

WIRELESS SCOTLAND: BETTER BY DESIGN

A warm welcome to this special 3GSM issue of MXtra.

This is the second year I've had the privilege of writing the introduction for the 3GSM issue of MXtra and I'm delighted to advise you that the mobile sector in Scotland continues to grow dramatically.

This year at 3GSM, we have forty of Scotland's best mobile companies participating – double the number we had at 3GSM 2006. This underlines and illustrates the tremendous strength and growth in the global industry and the industry in Scotland.

So what is the secret of the success of the mobile industry in Scotland and why is it that such a modest sized country is driving such world class innovation?

Historically, Scotland has always played a prominent role in the invention and development of new technologies, many of which we now take for granted. Our exceptional, highly regarded education system, which produces some of the most able technology graduates in a broad range of disciplines related to the mobile industry, is a major factor. The quality of advanced research is recognised by the award of highest rating (5 and 5 star awards) to 4 Scottish universities in the fields of computer science, physics, electrical and electronic engineering.

Furthermore, two out of the four universities involved in the Mobile Virtual Centre of Excellence are in Scotland. This expertise has led to a growing number of the mobile industry giants commissioning additional research with Scotland's universities. And we are now attracting a substantial number of leading academic



conferences – in 2006 Scotland hosted the W3C conference and this year we will host the ICC conference in Glasgow in June.

Another important contributor to this recent growth is our long legacy of producing outstanding talent in the creative industries. With the explosion of digital content, Scotland has successfully built a vibrant digital media sector which is now exploiting the growing market for innovative and compelling mobile content.

Finally, over the past four years Scotland has invested heavily in this sector. Public sector projects such as Wireless Innovation, Pocket Shorts and industry organisations such as MX Alliance to name just a few,

have helped to create and support a strong and dynamic cluster of companies. There is little doubt that this strategy of focussing on the mobile sector is now paying dividends.

I hope that you find time during your busy schedule at 3GSM to stop by the Scottish pavilion (Hall 2 / Level 1 / D40), to meet with our companies and to hear more about what Scotland has to offer.

Denis Taylor is Director of Trade & Investment at Scottish Development International, which is jointly operated by the Scottish Executive and its economic development agency, Scottish Enterprise.

www.scotlandat3gsm.com

Scotland at 3GSM
Barcelona 12-15 Feb 2007

CNTOUWDN NO YOUR MOLIBE

Countdown, the hugely popular and long running TV programme, which challenges contestants to create words and solve mathematical problems, is making its exclusive debut on mobile phones, following a deal between Dynamo Games, and Granada Ventures, licensor of Countdown.

The new Countdown mobile game recreates all of the challenges and puzzles of its famous TV counterpart. Players must make the longest possible words from collections of vowels and consonants, as well as create specific sums from strings of random numbers.

Players must complete these challenges against the famous Countdown clock, which gives them only 30 seconds to marshal their mental skills and create the most protracted, lengthy or polysyllabic words they can possibly engender.

Dynamo Games has launched a micro site where viewers, contestants, gamers and mobile owners can find out more about the game, the phones it will work on and download the game directly to their mobile. In addition there is a selection of Countdown wallpapers, ringtones –

including the Countdown clock – and themes which can be used to spruce up, alter, change, beautify and bedeck mobile phones.

“Countdown is far more than a game show,” said Brian McNicoll, the managing director of Dynamo Games. “It’s an institution, which is loved by millions of people of all ages and from all walks of life. The show’s combination of word and mathematical puzzles allows everyone no matter their ability to take part and makes it the perfect programme to bring to mobile phones.”

Countdown has been on the air since 1982, when it became the first programme ever shown on the new Channel 4. Since then the famous Countdown clock music has been played over 27,000 times. In 2003, the show was voted Channel 4’s best show ever, by a poll in the Radio Times and in 2004, the House of Commons, held a reception to honour Countdown’s contribution to literacy and numeracy in the United Kingdom.

“Puzzle and quiz games are one of the most popular types of game on mobile handsets,” said McNicoll. “Titles offering

Sudoku word puzzles and brain training puzzles have proven very popular with phone owners all around the world. With Countdown’s simple, accessible gameplay, combination of word and number challenges and the show’s fantastic reputation and credibility, we’re looking forward to bringing it to mobile users throughout the UK and Ireland.”

Gerry Donohoe, the managing director of Granada Ventures, said, “Countdown has been running for almost twenty five years and is one of the UK’s most popular and widely loved quiz programmes. Bringing the show’s combination of word and number puzzles to mobile phones will allow existing viewers and fans to enjoy it in an entirely new way, as well as allowing new players to discover and enjoy the Countdown experience. Dynamo has succeeded in capturing the simplicity and appeal of the show in the new mobile game bringing the Countdown experience to a whole new generation.”

The Countdown mobile game will be launched in early 2007. The game will support all of the most popular handsets from the major mobile phone manufacturers.

Countdown mobile will also be made available through all of the major UK mobile phone networks, as well as all leading mobile entertainment portals.

Dynamo Games also picked up an award for the best mobile game at the 4th annual TIGA Awards which took place in London in December. Championship Manager 2006 made it two in a row for Dynamo, after picking up the same award in 2005.

Brian McNicoll of Dynamo Games said “Winning the TIGA best mobile game award for Championship Manager for the second successive year has been a truly satisfying accolade for the Dynamo team and we hope to be challenging for this honour for years to come.”

www.dynamogames.com/countdown





MED STRIKES ASIAN DEAL

The maker of the world's smallest display screen, MicroEmissive Displays, has announced its first major sales deal. The £2 million deal is to supply an unnamed Asian consumer products manufacturer, and will be the first to ship from the company's new manufacturing facility.

MicroEmissive Displays' eyescreen products are the world's only polymer organic lightemitting diode (P-OLED) microdisplays. The full colour eyescreen combines superb TV quality moving video images that are free from flicker, with ultra-low power consumption, enabling greatly extended battery life for the consumer. This enhancement in battery usage time made

possible by the eyescreen will play a vital role in the widespread adoption of portable head-sets for personal TV and video viewing in the consumer marketplace.

The design of the eyescreen, with its integrated driver ICs and its digital interface, offers product design engineers a fast, robust design- in solution for smaller, lighter-weight, stylish products of the future, all for a size comparable with the pupil of the human eye.

The microdisplay can be combined with magnifying optics to produce a large virtual image that appears to the eye to be equivalent in dimensions to the picture on a TV screen or computer display.

"This order is proof of MED's assertions that the image quality and battery saving, coupled with the small size and weight allowed by integration of backlight and driver electronics, all make the eyescreen the ideal component for portable consumer products," said Bill Miller, CEO, MicroEmissive Displays.

The company says that they have already received a large number of enquiries about the eyescreen from a wide range of manufacturers, including companies operating in the digital camera, medical and defence industries.

www.microemissive.com

CONVERGED MOBILITY SECURITY

“Convergence” and “Mobility” have become the new buzz words with the promise of very low cost / free (e.g. Skype) calls made over WiFi (WiMAX) and easier access to applications whilst on the move – all the while being delivered seamlessly as the user roams between Fixed and Cellular networks providing connection to the lowest cost or the best quality according to customer demand. A mobility device can take the form of a multi-bearer PDA, Smartphone, or even a Feature-phone. Even now the differences between these devices are starting to blur and they appear to be morphing towards a limited hybrid range which offers multi-bearer (cellular and non-cellular) voice and data mobility in combination with standard PC applications.

There is no doubt that the momentum in Converged Mobility is gathering pace. New disruptive technologies are emerging and both wireless and wireline carriers are setting out their strategies to retain and capture market share. Convergence at first sight appears to offer Wireline carriers the opportunity to hit back at Wireless operators and competition between the two for market share will be fierce.

Whilst Convergence offers benefits for the Consumer such as IPTV and Video on Demand, the early market opportunity lies in Converged Mobility for the Enterprise and Government business sectors. The key drivers for these sectors being reduced voice and data costs; increased work efficiency; access to a greatly increased number of applications and guaranteed information and identity security. With mobile workers expected to reach some 40% of the total workforce globally by 2009, it is critical that these business sectors manage/create sound mobility strategies.

However, despite the business benefits there are still a number of issues to be addressed before Government and Enterprise can reap these benefits from any

Converged Mobility strategy. Security is widely acknowledged as the number one concern in terms of deployment within a mobile workforce, amid concerns of IP theft and breach of sensitive data.

Current mobile device security is limited and primarily provided via the Mobile Network Operator SIM. Mobile security therefore is owned and controlled by the Mobile Network Operator, but that is beginning to change. Security modules (embedded or plug-in) offer an agnostic mechanism to achieve the same level of mobile security, but with the capacity to add significantly more value than is possible using a SIM card. Some alternatives to the SIM today use software-only mechanisms which are relatively insecure.

Step forward Helixion, an Edinburgh based mobility security company who have developed a modular security solution that provides a real, plug-in alternative to that of the SIM. Not only does it address the mobility security concerns of Enterprise and Government sectors but it offers substantial additional benefits over other solutions.

For the last 2 years, Helixion has been developing a software security platform utilising the combined security and storage attributes of the Secure Memory Card – a new version of memory card that incorporates smart card technology – to develop next generation end-to-end mobility security for next generation Internet Protocol (IP) Network Telecoms Infrastructure (e.g. IMS networks).

This software platform named TARESS™ is a powerful, plug-in software platform which is embedded in this new Secure Memory Card (SMC). It addresses all the critical security attributes of identity management, multi-level authentication, end-to-end security, voice call management (VOIP/GSM access control rights, number control etc.), application management (loading/storing, access rights, bearer access etc.) and critical secure storage of all



mobility data. The complete capability is enabled very securely in the device, but entirely configurable and manageable from a remote server.

