WHITESPACE RADIO

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how to make friends and influence people

Every now and then I include a feature in Incisor that rattles cages. This month is probably going to be one of those occasions.

Why? Well, I have was writing up the summary piece for our BiteBack series of movies. This tour, which saw us filming in the UK, USA, South Korea and Sweden, provided an amazing insight into how consumers see Bluetooth. The views expressed also painted a pretty dependable snapshot of Bluetooth's status on the world stage. As I summarised the consumer views, I found I was also creating some sort of analysis of Bluetooth's standing in the consumer electronics sector. And I took the bit between my teeth and completed the BiteBack feature with a 'what I think needs to be done is…' sermon.

Doubtless this will leave some questioning Incisor's authority to do this. At which point I would ask how many consumers they had talked to recently, in how many countries, and on how many continents? Fair enough, you can question my 'how-to-fix-it' suggestions, but there's no arguing with the statements made by the good people that we talked to.

I would also point out that we have been PRO BLUETOOTH since 1998. So there.

Anyway, now that I have gotten my retaliation in first (☺), let's get on. We are now only two weeks away from the Bluetooth SIG's annual All Hands Meeting, which will take place in Seattle. IncisorTV is making a film of the event. And, if you would like your company to be on IncisorTV, then contact me, because we are making company video profiles while we are there.

See you in Seattle!

Vince Holton
Publisher & editor-in-chief, Incisor / IncisorTV

INCISORTV FOCUS THIS MONTH:

The Incisor BiteBack programme visits Lund, Sweden

The IncisorTV team heads to Jasper, Canada, to try out lots of the latest Bluetooth gadgets – and tries to ski, too!

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Bluetooth SIG Launches Advanced Training Lab and Services (ATLAS)

The Bluetooth SIG has launched a new, hands-on training program created to educate members on how to thoroughly test and qualify their Bluetooth enabled products. The program is flexible to meet individual member needs, especially those pertaining to Bluetooth high speed and Bluetooth low energy technologies.

The Advanced Training Lab and Services (ATLAS) is the newest in a series of Bluetooth SIG programs created specifically to reduce the cost and complexity of bringing Bluetooth enabled products to market. ATLAS trainings will be held at the Bluetooth SIG headquarters in Kirkland, Washington, USA, where members have access to a variety of resources including private training rooms, a unique set of test tools, the Device Library, and the SIG staff.

While on site for the one-week program, SIG members will attend training sessions utilizing customized training materials and performing hands-on testing on one of their prototype devices. By the end of the training, the SIG's aim is that participants will have improved knowledge of Bluetooth testing and qualification processes and the expertise needed to qualify their Bluetooth enabled products on their own. Depending on the maturity of the device, members may be able to complete qualification of their product during the week.

The ATLAS program is a response to member requests for more training and education opportunities and reduced qualification costs. In a recent survey of Bluetooth SIG members, 61% of respondents indicated they were interested in advanced training opportunities. The most-requested topics included Profile Tuning Suite (PTS) and Protocol Viewer, Multi-Profile / Multi-Point testing, and air sniffer usage, all of which are available to members during the one-week ATLAS sessions.

Mobiles replacing many devices

A new study of 1,054 mobile phone owners commissioned by leading mobile comparison website www.rightmobilephone.co.uk has shown people's attitudes towards technology and how things are changing thanks to more technologically advanced mobile handsets.

Previous research from the site found that over half of mobile phone owners use their handset as an alarm clock, but further research suggests it's more than just alarm clocks that could be under threat.

68% of the respondents owned an MP3 player of some description, but of those, over half said they now used their mobile phone more for personal audio, suggesting that MP3 players are becoming less popular.

42% of the respondents did not own a digital camera and when rightmobilephone.co.uk asked them why, 79% said it was down to the fact they could use the camera on their mobile to take pictures. 2 in 3 said that the minimum standard of integrated camera they look for would be 5 megapixels or more.

91% of the people asked said they didn't own a traditional calculator, with 4 in 5 of those explaining it was because they used the calculator on their phone if ever they needed to do sums.

Rightmobilephone.co.uk also questioned the respondents about their use of landline phones and found that whilst 64% of the people who took part in the study had a landline, 92% said they were more likely to use their mobile to make calls. 1 in 5, 21%, of the respondents said that they only had a landline because it came with their entertainment bundle.

Only 13% of the respondents told rightmobilephone.co.uk that they owned a calendar, but over two thirds, 67%, said they used their mobile handset to log important dates and appointments. 11% said they thought they used their phone to go online more than they did their PC or laptop. 2 in 5 use their phone regularly to access social media sites like Facebook.

Finally, 1 in 4 people said they regularly used a map application on their mobile, such as Google maps, to navigate or find their way, but Sat Navs seem secure as 81% said they would prefer to use a proper device when travelling. 55% of the people asked said they would much prefer to have one device to do everything, rather than separate gadgets for different purposed.

news

MindTree unveils Bluetooth low energy stack

MindTree, which develops Bluetooth Intellectual Property (IP) solutions, has announced the launch of its EtherMind Bluetooth low energy stack on the quad-radio, single-chip WiLink 7.0 solution from Texas Instruments Incorporated (TI).

MindTree's Bluetooth low energy stack enables a low-power and interoperable wireless communication between a mobile phone and its accessories. The company suggests that this opens up a whole new set of interesting use cases like caller ID displays on watches and data transfers from health devices to the Internet via mobile phones.

The Bluetooth low energy stack supports a broad range of profiles, including PUID, time and network availability, which will drive new mobile applications across a variety of markets.

The low energy stack is optimised for low-memory footprint and has APIs that enable integration with the resident applications on the platform. The stack is built on clean abstraction layers and is written in ANSI C, enabling easy portability onto a variety of operating systems and platforms.

