporting the device's input/output methods and networking functions, some handset manufacturers have defined their own proprietary API extensions, such as enabling address book access or SMS messaging. Although these extensions give application developers and end-users more possibilities for gaming download services, they also increase market fragmentation.

Java is intended to be a universal, platform-independent language and software environment. All J2ME-compatible handsets should be able to run all J2ME applications (termed "midlets") in a similar way and without interoperability problems. This approach ensures economies of scale for application developers and service providers, as every game could be offered in one version only to serve all Java handsets on the market.

The reality is, however, quite different. The variety of APIs available and, more fundamentally, the handsets' diverse features and capabilities, impede platform independence. With handset vendors and application developers vying to provide the best possible mobile games, the goal of a platform-independent, "crossover" standard for gaming download services appears to be an elusive one.

## THE ROAD AHEAD FOR COMPETING TECHNOLOGIES

Apart from J2ME, a number of technologies exist for mobile gaming download. They are developed and maintained by companies that need to promote their technology to handset vendors and operators in order to reach a critical mass of devices and commercial services.

Different than J2ME, these technologies are optimized for mobile gaming and are characterized by a high integration into the individual handset model. Although this means additional adaptation efforts, the result is a significantly improved gaming experience, with higher speed, better user interface integration and greater ease of use.

It is highly very unlikely that all of these players will survive. With the J2ME specification in the Java Community Process (JCP) gaining momentum and integrating more advanced multimedia and networking features, the business case for proprietary technologies will become increasingly challenging. Many will likely be forced to adhere to the de-facto industry standard : J2ME.

## FUTURE DEVELOPMENTS IN GAMING DOWNLOAD SERVICES

Gaming download services have not suffered from the "hype and backlash" experienced by other service enablers such as WAP or GPRS. In fact, operators have realized that, instead of looking for one "killer application", they need to define a well-structured service portfolio in which gaming download services play an important role for selected target groups.

At Northstream, we expect future gaming download services to develop in two directions. First, they will leverage the potential of the more advanced color screen handsets that have started to enter the European market since 2002. Color games with 3D graphics and polyphonic sounds have already been launched in Europe, although based on proprietary extensions (e.g. the "Vodafone live!" service).

Secondly, operators also need to ensure that Java generates network traffic. It must not become an "offline story". Customers browsing for games and downloading them to play offline will not generate sufficient revenues. Instead, operators need to develop services that enable online gaming, messaging and community features as well as application sharing, features that encourage traffic generating usage. This leads in the right direction — towards a clever integration of gaming service enablers. It will provide a compelling customer proposition that leaves the technology in the background and, from a user perspective, keeps the focus where it should be — on fun gaming.

By Arndt Mitwer, Strategic Advisor, Northstream

## 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.

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Volume 2, No. 2, December 2002



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## A LOOK AHEAD AT 2003

For many stakeholders in the wireless industry, 2002 was a very challenging year.

After 10 years of continuous growth, the market appears to have reached its first level of maturity, at least on the voice side. Elsewhere, people are finally discovering the various features delivered by digital technology. More and more people are switching their email to a mobile device. After making SMS part of their day-to-day life, many mobile customers have started using MMS to send pictures to friends and family, while a growing number of mobile workers are embracing mobile applications to improve their productivity. We are now getting ready for the next

big development phase in the mobile industry: enhanced mobile data.

Mobile data has become the source of the fastest growing revenues for wireless operators around the world. With the introduction of new devices and an explosion in mobile applications, we have good reason to believe that the whole industry is poised for a strong comeback in the coming months. Money will continue to be tight, but those who spend wisely will see the payoff in the marketplace. They say success only happens to those who are willing to take risks — calculated ones.

THE ARGO TEAM WISHES YOU MUCH SUCCESS IN 2003!