This patented TARESS solution allows telecom, integrator and system vendor ICT



SIM cards provide the security for today's devices but could TARESS change this?

mobility businesses to enhance their mobility security offerings to the Enterprise and Government sectors by integrating a powerful, 'plug-in' Identity, Access and Authentication context into the mobility device. Central to the value proposition for

those businesses is that the whole TARESS capability is implemented completely independently of the SIM i.e. it is agnostic mobility security.

Steve Harkins, Helixion's Technical Manager explains how TARESS works, "When the Secure Memory Card (SMC) loaded with TARESS is plugged into the memory card slot of a mobile device it uses the processors of both the SMC and the mobile device to create a powerful security context in the mobility device and all its wireless communications on behalf of the SMC device owner."

"It provides multiple levels of security; User access, Network Authentication, bearer management and comprehensive Application protection – totally independent to the Network Operator's SIM card. This can be extended to provide a complete end-to-end security capability when combined with the TARESSplus server module and together they provide an integrated solution which can be easily interfaced to any remote host system"

TARESS is initially aimed at Telecom and non-Telecom players positioning themselves as ICT Mobility Solution players associated with converged networks, who can integrate the Helixion proposition into a broader set of solution business models for the Enterprise & Government sectors.

To these businesses, Helixion's product offers real value-add to the solutions they can offer their clients by providing;

- ownership and control of the SMC in the mobility device (separate to the SIM owned by the Mobile Network Operator)
- in-device management, in terms of the selection and access to multiple network bearer services and applications
- the mechanism, as they own the SMC, to deliver tailored premium applications and solutions directly and in a highly secure and controlled manner in response to customer/market demand and for the Government/Enterprise end-user the

TARESS solution can help contribute to their growth and profit margins by providing;

- Security at the level required without loss of usability
- Reduced costs due to tighter management of network access
- Secure access and management of standard mobility applications
- Access to very high security applications in terms of use and data storage
- Accountability/audit trail due to the secure storage of information/data/-transactions on the SMC device

"The way that I like to describe TARESS is that it is an 'agnostic' security solution, in that for the first time it enables ownership of a true end-to-end mobile security capability by non-MNO businesses" comments Neil Stewart, CEO. "Our solution acts like a Mobile Network Operator (MNO) SIM Card at its most basic level, but is far more powerful and flexible. It is this ability to combine high security capability with secure, mass storage and secure software agents that is key to the overall value proposition we offer".

"In addition, this solution is particularly effective as part of a Federated Identity framework (a framework for sharing identity with multiple parties with multiple privileges) such as Liberty Alliance, WS-Federation, Athens, OpenID and others. All of these require security of identity as part of a circle of trust which extends beyond the boundaries of one organization. In mobility terms TARESS enabled SMC's can, for the first time, enable mobility devices to be an accepted part of those 'circle of trust' framework implementations"

TARESS has been developed over the last 2 years with the support of a Scottish Executive SMART grant followed by a SPUR grant and Scottish Enterprise BGF f

www.helixion.com



CHERRY MOBILE REDUCES ROAMING COSTS

Cherry Mobile, operated by the same team behind mobile network operator Stream Communications, has launched a new mobile network service for travellers that works in over 100 countries.

The new international mobile network service provides exceptional value for money, and is simple to use. The service is available in the majority of countries worldwide and provides exceptionally low costs for customers to make and receive international calls – customers can receive calls when abroad in over 60 countries at no cost. The service is available as Prepay (Pay As You Go) and Contract.

“Cherry is all about making it cheaper to stay in touch and using the CherryMobile SIM abroad substantially reduces the cost of making calls to other countries compared against using your local country SIM,” said Nigel Chadwick managing director at Cherry Mobile. “What’s more, when it comes to receiving calls from overseas which is probably the biggest gripe of most mobile users, it’s free to receive calls in over 60 countries.”

Customers can choose either to swap their local country SIM for the Cherry Mobile SIM while abroad – or to take a second mobile phone used solely with their Cherry Mobile SIM. In both cases, a voicemail message on the local country SIM redirects callers as required.

Customers can access their account information online – and conference calling between Cherry Mobile customers brings even more savings. The company is now adding new services that will not only not reduce some of the stress travelling brings, but will make visiting new, and familiar destinations, even more enjoyable. From a secure, always accessible online log-in area where customers can safely store essential information like their itinerary, a travel-style monthly newsletter, to a concierge service that’s available whenever the customer needs it.




Cherry Mobile is operated by a team of highly skilled individuals, led by Nigel Chadwick and Kevin McDowall. The company’s recent attendance at Gitex in Dubai confirmed that there is a demand for technical and advisory services for new and start up mobile ventures.

Emerging markets across the world are currently experiencing shortages of highly

knowledgeable personnel in the mobile network sector. The individuals behind Cherry have a remarkable level of mobile network operations and marketing knowledge – including billing systems, innovative tariff and revenue modelling, GPRS and GSM technical specifications, web servers, marketing and promotion and branding. As a result, Cherry Mobile now

WIRELESS SCOTLAND ON THE UP



*Cherry Mobile lets
you cut the cost of
international
roaming calls*

The wireless industry in Scotland is on the up with 40 Scottish wireless and mobile specialist companies taking part in this year's 3GSM conference – double the number involved in 2006.

Many of the companies participating in 3GSM have been supported by Wireless Innovation, Scotland's national initiative for wireless and mobile technology. Wireless Innovation's key objective is to support, advise and accelerate the growth of companies in this new and evolving marketplace.

In the lead up to 3GSM, Wireless Innovation has been working directly with a number of Scottish companies to help them realise their potential at 3GSM and how best to showcase their technology. Wireless Innovation has also been identifying the key players attending the show to arrange meetings for companies.

In addition, Wireless Innovation is representing a number of Scottish companies who are unable to attend the event. These include Traceall, Miser Service and Forms 4 PDA.

"The key aim for companies at 3GSM is to meet existing and potential clients and customers as well as to track market trends in a sector which continues to grow rapidly," explained David Reilly of Wireless Innovation.

"There are a great number of developments in the industry, and new products and applications are beginning to reach the market which will have far-reaching opportunities for Scottish companies. 3GSM give us a perfect opportunity to view these and get a better understanding of what will impact Scottish developers in 2007,"

In addition to the companies involved in 3GSM, Wireless Innovation plays a key role in providing business development, market intelligence and product development support to over 130 companies developing wireless and mobile products and services across Scotland.

To date, Wireless Innovation has worked with a range of companies at different stages in their lifecycle – from university spin outs at the embryonic phase through to larger Scottish companies at the growth phase who are already selling their products or services globally.

For example, Wireless Innovation has helped Keypoint Technologies develop their product roadmap for their AdapTex software. The company has grown from a 2 person operation when they first moved into the Hillington Park Innovation Centre to a 46 person company.

Working closely with Traceall, leaders in the traceability market, Wireless Innovation has helped scope the market for location based tracking and is working closely with the company to ensure their product works across all areas of this market.

Wireless Innovation carried out a significant amount of market research into key markets for Trisent, a company offering location based tracking technology to identify key markets for their licence deal and have helped identify the recent 7 figure deal with Max Telecom, a Bulgarian MVNO.

One of the key areas where Wireless Innovation adds value to Scottish SMEs is through introductions to partner organisations including BT, Siemens, Nokia, Oracle, Microsoft, Symbol Technologies, Orange, Cisco and T-Mobile. These client introductions enable SMEs to get in front of the 'big guys', something they would not be able to do on their own. Wireless Innovation has also formed a relationship with Orange to base Scotland's Orange developer centre at the Hillington Park Innovation Centre and Nokia are very supportive providing handsets from the latest Nokia N Series for testing.

www.innovationcentre.org/wireless

plans to provide consultancy services to other mobile networks globally.

www.mycherrymobile.com



MOBILE MARKETING GETS A BOOST WITH SNAP2WIN

Mobile Acuity has announced the launch of their Snap2Win™ mobile marketing platform which allows brands and marketing agencies to extend the interactivity of mobile marketing campaigns beyond simple text-to-win

The Snap2Win platform allows the rapid creation and deployment of mobile marketing campaigns and lets customers respond to a campaign by sending a mobile picture message or making a mobile video call to enter a competition or to receive product information.

For example, a cinema could run a poster based campaign that lets customers enter a competition to win a free ticket to the latest blockbuster movie by simply snapping a poster on their mobile phone and sending it as a picture message. The Snap2Win platform uses a revolutionary image recognition technique that allows rapid image identification and matching of images. In practice, this means that the poster image for the cinema ticket competition can be identified no matter the angle or direction the picture is shot at.

Snap2Win is a significant evolution of the more traditional text-to-win campaigns which are currently available. In a text-to-

win campaign a mobile user sends a keyword, phrase or code in an SMS message to enter a prize game or competition but with Snap2Win an entry is made by sending a picture message.

With the Snap2Win platform a mobile user's picture message is matched to an image database and if a match is found a pre-defined response is sent back to the handset.

The service is currently being evaluated by a number of mobile marketing and digital media agencies who are looking for new ways to engage consumers with the brands and products that they work with. The first Snap2Win campaigns are expected to go live later this year

Managing Director Anthony Ashbrook said, "Snap2Win mobile marketing campaigns provide a new and exciting way to engage with potential customers through picture and video messaging. The agencies we are working with have been extremely creative with our technology and have already produced a rich variety of campaigns."

"Traditional text-to-win marketing campaigns based on answering multiple choice questions or voting can now be

made more interactive with pictures which we believe will accelerate the widespread adoption of mobile marketing."

The availability of cross network MMS short codes in the UK has been an important development in ensuring that Snap2Win campaigns are significantly more accessible. A unique feature of Snap2Win is that many different campaigns can be run on the same MMS short code since the content of the picture message can be used to determine which campaign it should be routed to.

Shared SMS short codes based on keywords are now common place but Mobile Acuity is the first company to introduce the idea of a shared MMS short code based on "key graphics".