"TI works closely with its ecosystem partners like MindTree to achieve the milestones that will enable the next round of eye-catching devices and applications," said Eran Sandhaus, director of marketing, wireless connectivity solutions group, TI. "MindTree and TI hold unique positions at the forefront of Bluetooth low energy development with support for both single- and dual-mode solutions, and today's advancement will speed the development process for designers working with our WiLink 7.0 solution. As a key enabler of Bluetooth low energy technology in our ecosystem, MindTree helps our customers turn mobile devices into robust 'gateways,' spurring boundless connections to other devices."

"The development of MindTree's Bluetooth low energy stack is another milestone in our global leadership in Bluetooth technology," said MindTree President and CEO, R&D Services, Vinod P. Deshmukh. "This was made possible by our deep rooted collaboration with TI, which has resulted in the launch of numerous successful technology solutions."

MindTree's Bluetooth stack and profiles are qualified for Bluetooth 2.1+EDR.

TRaC expands medical safety test services

Test house TRaC now has full accreditation at its UK facilities to carry out safety testing of all medical diagnostic products that fall within the scope of the In Vitro Diagnostic (IVD) Medical Devices Directive.

In Vitro Devices are items of diagnostic equipment that carry out medical tests on samples (for example, blood) obtained from the human body, but that do not operate directly in contact with the body. The IVD Directive lays down a specific set of requirements for such equipment (distinct from diagnostic equipment such as monitors that are connected to the patient and have their own regulatory framework) in terms of their safety, quality and performance.

The IVD Directive sets out four classifications of product: General; Self-Test (i.e. products that patients may use themselves without medical supervision); and two higher categories of Test Kits and Devices that test for specified conditions. As with any electrical product offered for sale in Europe, the supplier within the EU must affix the CE Mark; specified test regimes range from Self-Declaration of Conformance by the manufacturer (which is permitted for the General product category); through to a Declaration endorsed via an audit by a Notified Body; to a full third-party test programme carried out on production samples of a product.

TRaC is authorised and equipped to review design dossiers that manufacturers prepare, and to carry out type-testing where appropriate, in respect of the Safety requirements of the Directive.

The wireless infrastructure good news: 2009 not as bad as feared

There is no doubt that 2009 was a bad financial year, and there were fears at its beginning that the wireless infrastructure market would see a severe downturn. Estimates for contraction ranged as high as 10-12%.

However in a just-released study, ABI Research finds that the final picture is a good deal brighter than that. "There was a contraction in the wireless infrastructure market to be sure," says practice director Aditya Kaul. "But our analysis shows overall CAPEX down only about 5% compared to 2008. Even net base station spending was down only 5%."

The report, which presents a high-level overview of the global wireless infrastructure market, shows that operators resumed spending in the second half of 2009. North America's market saw continued spending by the likes of Verizon with its LTE network and Clearwire with its WiMAX deployments.

According to Kaul, "The biggest positive impact was from China with 243,000 new wireless base stations added in 2009, which really kept the momentum going. In what turned out to be a case of good timing, 3G spectrum became available at the beginning of the year, which led to deployments continuing through the year."

In India, 3G spectrum issues slowed down the market to some extent in 2009. Africa saw continued momentum in base station spending, with Huawei providing vendor financing to operators in the region.

With the mobile capacity crunch starting to affect operators, 2009 was also a year in which backhaul and core network upgrades became high-priority areas.

news

HelloSoft, Comsys Mobile and dmedia develop 4G handset

HelloSoft, Comsys Mobile and dmedia have announced the joint development of a low cost integrated WiMAX/GSM/Wi-Fi phone. The handset features the combination of HelloSoft's VoIP and convergence client suite running on its ultra low power HS100 IP Convergence Processor combined with Comsys Mobile's ComMAX CM1125, a multimode WiMAX/GSM-EDGE communication processor.

"There is a strong market demand for low cost multimode WiMAX/GSM phones to address the increasing adoption of WiMAX globally" said Ronny Gorlicki, Comsys Mobile EVP Sales. "In particular, the market has a need for low cost tri-mode phones supporting WiMAX, GSM and Wi-Fi to meet the demand in both emerging markets and also mature markets where GSM is essential. 4G capabilities bring unheard of high-speed wireless data on-the-go to mobile users and integrating GSM allows a wide range of consumers to upgrade their existing GSM handset to 4G."

William Chou, EVP of dmedia added: "This handset breaks all barriers to enable rapid adoption of low cost Android 4G Wi-Fi/WiMAX/GSM handsets and addresses the needs of WiMAX service providers around the world to offer a compelling portfolio of 4G handset products. It combines the best of breed technologies - HelloSoft's industry leading VoIP and IP Convergence Software Suite and HS100 IP Convergence Processor together with the Comsys Mobile CM1125 WiMAX/GSM-EDGE - to provide an outstanding feature set at a very competitive price point. We feel this line of phones is a very strong addition to dmedia's existing line of 4G PND and PMP products. We're very pleased with the response we're seeing from service providers to this product."

The handset is slated for release later this year.

First Femtocell Plugfest

The Femto Forum has completed what was apparently the world's first femtocell plugfest. The plugfest process, which extended over many months and culminated in the test event itself, was organized in cooperation with ETSI (the European Telecommunications Standards Institute) and had vendor support with over twenty companies participating, including vendors of network equipment and femtocells as well as software and hardware components.

The companies involved were Ablaze Wireless, Acme Packet, Airvana, Alcatel-Lucent Telecom, Alpha Networks, Askey Computer Corporation, C&S Microwave, Cisco Systems Inc, Contela, Continuous Computing, Genband, Huawei, IntelliNet Technologies, ip.access, Kineto Wireless, NEC, Node-H, Nokia Siemens Networks, picoChip, Technicolor, TRaC Global and Ubiquisys.