## Portfolio Company Profile



Richard Shearer  
CEO



## EMPOWER INTERACTIVE (EI) GROUP

EI is a leading provider of wireless messaging infrastructure software, focusing on application-driven messaging and providing connectivity for applications to wireless data infrastructure and dynamic message switching capabilities. Mobile messaging is proving to be a highly lucrative revenue stream for mobile operators, application developers and content providers. The European market is expected to double by 2006, with the majority of growth coming from application rather than peer-to-peer messaging.

EI's solutions offer operators significant incremental revenue streams and provide a vital stepping stone to 3G. They allow users to become accustomed to interacting with applications via their mobile device, while increasing demand for the types of services that are vital to 3G's success.

EI has completed over 55 deployments in 18 countries worldwide. For Orange, one of its key European customers, EI recently developed two major solutions. First, it powered an interactive football game for more than 30 million Orange customers throughout a number of European countries during the 2002 World Cup. Secondly, EI provided Orange with the ability to manage fast, reliable and high-volume SMS messaging

between applications and handsets across any mobile network, facilitating the provision of innovative new content and services through the deployment of its Virtual Mobile Director (VMR) on the Orange network. EI also inked a strategic global alliance with HP, which will make EI's leading-edge application messaging infrastructure available to telecom providers worldwide via HP's OpenCall Platform. OpenCall is utilized by some 70% of the world's telcos and is a de-facto market leader.

EI recently announced third-round funding led by Digital Networks, with additional investment from IDG Ventures Europe and existing investors Argo Global Capital LLC and Newtonmore Capital Limited. The investment will support the company's further expansion in Europe, Asia and the US, and accelerate current marketing and product development efforts with its strategic partners, which include HP, BT, Orange, Cap Gemini Ernst & Young, Morse and CSC.

For further information or to contact Empower Interactive, please call +44 207 920 9400 or visit [www.eigroup.com](http://www.eigroup.com).

## Upcoming Events

### GSM World Congress 2003

HOSPITALITY SUITE  
HALL #2, SUITE 01.29  
FEBRUARY 18-21, 2003  
CANNES, FRANCE

### Mobile Entertainment Business Design Centre

April 8-9, 2003  
Islington, London, UK

### Argo Global Capital Annual Meeting

April 23-24, 2003  
Montreal, Quebec,  
CANADA



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## ALICE SYSTEMS AB

Alice Systems has entered into a global distribution agreement with KPN Mobile, the No. 1 Dutch operator with a total of 13.4 million subscribers in the Netherlands, Germany and Belgium, following a thorough evaluation process involving several vendors. The agreement allows all KPN Mobile operators to use Alice System's GPRS software client Alice Connect. This tool simplifies the connecting of laptops and PDAs to the Internet over KPN Mobile's GPRS network.

Turkcell has also signed an agreement with Alice Systems for the distribution of Alice Connect. With this agreement, Turkcell's customers can easily connect to the Internet from their laptops and PDAs over Turkcell's GPRS network. Alice Connect will be branded as "ConnectCell" for Turkcell's customers.

## CAMBRIDGE POSITIONING SYSTEMS LTD.

Cambridge Positioning Systems Ltd. (CPS) announced a major new sub-license for its E-OTD (Enhanced Observed Time Difference) high-accuracy location technology from its network equipment vendor partner Ericsson. The two companies have collaborated on the development and deployment of the technology with CPS's Cursor™ E-OTD solution, now integrated into Ericsson's Mobile Positioning System. Six E-OTD trials are currently underway across the US as GSM wireless operators work towards meeting the FCC's E-911 mandate for wireless handset location accuracy.

CPS also announced a major step towards ensuring its E-OTD technology meets the FCC's E-911 accuracy requirements by October 2003. CPS filed details with the FCC on its new E-OTD test results, which show substantially improved location accuracy.