Mobile Acuity is a world leader in mobile image recognition supplying specialist imaging services and products into the mobile sector. The company was formed in January 2006 and quickly acquired an exclusive license agreement with the University of Edinburgh for a mobile image recognition technology. The company has also secured significant initial funding from a London based strategic investor.

www.mobileacuity.com

Snap2Win should enhance the interactivity of mobile marketing campaigns

Photograph by Peter Tuffy, University of Edinburgh



CLAYMORE GAMES ANNOUNCES FIRST GAME

Claymore Games, an independent mobile phone development company, has announced the launch of its first in-house developed mobile game Super Solitaire. The game is a new version of the classic board game Solitaire and Claymore Games has reproduced the original board game but redesigned for the mobile phone.

Features include an arcade mode, which requires players to remove a certain number of balls before they can move onto the next board; a scoring system which includes a multiplier bar – which fills up with each jump, but decreases with time; and two unique puzzle modes, one which requires players to remove all but one ball and the other which requires them to fill or empty a particular set of indents.

Super Solitaire is available now and the company is already seeking partners for distribution.

The company has also recently completed work with Dynamo Games to create the popular TV gameshow Countdown for mobile phones.

Brian Hackett, co-owner and Technical Director of Claymore Games says, "Working with Dynamo Games, coupled with the major license deal of Countdown, was thoroughly enjoyable. The whole development process went incredibly smoothly and we owe Dynamo a great deal of thanks for giving us this opportunity to show what we can do. We look forward to working with them again in the future".

Claymore Games has developed a Java Middleware solution, called Primordial Soup that eases the development of any title, including the often expensive porting process. Primordial Soup can significantly reduce the development time of a title by providing a stable code base and build system for quickly producing core builds for each of the various popular handsets.

Claymore Games was originally founded as Dinky Dino Games (DDG) in 2004 by Brian Hackett. The company name changed



*Super Solitaire is the first
title from Claymore Games*

in 2005 to reflect the expansion into other areas of game development, including design, testing and middleware. The company has already sold mobile games all over the world (including Europe, America,

South Africa and China) and has built up excellent relationships with companies all over the UK and the rest of the world.

www.claymoregames.co.uk

ARE MOBILE GAMES DRIVING CONVERGED DEVICES?

A few short years ago many may have thought that the next big thing in the video games industry was going to cost a small fortune, take up half the living room and require a master's degree in astrophysics to set up. So it has been a great surprise for many onlookers to find that they probably already own the most widely distributed video gaming platform on the planet, it fits comfortably in their pocket and it's so easy to set up their grandmother is already using one. After a few false starts and some pioneering failures gaming on your mobile phone is here and it's taking video gaming to the mass market!

The notion that all video game players are either spotty teenage boys or friendless geeks is being slowly eradicated by mobile gaming. In fact the latest research would indicate that in many territories more women are playing mobile games than men. Surprised? Don't be!

There are a number of key elements that make gaming on a mobile phone a unique and attractive proposition, especially to those that wouldn't usually consider themselves 'gamers'. Choosing and using content on your mobile is incredibly convenient. Every time you are sat waiting for a bus or are on an incredibly long train journey an engaging mobile game is perfect for filling that dead time and providing a short entertainment snack. Mobile games are relatively cheap, certainly most exist within that impulse purchase or pocket money price range and whether you pay by adding the cost of the game to your phone bill or by premium rate SMS it's an easy and secure transaction. In addition the majority of players will already be familiar with the operation of their phone so there is no struggle to learn new technology or navigate complex instructions.

Almost everyone carries their phone with them everywhere they go meaning that for the mass market the phone is already the convergent device of choice. No longer

must one fill those pockets with every gadget and device known to man, or woman if you want to play games on the go. In addition to their capability to play high quality video games many phones now have quality digital cameras built in, the ability to play and store MP3's for the playback of favourite music tracks, software to allow you to read and send emails and the ability to stream and download movies, watch TV and much, much more. The mobile phone has become a truly portable computing and entertainment centre!

There can be very few people left on the planet who haven't played Snake at some point in the last five years. Nokia's simple embedded game has been phenomenally successful but compared to the latest console or PC titles it clearly highlighted the limitations of early mobile phones as gaming devices. Tiny monochrome screens, no audio effects or music, slow processor speed and poor memory capacity were just some of the limitations that game developers faced. In recent years mobile technology has moved at an incredible pace and the current generation of phones offer the ability to play far more complex and visually impressive games than ever before.

Today mobile games offer a level of visual and audio richness that can compete closely with the fun and excitement of their home console and PC counterparts. It is however the fundamental nature of the mobile phone as a communication device that makes it such an exciting platform for playing games. Unlike home consoles mobile phones are designed primarily with connectivity in mind. Voice calls and SMS messaging bring people together and allow them to communicate and many see this as the future of mobile gaming.

Mobile games already make use of this connected element allowing players to post high-scores at a global level, chat to other players and compete against them. Interesting developments also include



location based gaming which blurs the line between the game environment and reality, motion sensing where the movement of the phone itself controls the game, viral game-play in which gaming becomes more of a social activity than a single player task and finally user customisation, an example of which is allowing the player to take a photograph of their environment and incorporate that within the game.

A quick browse of the operator game decks show there are mobile games available to appeal to every taste and demographic. If you want to take in a



*Will we see more games
being played on
converged devices?*

round of golf with Tiger Woods, enjoy favourite PC games such as The Sims, or manage your favourite team to cup glory in Championship Manager then there are versions of most major game franchises ready to be downloaded to a mobile near you. Games based on movie and TV brands also feature heavily and titles as varied as The Fast and the Furious, The OC, King Kong, Miami Vice and 24 have provided great source material for high quality mobile games. If something slightly more cerebral appeals then classic puzzle titles such as Tetris, Jewel Quest and Denki

Blocks! will no doubt be more appealing. In amongst these licensed and branded games there exist a healthy and steadily growing number of original and innovative games which are exclusively available on mobile. These titles push the technology to the limit and provide simple, fun games that best fit the medium. This is the approach we are taking at Tag Games where each game is designed and built with the game player at the forefront of our thinking. We then we use online testing with thousands of participants to ensure our games have the widest appeal

and reach the highest standards of game-play quality.

The resources and timescale required to develop a mobile game are a very small fraction of that needed to create a traditional console title, therefore the mobile platform should be the great test bed for the development of new game ideas and concepts. However if mobile really is the ideal platform for video game innovation then it is surprising that very few new intellectual properties which have been developed for mobile in the first instance have been exploited on other platforms. We will see a great deal more of this taking place in the years to come as mobile game developers look to further the revenue potential of their successful IP's on other platforms and media.

When the long term benefits of original IP creation are assessed one would assume that every mobile developer and publisher would be jumping in with both feet and spending a significant proportion of their product development budget on original content, however this unfortunately isn't the case. Risk aversion is rife in an industry where risk is an inherent part of the fabric of the industry. We have chosen a different route at Tag Games and we recognise that if you are going to produce anything remarkable then risk must be identified and embraced! Our experience shows that innovating can be a hard and lonely path at times, but it's also a lot of fun being a part of creating something new. The potential rewards of a hit game based on your own IP are massive and can provide a developer with an ideal platform to fund further original game creation at a reduced risk. Innovation and originality aren't for every studio and publisher but for those who grapple with this difficult beast and tame it the potential is huge.

Paul Farley is Managing Director of Tag Games

www.tag-games.com

IS IT TIME TO UNBUNDLE SMS?

Mobile Network Operators (MNOs) might not like the idea, but as the industry transitions to 3G – and as regulators continue to scrutinize competition in mobile markets – the idea of unbundling short message services (SMS) so that subscribers can opt to route their SMS

traffic away from their network operator and via an alternative provider, becomes compelling.

A mobile subscriber may be satisfied with the voice and data services they receive from their existing mobile network, but may wish to take advantage of cheaper SMS services from an alternative provider. Should the market be regulated to allow it?

Certainly such an idea is attractive for the growing band of Mobile Virtual Network Operators (MVNOs), mobile service resellers and independent message aggregators. Being able to run their own services (or contract out to a provider of choice) would enable these players greater control over pricing and allow them to introduce services and service bundles that are not viable under current arrangements. Large corporates too might benefit by running and controlling their own SMS services and making large savings.

Even the MNOs themselves might benefit in the longer run. While unbundling SMS will doubtless cause revenue losses as users churn off to take advantage of the lower prices available from competitive SMS operators, those new operators just might extend the life of the format by entrenching SMS into new mobile applications.

One thing is clear: unbundling SMS would be comparatively easy.

In a mobile-to-mobile exchange of SMSs, the sending subscriber's mobile network operator conveys the SMS from the subscriber's phone to a Short Message Service Centre (SMSC). In regulatory terms this is the Mobile Origination (MO) stage and is followed by a Mobile Terminated (MT) SMS stage where the message is delivered to the destination phone on the same or another mobile network.

The SMSC used by a subscriber's mobile telephone is determined by the SMSC address programmed into the subscriber's Subscriber Identity Mobile (SIM). This is usually preset by the subscriber's mobile

network operator to point at one of its own SMSCs, but it can easily be addressed to any other SMSC provided the system is sited on an interconnected network and is 'permitted' by the target SMSC.

Billing is also straightforward. MNOs typically bill their subscribers for sending an SMS, regardless of the delivery outcome of that message. The billing record is generated by the Mobile Switching Centre (MSC) as the Mobile Originated SMS travels across the network to the SMSC and a billing event occurs regardless of which SMSC the SMS goes to.

However, the mobile operator can obviously be selective and bill SMSs differently according to which SMSC is used – an SMS sent to the SMSC of another network, for instance, might generate a wholesale SMS billing record to be billed to that SMSC's MNO instead of a retail billing record charged to the subscriber.

Currently mobile network operators tend to prevent their own SMSCs from being used by the subscribers of other mobile networks since they wouldn't receive revenue for providing the service and they claim that such restrictions effectively prevent billing fraud. However, some mobile networks do allow MO SMS to be received by their SMSCs from mobile subscribers of other networks - in reality, since billing is performed by the operator's MSC, all SMSs are billed by the mobile network of the mobile subscriber.