The primary objective of the plugfest, organized as an ETSI Plugtests interoperability testing event, was to demonstrate the effectiveness of the 3GPP femtocell standards in supporting interoperability between femtocell access points and network equipment from different vendors.

Interoperability tests were conducted between femtocell network gateways, security gateways, femtocell access points and chipsets to verify 3GPP's Iuh interface as defined in the Release 8 series of specifications. The plugfest also tested the IPsec/IKEv2 security protocols which allow femtocells to communicate over the public Internet to operators' core networks in a highly secure manner. 3GPP's Release 8 femtocell standard was published in April 2009, and defines the secure interface between femtocell access points and femtocell gateways in the core network.

TRaC Global, which specializes in testing, regulatory and compliance services, coordinated the plugfest for the Femto Forum.

AirWalk Communications, Lime Microsystems develop enterprise Femtocell

AirWalk Communications, which builds IP-based CDMA cellular radio network equipment, and Lime Microsystems have cooperated on the development of a low-cost radio solution for AirWalk's EdgePoint PRO enterprise femtocell.

Lime Microsystems' LMS6002 configurable broadband transceiver has been applied to the design of femtocell radio subsystems. According to a Lime spokesman, support for operation over multiple frequency bands enables the development of dual band femtocells with frequency-agile pilot beacons while reducing band-specific parts count.

"We see this collaboration with Lime Microsystems as a key enabler for the EdgePoint PRO, providing the wideband capabilities to allow us to build femtocells in various RF bands at minimal cost while having the flexibility to address the market needs of worldwide operators," said Serge Pequeux, president and CEO of AirWalk Communications. "The LMS6002 also allows us to develop radios that not only meet, but exceed, 3GPP2 specifications, making the EdgePoint PRO a highly efficient, reliable, and low-cost solution for enterprise wireless needs."

EdgePoint PRO uses a clustering feature to assure soft handoff between multiple units along with a hand-in/hand-out capability to the macro network. This unit is available as wall mount or rack mount with simple plug-and-play installation and advanced SIP/IMS interface.

new products

JVC puts Bluetooth back in the video camera

Bluetooth-industry stalwarts will remember that way back in time, Bluetooth was mooted as a viable data transfer mechanism for video cameras. Various companies, but most notably Sony, talked about and even test-marketed Bluetooth-enabled video cameras. In truth and in practice, for all of the obvious appeal, this was a non-starter. In those days Bluetooth's data rate was at the original, sub 1MBps level. Not at all viable for transferring video files around. And even recent updates have denied Bluetooth a place at this table. Bluetooth 2.0 delivers 'up to 3Mbps', while Bluetooth 3.0 + High Speed promises 'up to 24Mbps'. That may be ok-ish, but you can't buy any Bluetooth 3.0 consumer products just yet.

Even 24Mbps is going to be a bit patience testing if you have a 3GB HD file to move from your camera to your editing PC. What we really needed was something like Bluetooth + UWB, but that's a discussion for another time ....

But it appears that this wasn't the end of the story. JVC has announced the availability of a new high definition Everio camera with built-in Bluetooth, allowing the camera to work with a variety of other wireless devices. Among the capabilities the camera's Bluetooth technology offers is control of the camera using a smartphone, geo-tagging of videos and stills and use with a compatible Bluetooth headset.

With the installation of a supplied application, a Bluetooth-equipped smartphone can be used to control the camera remotely, allowing record, zoom and play operations. Use the camera with a GPS device to record location data of

where movie and still files were recorded. The data synchronizes with Google Earth when viewing the file on a PC using the bundled Everio MediaBrowser software. The camera can also be used with a Bluetooth-equipped headset to monitor the recorded sound or for voice recording. This latter point would be really handy, as we can attest. It really grates to be using wired headsets when we are filming for IncisorTV!

Aside from offering built-in Bluetooth wireless technology, the GZ-HM550 has a 10.62 megapixel back-illuminated CMOS sensor that enables shooting of 1920 x 1080 Full HD videos and real nine megapixel digital stills. Recorded content is stored on the internal 32GB flash memory, with an SD/SDHC card slot to provide additional storage. And like many other models in the new Everio lineup, the GZ-HM550 offers shooting functions like time lapse recording and Auto Recording.

So, this is a new take on Bluetooth-enabled video cameras. How useful will it be in practice? That's hard to tell. We will see if we can get a review sample in, and let you know. For now, we can tell you that the JVC GZ-HM550 Bluetooth enabled camera is available now and that the price in the US is $799.95.

Hyundai-Kia introduces Parrot OEM-equipped vehicles

Bluetooth specialist Parrot has announced that its OEM solutions will be implemented in new Hyundai-Kia vehicles in Europe, starting with the Hyundai Tucson IX35 through Mobis, Hyundai's largest Tier-1 supplier. This new step follows the ongoing cooperation between the two companies in the North American and Asian markets, and means that the agreement between the two companies

now covers the majority of the world automotive markets.

The Tucson IX35 is the follow-up model to the best-selling Tucson SUV. Parrot claims that the Bluetooth hands-free solution is a market groundbreaker as it implements a Speaker-Independent Voice Recognition solution in 20 languages. To place a hands-free phone call via Bluetooth, customers just need to speak their contact's name, with no need to record voice tags or browse their phonebooks.

"Parrot Automotive Connectivity implies best-in-class integration and easy-to-use features. The Speaker-Independent Voice Recognition will shortly be extended to music management in addition to telephony and will be available to all Parrot customers as a turnkey solution" said Eric Riyahi, OEM Executive Director at Parrot.

Editor's note: IncisorTV will record an automotive feature during April, and the resulting movie will be available around the time of our next issue.