### LBS in Europe

Mobilaris, the Swedish developers of information service middleware and location-based services for 2, 2.5 and 3G networks, have entered into a co-operative marketing agreement with CPS to accelerate the rollout of high-accuracy location-based services throughout Europe. "By combining our middleware expertise with CPS's competence in positioning, we will be able to market the benefits of high precision positioning to network

operators. Together, we can show them a different breadth of mass market, feature-rich location applications that can be achieved using E-OTD positioning technology", says Mobilaris CEO Björn Westerholm. In Europe, operators will be legally required to make caller information available to authorities handling emergencies for all calls to the single European emergency number 112, or E-112, by mid-2003.

### Trials in Asia

CPS's plans to launch wireless high-accuracy location-based services in the rapidly expanding Asia Pacific GSM market have also taken a major step forward following successful initial trials in Singapore. The trial, the most extensive of its kind in the Asia Pacific region, is supported by the Singapore Government through the Infocomm Development Authority's (IDA) "Wired with Wireless" program.

The IDA seeks to develop and encourage new wireless technologies and applications in Singapore and the region via the Pilots & Trials Hotspots (PATH) scheme under the program. A key aim is to highlight how location technologies like E-OTD can deliver far higher accuracy than Cell-ID-based systems currently in use in the region, and support a broader range of applications.

## NORTHSTREAM

Northstream recently released a report entitled "3G Rollout Status" commissioned by The Swedish National Post and Telecom Agency. The report provides a descriptive and analytical overview of the status of 3G rollout in the European Union and Norway. It focuses on potential modifications of license distribution and conditions and the changing market outlook for 3G services in Europe.

Among its conclusions, the report states that European operators have yet to successfully stimulate the development of mobile Internet services and few such services are available. Contrary to expectations, service development has again become increasingly dependent on operators. In comparison, the report concludes that there are some grounds for optimism in Korea where more sophisticated handset features appear to be stimulating greater usage of mobile Internet services, resulting in higher revenues.

## NEW INVESTMENTS

### Mediabricks

Argnor Wireless Ventures announced its investment in the Swedish start-up Mediabricks AB. As Argo's VC arm in Scandinavia, Argnor focuses on Nordic companies developing wireless communication products and services. The investment in Mediabricks, which is a second closing of the investment initially made by Siemens Mobile Acceleration, provides a minority stake in the company. Serving the needs of mobile operators and service providers, Mediabricks offers a platform for a new class of infotainment services to Java-enabled and other open mobile devices.

[www.mediabricks.com](http://www.mediabricks.com)



## WEBRASKA MOBILE TECHNOLOGIES SA

Webraska, the worldwide provider of location-based services (LBS) and enabling platforms, announced that Orange, one of the world's largest mobile operators, has chosen Webraska's portfolio of LBS applications and SmartZone™ middleware platforms for the deployment of location-based services to Orange operating companies across Europe.

Orange will offer its customers access to a broad range of compelling, easy-to-use, multi-language location-based services over all major interfaces (WAP, SMS, MMS, web.) The services will allow Orange customers to find friends, their nearest restaurant and other points of interest, and access directions by foot and by car. Integrated messaging and access to shared folders enables customers to share this information with their community of friends and colleagues, stimulating "viral" adoption of the services.

Webraska was also selected by Vizzavi, a European mobile-focused, multi-access portal, to launch "Find and Seek" location-enabled WAP and two-way SMS services on Webraska's SmartZone™ LBS platform. "We expect the new 'Find And Seek' services to be a real hit with the 18-35 group," said Geraldine Wilson, Managing Director of Vodafone Content Services. "The location-based content isn't just comprehensive. It's also funny, irreverent, wacky and up to date, providing lifestyle-critical information such as the best places for 'pulling' late night drinking, 'watching the footie', or for a romantic dinner for two."

### GENERAL WIRELESS

General Wireless, one of Sweden's leading cellular providers, has enabled Germany's tops.net GmbH & Co. KG to offer its corporate clients an innovative service. Using a simple, free application, tops.net customers can send text messages to any mobile phone number inside or outside Germany. The service works independently of the client's cellular provider. Text messages sent by the client software to a server are re-routed to recipients around the world via an SMS broker.