Despite this some mobile networks have been using the fraud argument to implement barring. For instance, after 11 years of allowing its customers to use third party SMSCs, last Summer Vodafone UK implemented a bar on the practice: a move perhaps not unconnected with the announcement by a UK SMS aggregator of its intention to compete in the "Mobile-to-Mobile SMS" market.

So unbundling is feasible – but is it



He's hoping that SMS is unbundled some time soon

desirable and is there a chance that it may eventually be implemented?

Unbundling and other pro-competitive measures, such as carrier pre-selection and local loop unbundling, are regulatory options to create competition where it's lacking and have so far been used to free up wireline monopolies.

Mobile telephony is clearly a different case – in most advanced markets there are multiple network operators and an increasing number of 'virtual' network operators to create diversity and price competition. So given that the market is ostensibly highly competitive do users need pro-competitive regulation to help them get a better deal?

In fact, diversity of suppliers is no guarantor of a properly competitive market – factors like technical complexity, opaqueness around service pricing and general consumer inertia can act as a brake on meaningful price competition in any market – and mobile telephony is no exception.

While it's true that if customers aren't happy with one operator they can move to another, in the real world this level of choice doesn't necessarily translate into the textbook competition that produces benefits for customers. In fact mobile network operators have been remarkably successful at maintaining pricing levels despite competition, not least in mobile-to-mobile SMS pricing. At around 10p per message retail and 3p per message at wholesale rates, SMS messaging returns huge margins for MNOs given that the real costs per message are vanishingly small – half a penny per SMS message is probably being generous. As a result SMS, which can account for up to a third of a mobile operator's revenue, probably won't be given up without a struggle.

In practice the provision of mobile-to-mobile SMS by an alternative (3rd party) provider would be similar to Carrier

Pre-Selection (CPS) in fixed line telecommunications. In order for an alternative provider to handle a subscriber's SMS the subscriber should have an agreement with the alternative provider for SMS in addition to their own mobile network subscription. This agreement would allow the alternative provider to bill the subscriber for the SMS the subscriber sends through the provider's SMSC. Instead of billing the subscriber for SMSs, the subscriber's network operator would bill the alternative provider at regulated wholesale rates (including a reasonable margin above the actual cost of SMS conveyance) for every SMS sent by the subscriber.

Unbundling SMS from the rest of the services provided as part of a mobile subscription should allow alternative providers into the market and create competition in mobile-to-mobile SMS on mobile networks, but as experience has shown in the fixed telephony market, there is plenty of scope available to the incumbent players to put up a fierce rear-guard action around terms and conditions.

For unbundled SMS to succeed it may well be necessary for mobile networks to be required to provide non-SMS equivalents of their existing tariffs. Such tariffs would allow a user to benefit from receiving their sending SMS service from another provider and for those providers to be able to effectively compete with the mobile networks. Without such tariffs alternative providers would be unable to compete, or compete at a very limited level, against subscriptions that bundle inclusive SMS messages. Whatever the prospects for unbundling, MNOs will in any case face a variety of pressures around SMS.

In a world of ever-diminishing bandwidth and other network costs it will be increasingly difficult for MNOs to justify to both customers and regulators high pricing for SMSs, especially as they are themselves currently developing and marketing high

bandwidth services such as multimedia messaging and video downloading which must operate at vastly lower bandwidth pricing levels to be attractive to users.

Then there is the transition to 3G where what are now thought of as services will start blending into increasingly sophisticated applications designed to run across 3G's high-bandwidth data pipes. Not only will users be tempted by alternative applications, such as mobile instant messaging, but smart phones will make it viable for disruptive SMS operators to distribute client software to take SMS origination off the SMS network completely.

While SMS will continue to be an important element of 3G service in its initial stages, unbundling SMS might ensure that it stays in the mix for the longer term.

Mark Hay is the Managing and Technical Director of Hay Systems Ltd. (HSL)
www.hslsms.com

MOBILE TECHNOLOGY AND ADAM SMITH COLLEGE

MOVISOL

Fife based Adam Smith College, a result of the recent merger between Fife and Glenrothes Colleges, has long been a prominent exponent of e-learning.

e-Learning can be seen as utilising the Internet to deliver learning content, tutor support via e-mail, discussion forums etc. and final assessment and accreditation of learner achievement.

The recent explosive growth in the adoption by all sectors of society of handheld devices and the blurring of the distinction between mobile phones, PDA and smartphone devices has not gone unnoticed in the realm of education – see www.handheldlearning.co.uk for more information.

ASC is committed to enhancing student learning experience by appropriate use of new technology, as a result of which successful application was made under European Social Fund Objective 3 mantle to co-finance a project known as MOBILE Video SOLUTIONS in Education (MOVISOL).

The basic concept is that short highly specific video clips of particular techniques will be shot and edited within the College – these are then uploaded to a video streaming server where these learning “granules” are accessible off college/on site to remote learners via the College’s WEBSITE which links to its Virtual Learning Environment (VLE).

Currently using 02 XDA 3G Execs and more recently Orbits, remote learners can view the techniques illustrated in the video clips as well as taking advantage of all the communication facilities offered by the VLE.

The learner will then be filmed, using the XDA, executing, hopefully correctly, these techniques on site – the resulting video evidence will then be uploaded to the College’s

e-Portfolio Management System, a subsystem of the VLE, as evidence of learner achievement.

To date, video footage has been

produced in the areas of Construction Skills, Scientific Laboratory Procedures and various Hairdressing techniques and students are starting to engage with mobile delivery. As with many projects, activity is difficult to sustain post the funding period. ASC is currently investigating the feasibility of learning content delivery to students’ own mobiles.

MOVAAS

Given this background in the potential of handheld technology and aware of concerns expressed by the EU at the lack of applications being built and delivered on 3G platforms, funding was sought under the EU Funded EQUAL Building Smarter Communities programme to develop, test and implement innovative mobile technology based business systems for SMEs in Scotland.

This project, MOBILE Video & Associated Applications for SMEs (MOVAAS) got off to a flying start with, at the low technology end, 20 hairdressing salons in Fife and Edinburgh starting to use SMS to clients’ mobiles for special promotions, appointment reminders etc.

ASC, in conjunction with eCOM Scotland, a Dunfermline based application developer has developed and implemented mobile enabled systems for a number of SMEs in the Fife/Perthshire area in a wider range of vertical sectors.

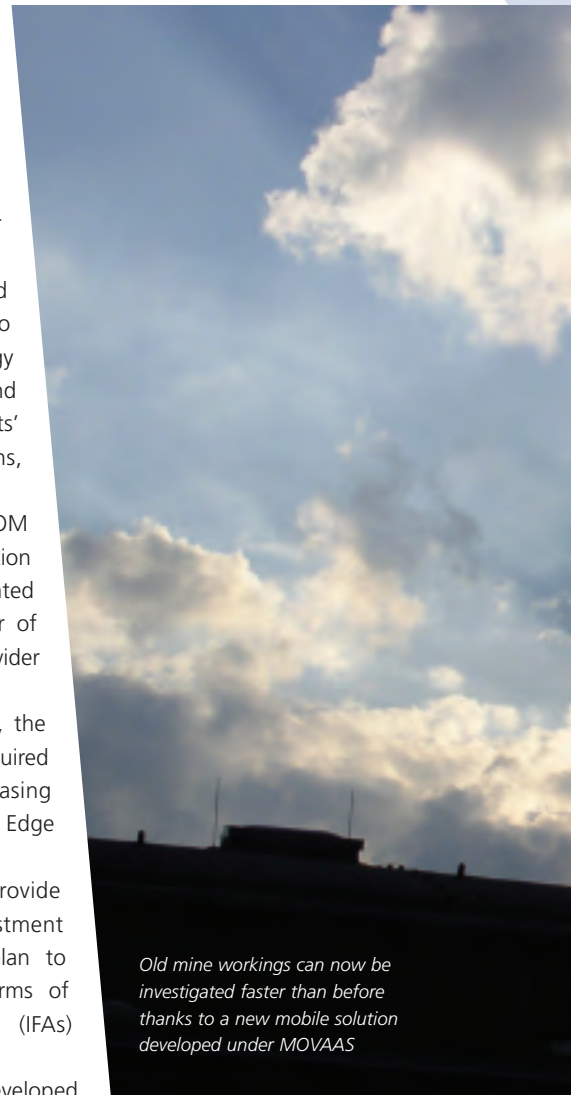
In the area of financial investment, the EQUAL project has provided the required funding to develop systems increasing business efficiency for Investment Edge Research Limited

Investment Edge Research provide research, risk analysis and investment monitoring services which they plan to make available online to help firms of Independent Financial Advisers (IFAs) improve customer relationships.

Investment Edge has developed

questionnaires to assist Independent Financial Advisers in assessing a client’s attitude to risk more accurately. The results from the questionnaire make it possible to track the performance and volatility of any investment relative to the client’s attitude to risk.

The performance and volatility of individual investment funds are monitored by Investment Edge and both the IFA and client are informed of the need to review attitude to risk before the potential for loss becomes unacceptably high.



Old mine workings can now be investigated faster than before thanks to a new mobile solution developed under MOVAAS

The launch of this innovative service using SMS text as the method of communicating when funds have dropped below a specified risk tolerance is the culmination of 15 years research and back testing. Over the past five years use of the service has significantly increased investor returns, confidence and communication between adviser and client in the most demanding stock-market conditions. The project has successfully automated the notification of variance below acceptable client defined

risk tolerance level and the generation of recommendations which are then sent to the IFA's clients using mobile technology. A decision to sell or alter their attitude to risk is then also returned using mobile technology to the central system. The system then fires out a 'to do list' to the IFA notifying what action to take for individual clients.

The successful delivery of this project has allowed Investment Edge to provide the service to an increased number of IFAs

with confidence. IFAs will also benefit by not having to manually call all their clients to ask for a decision. This is displayed on their PDA with a list of what action to take for whom.