2 WEEKS 2 GO

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Luke D'Arcy, Cambridge Consultants

Whitespace radio

By Luke D'Arcy, Head of Whitespace, Cambridge Consultants

A recent ABI study found that the number of permanently connected netbooks, laptops and tablet PCs will increase 55 fold in the next few years. Network operators rightly see this as a major opportunity, but with todays overstretched networks it will be hard to avoid disappointing performance. Coping with the inevitable flood of data will require radical action, most likely including a new approach to spectrum management.

With one of the largest independent wireless development teams in the world, Cambridge Consultants is applying advanced spectrum access technologies such as cognitive radio to help manufacturers, network operators and equipment vendors address this problem.

It's easy to forget how uncommon cell phones were only 15 years ago. In those days, handheld wireless devices were the preserve of high-flying businessmen and the super-rich, who were prepared to pay premium prices for the service or status offered by, what were then, novel devices. Wireless services and products have now become truly pervasive and form a central part of modern life in all developed (and many developing) regions.

New devices, such as tablet PCs will be even more data hungry than smart phones and many, particularly those based on Google's Chrome OS, will only be fully functional when connected to the internet. Existing wireless broadband services will struggle to meet the new demand.

Next generation network technology may help a little. Long Term Evolution technology (LTE), promises up to 100Mb/s data rate: faster than most wired broadband. But this is a peak data rate per sector; just as with current 3G systems, the data rate experienced by a typical user will be much lower. LTE will perhaps do better than double the current capacity, but this will be nowhere near enough.

Could Wi-Fi take the strain? Many smartphones already switch to Wi-Fi whenever an access point is in range, such as when the user is having coffee at Starbucks. This technique, assuming it is implemented in a way that is transparent to the user, certainly has the potential to greatly reduce the load on networks, improving performance for everybody. And there is plenty of room for
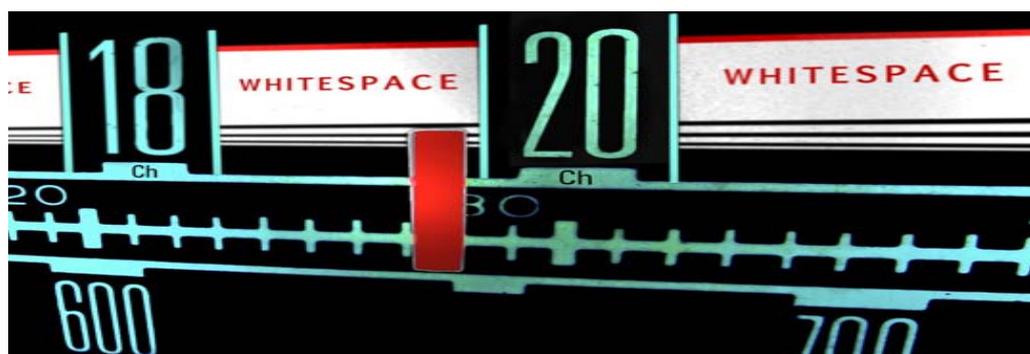
expansion. Only one of the three main unlicensed bands is heavily used today.

However, whilst undoubtedly useful, Wi-Fi can't offer a complete solution because of its short range. There is already good bandwidth available for users who are prepared to go to a specific location, for example a coffee shop, home or office, to access the Internet. This works well - users rarely complain about slow data rates when they are connected via Wi-Fi. What they do frequently complain about is poor bandwidth when they are not in a specific location that is out of range of a Wi-Fi access point. Unfortunately this is most of the time.

A good solution, then, would be to increase the range of each access point, allowing more users to benefit from the fast connection. This would be wonderful but the propagation characteristics of Wi-Fi at 2.4GHz just aren't good enough to make this practical. The 5GHz and 60GHz unlicensed bands have even shorter range because of their higher frequencies.

The solution is to make more long-range capable, sub 2GHz, spectrum available for broadband. Many studies have shown that, while theoretically fully allocated, this spectrum is lightly used even in crowded urban areas. For example, a recent study showed that 82% of sub 3GHz spectrum capacity in Chicago is unused. Other studies in the UK have produced similar results. In rural areas, where fast broadband is often not available at all, the spectrum is even more lightly used. What a waste!

The FCC's Whitespace Radio initiative defines a new regulatory approach for this valuable but underused resource. The key change is to

allow secondary users to make use of spectrum that is currently off-limits, but only when the primary license holder is not using it. This way regulators can ensure that more of the spectrum is put to productive use, delivering better value for users.

In the case of the current whitespace proposal, this results in Wi-Fi-like devices (which could be LTE Femtocells) sharing the frequency band currently used for TV broadcasts and wireless microphones. Broadcasters have raised legitimate concerns about this: nobody wants their favourite TV show to be ruined by interference. These concerns were not eased when several prototype whitespace radio devices failed to meet the full expectations of the FCC in initial tests. In response, the FCC tightened the rules governing interference by insisting that whitespace radios must be location aware, and must consult an official database to determine exactly which frequencies are free in their location. However, it's not clear how database methods alone will enable highly efficient use of available spectrum on a real time basis, so it is our view that enhanced sensing technologies will continue to play a vital role.

Overall, it's clear that spectrum management is on the verge of a significant shake up, regardless of the precise solution(s) adopted. To allow key stakeholders to share their views in this regard, Cambridge Consultants recently facilitated a round table event with significant players in this space - operators, silicon vendors and product designers - to explore the likely impact of this innovative regulatory approach. To request a copy of the report please go to the Cambridge Consultants website: http://www.cambridgeconsultants.com/fm_whitespace-10.html

Bluetooth consumers BiteBack

And - how do we get the world to love Bluetooth again?

by Vince Holton

So what do consumers really think about Bluetooth? Do they all think it is perfect? Do they know about the broad range of Bluetooth products that are available today? Is everything working well for them? Do they think Bluetooth is cool? How could Bluetooth be improved? Why aren't more people using more Bluetooth products?