### VOLUBILL

VoluBill, a content and transaction billing mediation supplier, has signed a reseller agreement with HP allowing HP to distribute VoluBill's D2CP content charging platform to the global mobile market. HP will provide integration services, first and second-line support to D2CP customers, and will also integrate the product with its advanced charging and billing solutions for mobile operators.

### DIGITAL BRIDGES

Digital Bridges has launched a mobile phone ringtones collection based on a unique selection of top UK singles from the past six decades, during which the Charts have been live. The ringtones are available in monophonic as well as polyphonic mode and can be purchased via retail and the web.

### NORWOOD SYSTEMS, LTD.

Norwood Systems, one of the winners of the European IST Awards 2003, showcased Enterprise-Mobility™ at the annual IST event. EnterpriseMobility is a Bluetooth-enabled voice and data communications platform. Norwood Systems demonstrated how to make and receive calls with a Bluetooth headset, and send or receive emails directly onto a wireless PDA. These wireless devices are connected to existing LAN and PBX infrastructure via a network of Bluetooth base stations.

### KABIRA TECHNOLOGIES INC.

Kabira Technologies Inc. has joined the Siebel Alliance Program as a Base Partner and has successfully validated its integration of Kabira Provisioning & Service Activation 2.0 and Siebel eCommunications 7. Kabira's provisioning framework allows customers to configure, modify, and extend business logic directly from high-level activity diagrams, which can be manipulated in standard third-party tools such as Rational ROSE. Siebel Systems provides organizations with a proven set of industry-specific best practices, CRM applications software, and business processes, enabling corporations to sell to, market to, and serve customers across multiple channels and lines of business.

### EMPOWER INTERACTIVE GROUP

Empower Interactive Group announced a co-marketing agreement with Nexse Software, an innovative software company based in Rome. Nexse specializes in the design and creation of secure mobile and Internet applications in the communications and technology markets, utilizing its extensive experience in both wireless and security technology.

### HOTSIP

Hotsip AB, the global leader in SIP (Session Initiation Protocol) and Presence products, announced that Bell Net, a leading Japanese systems integrator and SIP expert, has signed a software distribution agreement to deploy Hotsip's SIP and Presence applications in the Japanese market.

### WATCHMARK

WatchMark Corp., a global provider of service assurance software for current and future wireless networks, announced that Cingular Wireless, the second largest wireless carrier in the United States, has chosen WatchMark Prospect as its core performance management solution for its nationwide 2.5G network rollout. WatchMark Prospect will be used to ensure the highest possible standards of service and performance quality during and after migrating subscribers to new GSM/GPRS networks. Cingular will also use WatchMark Prospect Alarm - Premium Option to provide proactive alarming based on performance trends to detect service quality degradation before it affects customers.

### DIGITAL ROUTE AB

Digital Route AB and Sopra Group ("Sopra") are set to collaborate on the delivery of mediation solutions based on Digital Route's next generation convergent mediation product. Sopra's system integration practice will be combined with Digital Route's leading convergent mediation product MediationZone™ to enable service providers to address the challenge of launching new value-added data services while managing existing legacy services.

### EFTIA OSS SOLUTIONS INC.

Eftia, a leading provider of operational support system (OSS) solutions for wireless and wireline service providers, and CSC BRASIL, a leading software distributor in Brazil, announced a strategic reseller agreement to jointly serve the Brazilian communications market. Together, the companies will offer a fully integrated end-to-end OSS solution that improves service providers' efficiency while increasing revenues.

### PROQUENT SYSTEMS CORPORATION

ProQuent Systems, the company focused on enabling mobile carriers to generate increased revenues from mobile data services, and Digital Route announced a partnership to offer a joint solution for mobile carriers' most pressing need: the ability to move from flat-rate to usage and content-based billing models in a converged prepaid and post-paid environment. The partnership combines two best-of-breed products: ProQuent's MSSP™ for real-time control of IP data and Digital Route's MediaZone™ for real-time mediation of usage data.