An existing user who piloted the project has seen the potential number of telephone calls rise to 6000 for 300 clients. In any year it is estimated the turnover in the investment portfolio will be 30%, therefore an automated system that can handle around 1800 SMS text messages to and from the client will make the service more appealing whilst also significantly boosting the productivity, efficiency and profitability for new and existing users.

A unique system has also been developed in the realm of public safety

Mines Rescue currently provides an emergency response service for The Coal Authority with regard to surface hazards throughout the UK. If a surface hazard appears, The Coal Authority or stakeholders contact Mines Rescue to provide first contact and security measures for site safety.

The role of Mines Rescue is to ensure public safety and to supervise the fencing off of the surface hazard. This currently requires someone to be out on site for several hours waiting until the area is made safe. During this time the member of staff is monitoring the process and taking photographs from start to finish.

Once the surface hazard has been made safe, Mines Rescue then returns to a Mines Rescue Station to complete a Hazard Call Out report which is sent to The Coal Authority with accompanying photographs of the surface hazard. The process of returning to the office and completing the report can be lengthy.

The project has enabled Mines Rescue staff members to complete the Hazard Call Out Report online using a mobile device, take digital photos of the surface hazard using the same mobile device, and >>>>>



send the report back to The Coal Authority whilst out on site. This saves many man hours for Mines Rescue and provides a speedier and more efficient service for The Coal Authority.

These two developments, along with a number of other mobile applications were showcased at the MX Alliance annual conference "Mobilising for Profit 2006" last November, which was organised jointly with Adam Smith College and hosted in the College's new purpose built atrium conference facility.

With creative use of European EQUAL funding, the support of the MX Alliance, the expertise of eCom Scotland and the visionary risk taking of the SMEs involved, Adam Smith College views MOVAAS as a small but significant development in achieving the Scottish Executive's vision of a "Smarter Scotland".

GAMZ 4 GIRLZ

According to industry analysts, there are more females who play mobile games than console games. Mobile games developers Digital Goldfish are squarely focused on the female market and MXtra talked to David Hamilton one of the founders to get his views on this market.


Q: You launched your first title specifically for the young female market rather than the mainstream market. What did you learn from this experience and in retrospect would you have done anything differently?

A: One of our main aims here at Digital Goldfish is to create high quality content with the female market in mind. This was always our overall aim when we started the company but we feel that as the market grows the need for games aimed at a female demographic are more and more in demand. We released our first title BabyGrow, a Tamagotchi style baby simulation back in 2005 and this opened us up to a huge learning curve. Feedback on the game was mainly positive but there were a number of issues involved.

At the time we decided to self publish and distribute the game. Therefore we set up an account with an SMS gateway and rented a short code number. We also took out advertisements in a number of publications, aimed at our main target demographic of 8 to 16 year old girls. Looking back now I can see that this was a really big risk, especially for our first game but we just felt at the time that if it paid off, we would be receiving a very large percentage of the game revenue compared with conventional distribution models.

The initial response was very good and we were pleased with early sales, however they died down just as quickly. Advertisement costs became much higher than sales so we decided to look towards more conventional routes to market.

The main problem we found was that the, target demographic, were not up to speed with the latest handsets. At the time



the game was running on around 80 of the latest handset models at that time. However, females at the younger end of the scale were using phones which were not compatible with the game at that time. We were constantly receiving emails asking if the game worked on this or that handset, but the answer was simply no. At the time it would appear that target audience was using hand me down handsets from perhaps older siblings or parents. Most of the handsets in question were still running on the old black and white screens with no colour support. This obviously meant that we could not reach as many potential customers as we had wished for.

We still believe though that the female market is a very active sector of the market to be developing for and we have a



The majority of mobile games are played by females according to industry analysts.

number of titles lined up to be released this year. As far as self distribution goes, this is something we may look to again in the future as we obviously have a better idea of the problems involved and could try to work around these. Also the fact that handsets have progressed so rapidly, compatibility with the lower end of the scale is now not as much of an issue as it was back then. Even lower model handsets will support Java applications and colour.

Q: Do you think there's still an opportunity for mobile games targeted at 8-16 year old girls or is that market too complex and too expensive to enter still?

A: I would say that 8 is too young and the lower end of the scale should be a little higher. There are a number of moral issues

and legalities to take into consideration when selling to young children so it is extremely complex.

At 8 years old most people do not even have a phone and if they did then they would have no money to purchase the products and would have to ask parents. There are still ways to get the game to people this young but it involves selling to parents who would then allow the children to play from their handsets rather than having one of their own. However this means looking at a slightly different model for us so we have decided to raise the age demographic. When developing content we now aim towards 12 being the lower end of the scale.

Q: What's your strategy at the moment?

A: At the moment we are developing a couple of games that are not aimed specifically at the female market but more a broader general market. The reason for this is that we want to take our first steps into the mass market and have some games distributed on a larger scale in the early months of 2007. Once we have a couple of products behind us we will be back to developing female specific content.

We are currently working on a simple quick fired one thumb game called Mean Streak, which we hope to complete very shortly. This will be followed by another simple puzzle game and then we will be looking to some larger projects we have planned aimed directly at the female audience.

For the time being we will also be distributing through conventional methods as the expenses of advertisement are too high for us at the moment.

Q: What are some of the big challenges for the mobile games industry in 2007?

A: One of the plusses for the mobile market in 2007 is the fact that handsets are advancing so rapidly and memory is expanding so the limitations of devices is becoming less of a problem. However, this also leads to end users having higher expectations so developers have to raise the bar and release higher quality content.

There is also the fact that the market is becoming more and more popular and there are so many games out there that you have to try to think outside the box to come up with innovative ideas that work within the limited controls and small screen sizes available on handsets.

However I think that 2007 is going to be a big year for mobile and it is an exciting time to be working within the industry.

www.digital-goldfish.com



GOOD TIMES FOR PICSEL

On the back of the company's first trading Profit and increasing uptake of its Proviewer system, Picisel Technologies has announced plans to seek a dual listing on the London and Tokyo stock exchanges during 2007.

The company, which was formed in 1998, had sales of \$24m in 2005 and reported a profit of \$2m. The company expects to make a profit of \$10m for 2006 as sales continued to grow. Japan continues to be a key market for the company.

"We want to dual list because a lot of our customers are in Japan and the Japanese are very responsive to technology stocks," said Imran Khand, chief executive at Picisel.

Demand for its Proviewer solutions, which allows users of phones and PDA's to search, scroll and zoom into any type of content, has continued to grow, with additional manufacturers signing up to include the software in their devices.

The company recently announced that it would sell the software directly to customers who had compatible devices and this has helped to boost sales of the software to over 50 million units.

Picisel's technology and ongoing success has also been recognized with the company picking up awards from the Sunday Times and Red Herring.

The company was included in the recent Sunday Times Microsoft Tech Track 100 league tables, which identifies the fastest growing private technology companies that are inspiring consumers' imaginations and opening up new avenues for industry growth. The annual research spotlights the rising stars and the leading entrepreneurs across technology markets. Picisel ranked in 28th place, ahead of the likes of Betfair, Play.com and Bet365 and was lauded as one of the key companies driving the push behind mobile content in the rapidly developing

mobile convergence sector.

Picisel was also included in the highly competitive and much respected Red Herring Top 100 European Companies list for 2006, an award which celebrates the top hundred companies in EMEA which are playing a leading role in innovation and technology. The list is an important part of Red Herring's tradition of identifying new and innovative technology and is historically rich in success with previous nominations including Google, eBay and Skype, which, like Picisel, were billed as companies set to change the way we live and work.

Editorial staff at Red Herring evaluated over 700 companies when compiling the research, using stringent analysis of financial data alongside subjective criteria such as quality of management, strategy execution as well research and development practices.

www.picisel.com

Picisel will seek listing on the London and Tokyo Stock Markets





TRAIN TICKETS GO MOBILE

Chiltern Railways has become the first train company in the United Kingdom to sell mobile barcode train tickets to their passengers.

The three month pilot project lets passengers purchase Chiltern's £5 online Eday ticket for journeys between London Marylebone and Birmingham Moor Street or Stratford –upon-Avon and have the barcode ticket delivered to their phone by SMS text message.

Staff on board the train and at London Marylebone station will be able to check the 'mobile ticket' with special barcode scanners.

Commercial Director for Chiltern Railways, Neil Micklethwaite said: "We are happy to be leading the industry as the first train company in the United Kingdom to sell this new format of mobile phone ticketing to our passengers."

"We have listened to our passengers and what they want is a simpler and easier way to purchase tickets for their travel. Mobile ticketing will mean easy purchases, anywhere, any time."

"There are many benefits to mobile phone ticketing but the most important is that it's simple and convenient providing lower cost tickets for our passengers and giving the customer even greater value for money."

"The next step is to install new scanning gate technology at Marylebone station which will allow passengers with mobile phone tickets to scan their own mobile tickets as they walk through the ticket gates."

Working side-by-side on this project with Chiltern Railways is YourRail.

Director for YourRail Martin Hathaway said: "This new innovation comes at an age when virtually all rail passengers carry mobile phones and growth in both mobile

communication and rail transport remains strong." "People who are on the move turn to their mobile phones to manage their lives and we believe organising their transport this way will be a popular."

Mobiqa has supplied the mobile ticketing technology that generates and delivers barcodes to customer's phones and the PDA application that ticket inspectors use to determine if a ticket is valid for a particular journey.

Iain McCready, CEO of Mobiqa said, "Mobile ticketing offers the ultimate in customer convenience and ticketing efficiency and is undoubtedly the future for train ticket delivery. The UK's train ticketing services will certainly benefit from Mobiqa's patented mobile ticketing technology and our extensive worldwide experience in transport, live music events and sport."

www.mobiqa.com

THE WIRELESS BUILDING

There's been a lot of talk about ZigBee over the past few years, but until recently there have not been a significant number of real world deployments.