These were all questions that I had been asking myself on a regular basis. If I'm honest, I was getting to feel that there was a growing gap between what the industry thought consumers knew/were thinking, and what was actually going on. It's probably natural that this should happen. Bluetooth is no longer a new technology. The world has been talking about Bluetooth since the late 'Nineties, and it has been possible to buy Bluetooth-enabled products since the early 'Noughties.

After a huge amount of hype in the early years, and an almost unprecedented, cross-industry effort to build awareness of Bluetooth, the technology has matured, and – understandably – the amount of effort by consumer electronics companies to promote their support for Bluetooth has tailed off. That doesn't mean that Bluetooth buy-in from the industry has reduced. No, on the contrary, Bluetooth implementation continues to increase, and Bluetooth is to be found in more, and more diverse devices.

But ... I suspected that public levels of awareness weren't growing any longer. And I also suspected that not as many people were using Bluetooth as had been the case at one time. This was not a popular concept with people in the industry, and there was some reluctance to accept that this might be the case.

The BiteBack vehicle

There was only one thing to do. I needed to get out there and talk to some real, live consumers, and to ask them a selection of the questions at the top of this article. And maybe, along the way, I would find some of the answers to the question that people have been quietly asking, namely, what is needed to kick-start Bluetooth? I'll deal with that rather huge question at the end of this piece.

I created a corny-named concept called BiteBack. Yes, another play on the 'tooth thing. During October last year, I took the Incisor cameras out and set myself up in a live music venue in the UK. I then dragged consumers in front of the cameras and asked them to tell me about their Bluetooth experiences. Afterwards, I edited the resulting interviews into what I called the BiteBack UK movie, which was published to Incisor's readers all over the world. You can watch that first movie by clicking on the screen over the page.

So... Is Bluetooth cool?
What would it take to make it cool?

And what conclusions did I draw from that exercise? Well, reducing my findings to a set of bullet points, I think they would look like this:

- British people were outspoken about their Bluetooth experiences. The two main complaints were that they had had too many bad experiences with Bluetooth devices, and that wearing mono Bluetooth headsets made them look silly. In fact, most said they didn't and wouldn't use Bluetooth headsets.

- Most people had used Bluetooth as a file transfer mechanism, swapping music and picture files with friends.

- People were using Bluetooth less than they used to. File sharing, which was at one time a popular application, was now happening less and less.

- The Bluetooth brand mark (logo) was familiar to most people, although most said that they now see little or no Bluetooth marketing. This has reduced from times gone by. The consensus was that if Bluetooth was to become 'hot', it needed more and better directed marketing.

- This first BiteBack event started to make us aware that consumer's view of Bluetooth was much narrower than the industry might like to think. Get beyond handsets, mono headsets and PCs and you were going into unknown Bluetooth territory.

The best way to judge people's opinions is, of course, to watch the movie. And a lot of people did. So much so that shortly after BiteBack UK went public, the Bluetooth SIG invited IncisorTV to re-stage BiteBack in Seattle, which we did. This was a great opportunity to gauge the opinions of consumers on the other side of the Atlantic. At this point, the BiteBack programme also gained the support of two very consumer-facing Bluetooth companies, Jabra and Parrot. These two companies have developed broad ranges of Bluetooth-enabled products, and this was a great opportunity for both of them to not only learn more about the way the world was seeing Bluetooth, but also to use the BiteBack events as an evangelisation opportunity. At each subsequent BiteBack event, we took along some of the latest products from Jabra and Parrot, and these were shown

to the audiences at all of the rest of the BiteBack events.

And so, we crossed the Atlantic.

BiteBack Seattle

So how did this event differ from the UK BiteBack? Well, it was to be expected that we would be talking to a fairly well-informed set of people. Seattle is, of course, Microsoft's back yard, and many other technology companies have gravitated to the West coast town, creating some sort of tech-Mecca. It was quite likely to be the case that a lot of the people we would be talking to would be employees of tech companies, and this did indeed turn out to be the case.

Once again, you can watch the movie by clicking on the screen link here.

Do you use Bluetooth?
If so, how & what for?

The Seattle-ites were a little less outspoken (alternatively, more polite) than the UK consumers. Nevertheless, they had definite opinions of their own:

- One of the strongest opinions was that they didn't like the fact that US network operators interfered with the Bluetooth capability of their handsets in order to disable file transfers. The operators want their customers to pay network data fees to swap files with friends. The tech-savvy Seattle consumers know that they don't need to pay to do this, and resented the net-ops practice.

- Once again, we found that people were using Bluetooth less than they used to.

- Rather than being excited about using Bluetooth, the overall view was flat.

- The high levels of technical know-how amongst Seattle consumers gave us the first instances of criticism of the way Bluetooth support was provided on the PC platform. For the first time, but not for the last, we heard 'Microsoft bad / Apple Mac good'.

- On the positive side, it's fair to say that more Seattle people described Bluetooth (and wireless technology generally) as cool.

At this stage it was possible to start to discern trends – these were: usage –

particularly the once popular file-sharing application – is reducing, mono headsets are very uncool , nobody knows about stereo headsets, Bluetooth in cars is ok, people do consider wireless technology to be reasonably cool as a concept, and finally that awareness of Bluetooth-enabled products outside of handsets, mono headsets and PCs is very low indeed.

And so BiteBack moved on ....

BiteBack Asia

This was a big step for the BiteBack programme, both in terms of distance and culture. We were experienced in the US and European markets, but we didn't know a lot about the South Korean market. Our time spent there was a real eye-opener. Once again, watch the movie to get the full picture, but the main things that we learned were:

BiteBack Asia
December 2009

- Most Korean people are aware of Bluetooth, but - compared to the US and UK consumers - a higher proportion of the people that we spoke to had yet to try Bluetooth

- Mono headsets don't suffer the same stigma that they do in the West.