Abelon Systems has recently completed a project that used Zigbee as the key technology for an intelligent Building Management Control System.

Ian Smith, Managing Director at Abelon Systems shares some of the insights and challenges of using ZigBee in a real-world situation.

Overview

The project, undertaken for our client, Edinburgh-based Tantallon Systems, is a new system geared towards both new and existing buildings in order to provide management control of facility resources.

The system was designed to control both lighting and HVAC systems and is targeted at specialised engineering environments. It provides centrally programmable intelligent control and switching of power circuits for motor control. The architecture is intended to provide a robust, scalable and reliable design with no single point of failure.

The design rationale is based on the use of open standards such as TCP/IP, SNMP, WiFi and ZigBee, as this allows for easier integration with third-party systems. The design includes a combination of wired and wireless capabilities as modern buildings are often flood wired already and older buildings may not be suitable for a totally wireless system. Clearly a motor power control system also needs physical connection so a completely wireless system is not a feasible option although from the control side it can provide flexibility.

However studies have shown that wiring alone can account for 20% to 80% of the cost for a control point in HVAC or lighting networks so any potential for reduction in this cost is a major selling point.

The system architecture consists of a centralised Management Station and a

number of remote networked controllers. These in turn monitor and control wireless and direct connected devices and sensors such as light switches, PIR and lighting units. The wireless protocol selected to communicate with these devices was ZigBee, which is becoming the standard for short range control applications.

ZigBee Overview

ZigBee is a short range wireless protocol, with a range of between 10 and 100 metres depending on power, environment and antennae design. This is typically for a star configuration but a meshing network will extend this.

Battery life for wireless sensors will also depend on range and usage but 3 to 5 years is attainable under ideal conditions.

Connection speeds are low, typically between 20Kbps to 250Kbps depending on frequency. ZigBee devices can be connected in a variety of topologies such as Star, Mesh and Tree configurations and communications are designed to be secure and reliable – indeed the mesh configuration can be “self-healing” under the right conditions.

Security is ensured by the use of AES 128-bit encryption and can be customised for the application. There are both link and network encryption keys and these can be “hard-wired” into the application for both authentication and encryption of communications.

ZigBee is designed for industrial environments but importantly is also intended to allow coexistence with other wireless standards using the same frequency spectrum by the use of collision avoidance protocols. A network can have up to 65,536 network (client) nodes and select from 27 communication channels.

It has good low Signal to Noise Ratio performance with low error rates and relatively low latency, typically in the order of 30 milliseconds plus 15 milliseconds per hop. Reliable transmission is assured by the



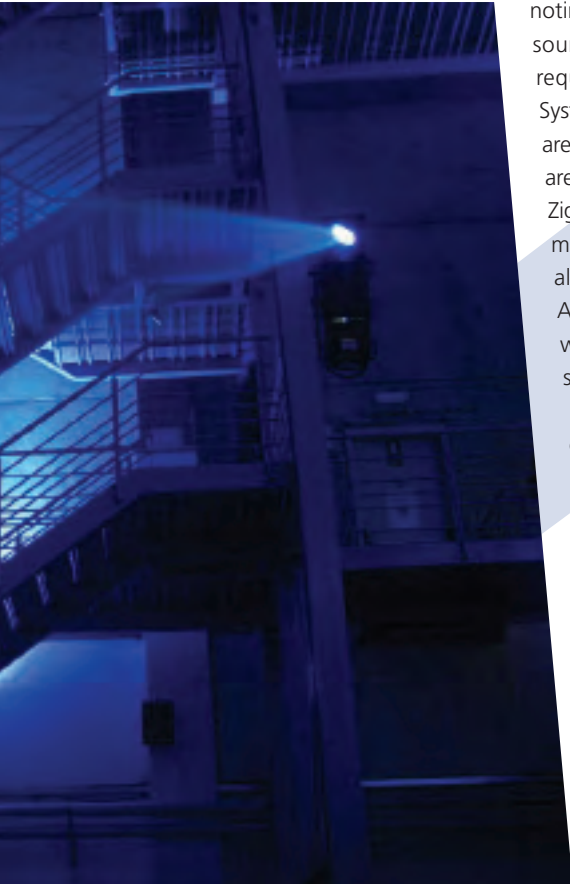
use of acknowledgements and retries on errors or dropped packets.

ZigBee Hardware

ZigBee hardware is available from a wide variety of vendors.

Freescale was an early promoter of the ZigBee standard and is a major contributor to the ZigBee Alliance. It offers a selection of transceivers either as individual chips or on small interface boards. Either case allows simple integration with the company's Coldfire or HC08 8-bit microcontrollers.

Atmel is another hardware vendor who has arrived on the scene more recently, and their transceivers are designed to integrate easily with their ARM or AVR 8-bit microcontrollers.



The sensors themselves can be Reduced Functionality Devices (RFDs) or Full Functionality Devices (FFDs) but depending on the application, the target system may not need full ZigBee functionality and for simple point-to-point networks MAC-level communications may be sufficient.

Complex networks will clearly need more features and a requirement for sensor redundancy and security will require a full ZigBee implementation.

ZigBee Software

As with the hardware, ZigBee software is also available from a number of different vendors, from the hardware companies to specialist software providers.

Freescale offer their own 802.15.4/ZigBee stack but it is worth

noting that this is provided as a mixture of source code and binary modules and requires the CodeWarrior Development System to build it. Certain parts of the stack are supplied in binary format because they are critical to correct implementation of the ZigBee standard but it is worth bearing in mind if you are intending to use an alternative development environment. Atmel also offer a free 802.15.4 stack for use with their transceivers but do not currently support the full ZigBee standard yet.

ZigBee stacks are also available from many other software vendors such as MicroChip, Cirronet, MeshNetics and Telegesis.

ZigBee Issues

When designing a ZigBee system there are a number of issues which should be borne in mind.

Firstly the ZigBee standard itself is not yet mature, with Version 1.1 having only just been released publicly, although it has been available to members for some months. Version 1.1 is not backwards compatible with V1.0 and so some vendors have been waiting to release their ZigBee stacks so as not to have to certify a new release for V1.1 compliance.

Then there is the question of whether you really need ZigBee functionality at all. If you are designing a building management system then the building may be flood wired already or indeed unsuitable for wireless communications, for example with thick walls or a hostile environment with lots of RF interference.

ZigBee is also only suitable for control systems as motor power control by definition requires a wired connection to supply the multi-phase PWM channels.

Buy versus Build Tradeoffs

If you choose to build your own ZigBee system then there are a number of trade-offs to consider in the process.

First you need to evaluate the various

chipset and stack vendors and select the most suitable for your project. You then need to acquire the various Development Kits for the target platform and implement your design.

At this point you need to decide whether to use your own design or base your product on the vendor's reference design. This is a major decision and one which can make or break the project as there are many subtle ways in which a design of your own could fail. However the vendor's reference design may not meet your design needs so there may be no choice but to go it alone.

Once the design is complete it needs to be integrated with the final platform and debugged – not always a trivial task. The PCB layout is crucial at this point the slightest mistake in the RF design can render the whole board useless.

Once the design has been implemented and debugged the next stage are the type acceptance tests to verify your product meets the ETSI and FCC legal and safety requirements. Last but by no means least you will need to join the ZigBee Alliance and carry out the necessary ZigBee testing if you are advertising ZigBee as part of your product.

This can be a very time consuming and expensive business so as a result many companies choose an alternative route to market using a pre-built ZigBee Compliant Platform (ZCP). The ZigBee Compliant Platform (ZCP) Program applies to modules or platforms which are intended to be used as building blocks for end products. Tested products will receive a confirmation letter granting the use of the term "ZigBee Compliant Platform" and the use of these components can dramatically reduce development time and costs.

Lessons Learned

So what lessons have we learned from this project?

>>>>>>>

MIXIPIX MAKES A MOVE FOR VIDEO

Some are simply reinforcing what we already knew: define your product requirements up front and sign them off with the client so you both know what to expect, and when selecting the hardware and software components, double check they can do everything you need before you start the project.

However the ZigBee standard is complex and wide reaching, so it is worth checking exactly which features you really need so you don't end up doing much more work than you need to. There is the Build/Buy question – can you buy in the system components instead of designing them yourself? This can potentially save a lot of time and money, as well as de-risking a crucial part of the project.

Then there are the truisms that apply to any project – test early and often, do your requirements analysis thoroughly and don't skimp on the design phase. Use prototypes of different parts of the system to make sure they behave as expected before you get too far down the line.

Finally, talk to the experts; people who have done this before and have learned the lessons so you can hopefully avoid making the same mistakes yourself!

Ian Smith is Managing Director of Abelon Systems. He can be contacted at ian@abelon.com.
www.abelon.com

Mobile media company mixipix has appointed a senior television executive in a new role as group managing editor.

Former Scottish Media Group producer Beverley Morrison will oversee mixipix's expansion into mobile video. Whilst at SMG, she produced Cjac, the world's first drama series specifically produced for mobile.

"The mobile video revolution is finally taking off," said Beverley Morrison. "With more people than ever owning 3G and video enabled phones, the broadcast industry is really waking up to the opportunities offered by this platform.

"mixipix is developing a number of exciting mobile video projects which we expect to go into production early in the New Year."

"Each project is highly innovative but features brands and onscreen talent familiar to the UK audiences.

"We are also talking to TV production companies about how our unique solutions can help them reach the mobile video audience."

Set up in 2002 by media industry veteran Lesley Keen and iPlay founder Dr Kevin Bradshaw, mixipix successfully markets its animated messaging and Mcard cartoon-creation services around the world.

But as demand grows for mobile TV content, mixipix sees a prime opportunity to use its mobile platform to deliver video as well as animation to mobile phones.