- Bluetooth is considered cool and aspirational.

- Bluetooth is also considered expensive, which is restricting take-up

- Once again, file-sharing was the most popular application

- Bluetooth usage was increasing, rather than decreasing

What also came out of the interviews that we did in Seoul was the fact that South Korean consumers, including the young students that we spoke to, are serious, intelligent and thoughtful people. There were none of the jokey insults we had heard elsewhere, and it was clear that if somebody had been using Bluetooth and had experienced a problem, they were more likely to try to figure it out and solve the problem rather than simply throwing the Bluetooth gadget in a draw and forgetting about it.

The message – this is a fast-growing and serious market with real potential,

and one that deserves cultivating by CE manufacturers.

BiteBack Sweden

This most recent BiteBack event effectively saw us closing the BiteBack loop. Much of the early development of Bluetooth took place in Scandinavia, and so it felt rather like we were 'going home'.

As in Seoul, we split our interviews across two locations – the Malmo University library and a music venue. At the outset we assumed we would be talking to a tech-educated audience, and this very much proved to be the case. The Swedes we were talking to have not only been using Bluetooth for a long time, they also use Wi-Fi extensively, and combine the use of wireless technologies with relatively complex applications.

What were their main observations relating to Bluetooth? Well, watch the movie, but here are the main points:

- Lots of people (the majority) had been using Bluetooth for some considerable time, but most said that they used Bluetooth less now than they used to

- Some expressed the view that Bluetooth was less reliable than Wi-Fi, and that they considered Bluetooth best for audio applications

- The more complex applications that Swedes have been using brought more and stronger criticism of the difficulty experienced using Bluetooth in the PC environment

- The Swedes proved to be very safety conscious. While there is no legislation in Sweden banning the use of cellphones in cars, there was a broad reluctance to make calls while driving, even using Bluetooth handsfree devices. This safety consciousness extended to worries over whether Bluetooth could interfere with the car's own systems, and some still worried about the possibility of health risks associated with using radio devices near the head.

- There was virtually no feeling that wearing a Bluetooth mono headset outside of the car was uncool or left the wearer open to ridicule. Most said that they were used to seeing people wearing headsets, and that it was 'normal'. Having said that, awareness and usage of stereo headsets was very low.

- As some UK interviewees observed, a number of our Swedish interviewees said that they considered Bluetooth a business tool, rather than something that everybody used.

As you would probably expect, Swedes embrace technology, and the overall view was that wireless technology was a good thing, and something that can simplify and improve life. Most felt that wireless would play a growing role in their own lives.

And so we conclude?

Well, yes, we are concluding, because the BiteBack programme in its existing format has probably run its course. We have spoken to people in the USA, the UK, Scandinavia and in Asia. This has given us a very broad view of how people across the world see Bluetooth.

This summary section is also where we run the risk of alienating ourselves from a lot of people in the industry, because we're forcing people to confront unpleasant facts of life. So, if anybody is in any doubt, here is our base platform – WE ARE LONG, LONG TERM SUPPORTERS OF BLUETOOTH TECHNOLOGY AND WE ARE JUST DOING OUR BIT TO KEEP THE MUCH BIGGER, MUCH MORE POWERFUL COMPANIES THAT DRIVE THE INDUSTRY POINTING IN THE RIGHT DIRECTION!

The project leaves us with enough data to be able to make some recommendations to anybody in the industry that wants to listen – although we know that this won't happen automatically! If you work in marketing it's a lot easier to believe that your audience is as educated and well-informed as you would like them to be, and that all of the work you have put into creating your web site means that the job is done.

Well, actually it isn't. The utterly overwhelming fact is that consumers all over the world know much less about Bluetooth than we would like them to. Had we talked less to young people, and more to middle aged and older people, there is no doubt that this would be even more the case.

And people are using an extremely narrow selection of Bluetooth-enabled devices. Usage is almost completely limited to cellphones, mono headsets and computers. Note that we are restricting ourselves here to the vast consumer market. It may well be the case that some traction is being gained in markets such as sports and healthcare, but as yet these are tiny markets. Why aren't people using stereo Bluetooth headsets, Bluetooth speaker systems, photo frames, in-car Bluetooth and any of the other clever Bluetooth gadgets that keep popping up? Why are consumer facing companies like Sony Ericsson, Motorola, Parrot, Jabra etc all finding it hard to gain acceptance for the great products that they have brought to market?

And, crucially, why are people now using Bluetooth less than they were a couple of years ago?

In my own view, the simplest answer is the fact that the impetus, the industry-wide 'push' that was driving Bluetooth forward ran out of steam probably 18 – 24 months ago. Following the timeline, vendors had put several years into getting Bluetooth into their CE devices, had suffered the slings and arrows of consumer disillusionment resulting from poor user experiences from early generation Bluetooth silicon, then did what they needed to, which was to put later Bluetooth silicon (V2.0 and later) into their products and then ....

Well, it's not necessarily the case that they had lost interest in Bluetooth, but it was no longer the latest thing. And consumers only ever want the latest thing, don't they? Well, yes, but they also want the technology they once got excited about to fulfil its promise. The irony is that the products on retail shelves today generally do work as they should do, and will make consumers love Bluetooth again. The trouble is, by this time the vendors have lost the enthusiasm for putting another major push behind Bluetooth. They are probably wary that the audience will say 'tried it once, it didn't work, don't want to try it again'. Building a market for a new technology is enough of a challenge. Trying to make a new market for a technology that has disappointed customers once is another matter altogether. And why take on that challenge when there are lots of shiny new technology bandwagons that you need to be seen to be on?