"We are absolutely delighted that Beverley has joined the team – this is a time of rapid expansion for mixipix as we start to

roll out our solutions with mobile marketing and media partners. Combining our strengths in mobile with our experience in the broadcast sector places mixipix in an

ideal position to take advantage of this new wave of mobile media distribution opportunities."

mixipix has also secured a deal with the EMAP publishing group to provide animated messages and wallpapers for the Heat magazine mobile portal.

"We are delighted to be working with EMAP on one of their top selling titles. We see this as the start of mixipix providing a

whole range of products and services for readers through Emap's mobile channels. mixipix has developed specialist knowledge of the teenager girl market and this is something we share with EMAP."

www.mixipix.com



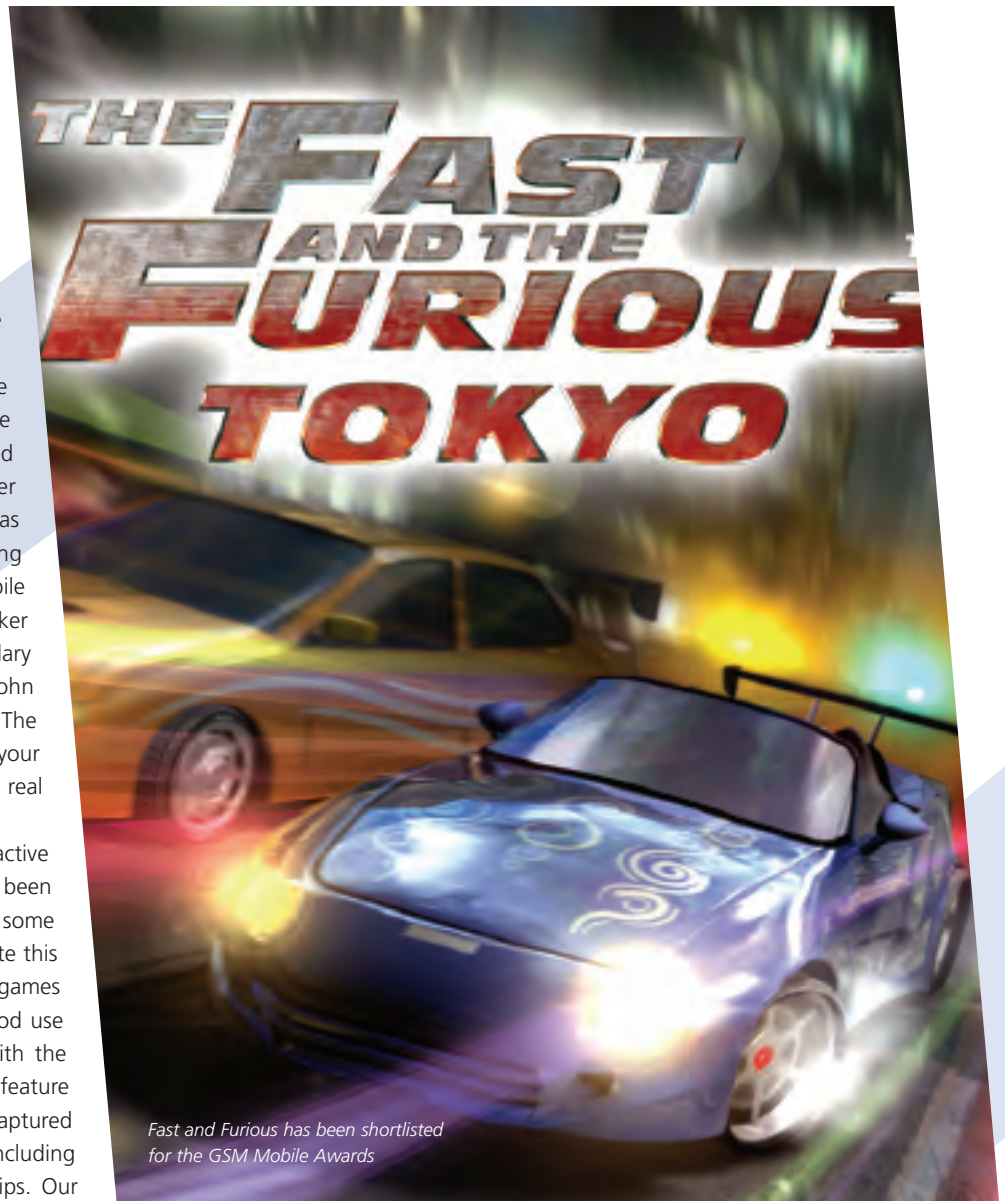
I-PLAY'S BIG BREAK

I-play has signed a major global license deal with Blade Interactive's new Blade Interactive Games (BIG) division which will see the launch of a number of new games. The first title is the mobile version of Blade's acclaimed World Snooker Championship' series, via I-play's extensive global distribution network. The game will launch in March prior to the Snooker World Championship finals at the Crucible, in the UK.

David Gosen, CEO of I-play said; "We're hugely excited to be working with the masters of snooker game development and to be bringing the World Snooker Championship license, a property that has the most resonance amongst gaming snooker fans around the world, to mobile for the first time. Will you play as snooker demon Ronnie O'Sullivan, the legendary Steve Davis or all time favourite John Higgins? With these snooker gods; The World Snooker Championships on your mobile will be as compelling as the real thing."

Peter Jones, Joint MD of Blade Interactive commented: "Cue sport games have been a major genre of mobile gaming for some years and our objective is to dominate this niche just as we have in the video games market. The new title will make good use of our exclusive snooker license with the World Snooker Association and will feature the top 32 players with motion captured animation and real tournaments including of course the World Championships. Our entire focus is quality. To that end we are delighted with our new relationship with I-play which has exactly the same focus on quality games"

I-Play's The Fast and the Furious: Tokyo, the most recent addition to the mobile gaming industry's most successful racing franchise 'The Fast and The Furious', has been short-listed for the 'Best Made for Mobile Game' category in the GSM Association's Global Mobile Awards 2007.



*Fast and Furious has been shortlisted
for the GSM Mobile Awards*

Developed and published by I-play, through an agreement with Universal Mobile Entertainment, the game has recorded over a million downloads in just over five months. This builds on the huge success of the overall franchise which has now hit an incredible 6.5 million downloads.

The nomination comes on the back of further praise for the title having picked up

the 'Best Racing / Driving Game' of the year by IGN Wireless late last year.

www.iplay.com

LOCATION BASED SERVICES IN DOUBLE QUICK TIME

Trisent Communications has announced a new rapid deployment service for its real-time automatic phone location technology and is targeting the service at Eastern European mobile operators. The company says that their lower cost technology and the new deployment service will allow operators to deploy Location Based Services (LBS) in a matter of weeks as opposed to many months it may take to deploy alternative LBS systems.

Building on its recent success in licensing its technology to Bulgarian Telco, Max Telecom, Trisent is gearing up for significant expansion with mobile operators in Eastern Europe and the Baltic States. These operators are all experiencing significant subscriber growth and are on the lookout for new innovative services to attract and retain more customers.

Gordon Povey, Trisent Management Director said, "Operators are constantly looking for new ways to provide valuable services to their customers as a way of expanding their subscriber base, reducing churn and increasing ARPU."

"MVNO activities are on the increase and there are now significant choices of mobile suppliers in every country in Europe. To be effective, providers need a compelling set of reasons why a customer should choose their network and Trisent can help to solve this problem."

"We provide a location platform combined with a growing portfolio of services which address a variety of markets including fleet management, employee safety and personal security. The platform and services can be deployed quickly and cost-effectively which is crucial in today's intensely competitive market."

Trisent is actively targeting the personal, business and asset security markets and its rapid deployment service enables mobile operators and virtual operators to install a range of location-aware services with

minimum effort. The Tri-Cell Intelligent Location System (TILS) operates completely independently of the mobile network and uses standard mobile handsets making it quick and cost-effective to implement.

Trisent has developed software that provides automatic continuous location monitoring and requires no specialist equipment or modifications to the mobile phone or the network equipment. The Tri-Cell Intelligent Location System offers a low-cost alternative to satellite GPS and creates a platform on which mobile network operators can provide a range of location-aware services to business customers and consumers.

There are two component parts to the system: The client software that runs on the mobile phones that are being monitored; and the server system that is host to many mobiles phones and contains the location technology. The technology is based on the capabilities of modern mobile phones to run small software programmes, the ability of the cellular networks to transport packets of digital information at low cost, and the use of internet and server technology to interface with cellular technology. The core intellectual property is based on the identification of events and behaviour that occur naturally in cellular networks and the mapping of each unique event to a geographic location. When such behaviour occurs information is passed from the phone to a remote server which is able to calculate the location where this was most likely to have occurred.

Trisent plans to license its technology widely to national mobile network operators and has already concluded its first licensing agreement with Max Telecom of Bulgaria. In the UK, Trisent will develop or acquire a range of business solutions which exploit its location-aware technology platform that will be sold directly to customers. These applications



will also be licensed to overseas network operators.

www.trisent.com

YOMEGO WINS GMTV FIRST



*Location Services can help
reduce churn, increase ARPU
and help add new subscribers*

In a TV first, Yomego is to add a new level of audience participation into GMTV's popular programming.

Yomego, the entertainment division of DA Group, is providing GMTV with an infrastructure linking mobile, web and TV which will support viewer generated content. The service, which went live in early December, uses the Yomego blogging platform, to allow GMTV's six million plus audience to participate visually in debates, competitions and features by uploading video clips from their desktops or mobile phones.

Linking seamlessly into the TV broadcast, it is a new way for viewers to take part in TV programmes and grab a moment of fame. It is also a means for GMTV to capture the public's fascination for citizen journalism and embrace it within a progressive and dynamic TV format.

Yomego has created WAP portals and websites with the functionality to allow viewers to upload their video clips, which can then be broadcast directly on to TV. These services have been integrated with GMTV's telecoms partner Opera to maximise the use of shortcodes and existing familiar systems.

Viewers provide the programme, the website and GMTV's soon to be launched mobile site, with a stream of broadcast ready compelling content.

In the run up to Christmas, GMTV launched viewers' video Xmas cards including expats sending them in from Australia, providing a platform on GMTV where friends and families could search for their own video Xmas cards from their relatives. GMTV aligned the interactive format with specific programmes and features within programmes and the service was heavily promoted on air.

Mike Antliff, CEO of Yomego, said, "This is a real advance for mainstream, terrestrial TV and we are delighted to have been chosen to work with GMTV to make this

happen. There is clear evidence that TV is embracing the opportunities brought by the proliferation of social networking communities."

"Genuine interactive services like these are increasingly in demand from mainstream broadcasters. GMTV scores another first by integrating user generated content into its programmes and with such a well defined audience it is easy to see how it will capture people's imagination."

Commenting for GMTV, which has pioneered both SMS and MMS messaging in its programming, Nog Sawdon, Head of Digital for GMTV, said; "This interactive user generated platform is exactly what GMTV viewers will want and use. We fully intend to incorporate as much of their content sent to us in our daily programming."

www.yomego.com



SCOTLAND – OPEN FOR BUSINESS

Scottish Development International (SDI) is Scotland's inward investment and overseas business development agency, with offices in the UK, North America, Asia Pacific, Europe and the Middle East.

SDI is eager to work with overseas companies, particularly in the areas of research, design and development projects, which can utilise to best advantage Scotland's world renowned university and commercial research base, strong cluster of wireless and mobile communications companies and highly skilled workforce in this sector.

With the sector growing very fast, many opportunities exist for collaborations on research projects, product development

and commercialisation through to business alliances and licensing agreements.

While within Scotland, assisting indigenous Scottish companies to do business overseas is also a critical part of SDI's strategy to encourage trade growth. Using its wide network of industry, academic and informal contacts, SDI is able to assist Scottish companies to form strategic alliances to open new channels to market for their technologies, products and services.

Other areas of support cover such areas as assistance with international strategy development, key sector market networking activity and international market promotion support. SDI also works

collaboratively with the UK embassy network and UK Trade & Investment in particular, to ensure that all of the opportunities provided through that route are used to assist Scottish companies.

Scotland has a fantastic global reputation for innovation and creativity, and it is through the leveraging of the elements above that Scotland will continue to realise the potential from its fabulous knowledge base, incredible resources and thriving wireless and mobile communications sector. Scotland is open for business!

www.sdi.co.uk

MOBILE MARKETING MADE SIMPLE

Mobile Marketing is still a relatively small market, with the majority of campaigns currently based on text messaging. However with more brands and marketing agencies wakening up to the mobile channel and more consumers adopting mobile data, 2007 could be a watershed year for mobile marketing. And whilst text messaging will still be a critical component, more and more campaigns will use mobile data.

"Right now it's not uncommon to read analysts' reports predicting a mobile advertising market worth \$10 billion or more by the end of the decade," said Richard Marshall, CEO of Rapid Mobile. "Even if such predictions turn out to be 60 percent hype, millions of well executed ads will have to be sensitively delivered onto a huge variety of mobile devices."

Rapid Mobile's Ad360 is an advertising technology platform that monetizes mobile content by the creation and management of intelligently-targeted mobile phone advertising campaigns. It addresses the

mutual needs and concerns of publishers, advertisers and consumers. Because Ad360's precisely targeted ads, calls to action, vouchers and the like are magazine-style and unobtrusively woven into the mobile user's experience, it deals neatly with the "big-three" issues of ad avoidance, return on investment, and spam.

Ad360 intelligently and directly connects brand owners with their most sort-after audiences with easily configurable, trackable and adaptable campaign development. Better still, Ad360 uses on-the-fly Active Provisioning of ultra-thin mobile software applications. This eliminates the unsustainable time and financial costs of software porting that, until now, have been unavoidable if advertisers were to have any hope of their campaigns looking good and working well on the huge and growing variety of mobile device types in circulation.

The company plans to target white-label Ad360 services to publishers, brand

owners and their advertising agencies, internet retailers and auction sites, social networking websites, mobile games developers, and mobile network operators.

www.rapid-mobile.com

ADAPTEX ON A SMARTPHONE NEAR YOU

KeyPoint Technologies has launched a new version of their predictive language software AdapTex for Windows Mobile 5.0/2003 for Pocket PC platforms, AdapTex transforms the speed, accuracy and user experience of applications such as push email, text messaging, and mobile blogging. It makes authoring documents on handheld devices easier than ever before.

Already available on Windows Mobile 5.0/2003 for Pocket PC platforms, AdapTex transforms the speed, accuracy and user experience of applications such as push email, text messaging, and mobile blogging. It makes authoring documents on handheld devices easier than ever before.

AdapTex is context aware software that constantly learns, maps and predicts the user's own individual use of language. Predictive accuracy is very high and the software rapidly evolves to suit the profile of every individual user (rather than being a generic 'one size fits all' application). When AdapTex is context aware, users are capable of entering a sentence with only a few actions.

There are several new additions to the software for the Smartphone platform including the ability to work on both 12-keypad phones and those with the hard QWERTY keypads. AdapTex for Smartphone also has a new 'follow the cursor mode', which means the word and phrase suggestion window is placed wherever the next letter is to be inserted. This more natural layout makes it even easier and faster to adopt the words and phrases suggested by AdapTex.

AdapTex uses different technology from other predictive solutions so users can access a variety of unique features.

AdapTex predicts words and phrases with context in advance, learns files and creates instant vocabulary with context, converts emails into SMS text style language because AdapTex understands abbreviations and writes in any language and AdapTex learns and predicts in that language AdapTex transforms data entry from a time

consuming chore into a highly efficient and effective activity. KeyPoint Technologies believes that their product range will quickly become established as the de facto standard for predictive language solutions.

"AdapTex has the potential to transform the smartphone experience, and in turn change the market for these devices by bringing in a wide range of new customers with a need for high volume email, texting, mobile blogging and authoring," said Sanjay Patel, CEO of KeyPoint Technologies.

AdapTex is available now in English (UK and US), German, Italian and Spanish, with French and Chinese (modern and traditional) available later this year.

Recent independent user tests on the pocket pc platform show an average keystrokes savings of 60% compared to typing alone, and a 35% saving in typing time on first use of AdapTex.

www.adaptexlive.com



AdapTex is now available for Smartphone users



WIMAX WIN

Wintegra has announced that Alvarion has selected its WinPath network processor and related software for the company's next generation WiMAX products addressing the 802.16e market.

Alvarion's BreezeMA, a radio access system and the primary building block of Alvarion's end-to-end 4Motion mobile WiMAX solution, integrates Wintegra's silicon to address the growing demand for mobile broadband, including support for the WiMAX Forum based mobile WiMAX solutions across a broad range of spectrum. These products will enable mobile operators to offer high-performance broadband data, voice, and multimedia services.

Wintegra provides a broad range of integrated silicon and software solutions for WiMAX, 3G and LTE base stations and RNCs, network interfaces, broadband wireless access, 2G and 3G cell site aggregation and backhaul. The Wintegra fixed and mobile WiMAX solution consists of a family of pin-compatible, software-compatible and fully programmable network processors that can scale from single sector, highly integrated picostations, to multi-sector base stations, incorporating advanced antenna technology.

Wintegra provides a complete software solution that incorporates the necessary scheduling, classification, encryption and QoS capabilities, as well as advanced features such as VLAN marking, payload header suppression (PHS), multiple CS layers, IP fragmentation and GRE and IP-in-IP tunneling, which are required to meet the R6 and R8 specifications of the WiMAX Forum network definition. These capabilities enable rapid integration with next-generation wireless access networks and ASN gateways.

"We are extremely satisfied with our decision to use WinPath processors and related software in BreezeMAX, our radio access system that is part of Alvarion's

4Motion mobile WiMAX solution," said Tsach Schwartz, Alvarion's Vice President of R & D. "The high performance of the Wintegra solution gives us clear flexibility and robustness advantages in adapting our system to the ever evolving requirements of the mobile WiMAX network standards. WinPath is one reason why we continue to provide the market leadership that our customers have come to expect."

"We have been very impressed with the innovation and scope of the Alvarion WiMAX and BWA programs, and believe that Wintegra can play a key role in Alvarion's continued success," said Michael Phillip, VP and GM of Wireless Systems at Wintegra. "Getting the right solution to market quickly is critical in emerging markets like WiMAX and BWA, and Wintegra and Alvarion are clearly aligned in this objective."

WiMAX stands for Worldwide Interoperability for Microwave Access, and is based on the IEEE 802.16 air interface standard and the ETSI HiperMAN wireless metropolitan area network (MAN) standard.

Wintegra is incorporating WiMAX technology into its broad portfolio of solutions for next generation access markets, including VDSL and PON, wireless infrastructure, VoIP routers and gateways, and multi-service access (MSA) equipment.

www.wintegra.com

ABOUT MXTRA

If you would like to receive future issues of MXtra, please e-mail your contact details to info@mxalliance.org. Please include your name, job title and company name. If you would like to submit an article for MXtra, please contact press@mxalliance.org

ABOUT MX

MX is the industry alliance for mobile and wireless – we connect the community in the UK and beyond. The key objectives of MX are to help stimulate and grow the sector in the UK and to promote the value and accelerate the uptake of mobile and wireless solutions. MX has an open membership policy for companies and organisations who are interested in developing the sector in a global market. MX delivers seminars and workshops, publications and industry communications, networking opportunities to provide market knowledge and intelligence and maintains regular communication with public sector bodies and organisations.

If you are interested in finding out more about MX and its members, please go to www.mxalliance.org or phone us on +44 (0)870 803 4202.

MX Alliance
Geddes House Business Centre
Kirkton North
Livingston
EH54 6GU
www.mxalliance.org

Neither the editor, nor MX Alliance, necessarily endorse any opinion, real or implied, expressed by contributors to MXtra. No part of this publication may be reproduced without the written permission of MX Alliance © 2007. All rights reserved.