The media view

Publishing Incisor I can see all sorts of evidence to support this main view. Before looking at the various indicators that my job puts in front of me, it would be foolish not to reference the small matter of a global economic recession, which has hit sales of handsets and other CE devices. Cellphone companies have been hurting, badly, and haven't been developing the accessories that they once were.

But then there are the other telltales. The bottom fell out of the Bluetooth industry event market more than 2 years ago for example. Various event companies have tried and failed to stage successful events around Bluetooth. Then consider that while the industry is uncertain as to know what to do with Bluetooth, marketing of the technology has dropped off. Most of our interviewees told us that they never see any marketing of Bluetooth technology. We all know that without marketing, it's going to take some sort of miracle to get consumers swarming to buy a technology. The extent of the marketing fall-off extends beyond consumer marketing. Courtesy of both the downturn in the economy and Bluetooth fatigue, companies in the Bluetooth industry aren't marketing to each other either. As a publication servicing the SRW industry, Incisor knows that not only has advertising virtually stopped, but companies aren't even putting any energy into PR either. The number of Bluetooth-related press releases that are issued each month is now tiny in comparison to previous times.

Even the market research companies seem to have lost interest. Incisor is aware of only one that seems to retain significant interest in the Bluetooth market, and even that company seems to be wavering over its continuing commitment. They know who they are .....

And yet, life goes on

The irony of all of this is that the companies operating in the Bluetooth industry haven't ceased to exist. Most are still out there and are looking to carry on doing business, often to each other, selling semiconductors, protocol stacks, testing and certification services etc. Though with the almost total lack of marketing and PR activity, how the heck anybody is supposed to know what anybody else is doing is very hard to tell! There's a real danger of the 'self-fulfilling prophesy' factor coming into play here.

Throughout all of this the Bluetooth SIG continues to plug away at keeping Bluetooth's profile up, and making sure that the technology continues to provide the functions that the market needs. It has always done a good job of this – it's generally recognised that the SIG has done a better job than any other wireless industry association. The problem is that for a long time, the SIG's hard work was boosted by the co-operation, support and resources of the huge, powerful companies that make up its principal membership. Take this level of energy away, and the SIG is left somewhat exposed, and with a huge global challenge ahead of it.

But, hang on a minute ...

Well, yes, hang on a minute. The Bluetooth market is still huge. There is still a lot of money to be made. And, bearing in mind the latent potential that there must be – consider the lack of business success achieved so far by any Bluetooth product that isn't a handset, mono headset or Bluetooth-enabled computer - there really is a market worth shooting for. And if consumers can only be persuaded to try out the latest generations of Bluetooth product, they are likely to be happy bunnies and motivated to extend their Bluetooth usage.

So, what is it going to take to tip Bluetooth off the edge of the very high slope it is been sitting patiently at for 2-3 years now, and to open the sales floodgates? Well, let's not pretend that it isn't going to be a big job. A challenge that is so big that I wouldn't pretend for one minute to have all of the 'what you must do is...' pointers.

But I can make some observations, based on 5 months of talking to consumers about Bluetooth. I'm going to limit myself to just a small number of suggestions.

- Do not for one minute reduce the effort that is being made to continue to improve the Bluetooth user experience. Without ease of use and a good UE, you might as well pack up and go home. PCs in particular need to be more Bluetooth friendly. In the PC ecosystem there's nothing approaching the degree of uniform (-ish!) Bluetooth config that consumers have been starting to get used to in the rest of the market.

- Focus on making people want to use Bluetooth. Time after time it was made obvious that people want to have fun – e.g. they'll give their Bluetooth device a name like 'sausage'! For heaven's sake have the courage to get out there and try some marketing, and make it something that consumers will like – fun, viral, cheeky,

- Listen to the fact that people are feeling hugely reluctant to wear Bluetooth headsets for fear of looking stupid. What's the answer? I don't know, but ignoring this factor, and continuing to churn out more 'me-too' headsets certainly isn't it.

- Be realistic about Bluetooth pricing - £100 for a Bluetooth headset is just crazy. You may have invested millions in developing your headset range, but just because your latest product has noise-cancelling and a DSP in it, t doesn't mean that a consumer will feel motivated to pay a lot of money for your little piece of plastic

- Conquer the 'tried it, it didn't work' stigma. Current generation Bluetooth products need to be experienced by consumers. Some of the braver CE companies need to find ways of doing this. Roadshows, dedicated events and exhibitions are costly. Use your web sites and create good content that shows real people using and enjoying your product. I hate to be an Apple groupie, but the company does this sort of thing very well. And don't be too proud to copy the technique. After all, why agonise, when you can plagiarise?

Most of all, the players within the Bluetooth industry should try to see if there are ways that they can co-operate in the way that they used to. It was pretty unprecedented, I know, but it worked. Maybe a new, pan-industry, consumer-facing marketing initiative can be devised – a game, a celebrity endorsement campaign, a competition, a charitable project – there are many possibilities. The Bluetooth SIG can be the axis around which it revolves, and can perhaps host the core activity at its web site. The end result could be a great deal of positive publicity for Bluetooth and the Bluetooth community. And by combining resource and effort, this doesn't need to be too taxing for any one company. Maybe we will get the opportunity to talk about this at the SIG's All Hands Meeting in Seattle later this month. 'Seems like a good opportunity.

The IncisorTV BiteBack programme may be pretty unprecedented in that it has provided a video-based market research resource for companies that have a real interest in knowing what consumers really think about Bluetooth. But, I believe that this has been a truly valuable exercise, and I know that there are people out there that have genuinely appreciated the insight that BiteBack has provided.

What comes next? Something equally innovative and valuable.

wi-fi / wlan news
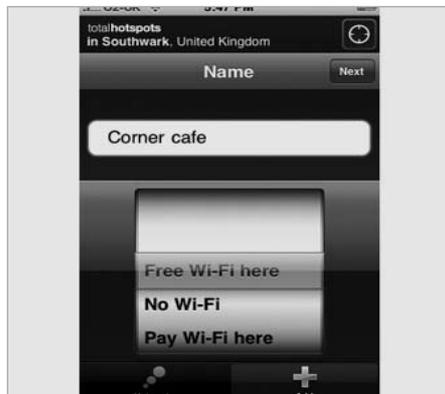
High power 2GHz 802.11n WLAN Power Amp from SiGe

SiGe Semiconductor has launched the SE2576L, a 2.4GHz Wireless LAN power amplifier (PA) module. SiGe claims that the new IEEE 802.11bgn device is the industry's smallest and most efficient power amplifier operating at 26dBm. The SE2576L targets applications requiring high RF transmit power such as residential video and data transport, enterprise and outdoor networks as well as public hotspots.

Commenting on the new device, Jose Harrison, Director, Product Marketing, Computing, Networking and Consumer WLAN at SiGe said, "We designed the SE2576L with a focus on ease-of-use and maximum flexibility. This PA module allows our customers to lower their development, qualification and certification costs. Most importantly, it assists them in reducing time to market for incorporating Wi-Fi functionality into a range of previously un-networked products."

The challenge facing high-power WLAN connectivity resides with the RF power amplifier. As the PA operates for a period of time at higher RF power levels, the PA itself tends to increase in temperature. As the PA increases in temperature, its ability to maintain the desired RF power level degrades. This in turn causes the PA control loop to increase RF power, which results in further increases to the operating temperature of the PA. In addition to reducing RF power, increased PA temperature degrades linearity performance, corrupting the transmitted data as well as creating interference in nearby Wi-Fi frequency channels.

The SE 2576 features a temperature compensated, load insensitive power detector with 20dB of dynamic range and <1.2dB variation under 3:1 mismatch at the antenna. SiGe told Incisor that the combination of this power detector and the inherent thermal dissipation benefits of silicon germanium means that the SE2576L can deliver consistent performance over temperature extremes in high power applications where self-heating requires special attention.

The SE2576L comes in a small lead and halogen free, ROHS-compliant, 16 pin, 3mm x 3mm x 0.9mm QFN package and is available now.

Wi-Fi in 25% of handsets by 2012

Mobile handsets with embedded Wi-Fi continued to experience growth in 2009 despite total handset shipment declines, reports In-Stat. While the 2009 Wi-Fi mobile handset growth rate of more than 20% was significantly slower than 2008's early market monster growth, In-Stat expects that 2010 will see resumed strength with units exceeding 180 million.

While the majority of current Wi-Fi enabled handsets are smartphones, feature phone manufacturers are also beginning to incorporate this feature, providing double stimulus for Wi-Fi handset growth.

"There are three primary zones of Wi-Fi handset usage," says Frank Dickson, In-Stat analyst. "At home, at the office and on the go. In the home, while broadband penetration has increased significantly over the past several years, so too has Wi-Fi penetration. This has enabled home networks that will rely on Wi-Fi handsets for voice and to share information with other devices, such as TVs."

"In the office, enterprise smartphones will continue evolving to leverage VoIP's potential, and on the go, consumers are increasingly leveraging Wi-Fi enabled handsets as they become more educated about hotspots."

Research by In-Stat found that while the majority of respondents from its recent survey still access hotspots with a notebook, more than a quarter of the responses indicated accessing a public network with Wi-Fi enabled handsets. The potential for voice over Wi-Fi is also gaining popularity, as cellular/Wi-Fi phones become more pervasive and consumer familiarity with VoIP increases. In-Stat also concluded that while the enterprise was the original smartphone/Wi-Fi handset market, consumer adoption has also experienced strong growth, largely due to the

success of Apple's iPhone in the consumer market.

Consumers cite security concerns as barrier to hotspot usage

While it would be expected that enterprises would express concern over the security of Wi-Fi hotspots, it is actually the individual that is driving these concerns, reports In-Stat. According to In-Stat's hotspot research, over three-quarters of survey respondents are personally aware of and proactive regarding security concerns. The number of respondents indicating that their companies restrict Wi-Fi usage has dropped below 15% of the total respondents; a significant shift from 2008 when nearly the figure was 31% of respondents.

"While consumers and businesses are cautious about hotspot security, this hasn't stopped them from using hotspots in dramatically increased numbers," says Frank Dickson, In-Stat analyst. "In-Stat estimates that hotspot usage will increase in 2009 by 47%, bringing total worldwide connects to 1.2 billion."

Recent research by In-Stat found the following:

- Lack of availability was the second most cited barrier behind security to hotspot usage, followed by cost.

- Wi-Fi-enabled entertainment devices, such as cameras, gaming devices, and personal media players (PMPs) shipments will increase from 109 million in 2009 to 177 million in 2013.

- Asia Pacific will experience the greatest growth in venue deployments over the next few years, largely driven by large-scale deployments in China.

In-Stat's report covers the worldwide market for Wi-Fi hotspots and includes information such as forecasts of mobile handsets with embedded Wi-Fi sales through 2013 and forecasts of hotspot venue and usage growth for North America, Asia, and Europe through 2013.

The need for speed:
introducing
Long Term Evolution

by Dean Anthony Gratton

I recall touching upon this subject briefly in last month's article following a call with Rupert Baines, Vice President of Marketing at picoChip (picochip.com). In the article (The Marmite Affair, Femtocells) I intimated that I wanted to discuss the subject of Long Term Evolution (LTE) and I think it's now a perfect opportunity to dispel some of the myths and common misunderstandings. Anyhow, it allows me to discuss a subject that normally wouldn't be permitted in Incisor, as typically the magazine covers the short-range RF domain, but with very recent partnerships, I can now consider a wider review of wireless technologies – a prospect that has been causing my fingers to twitch in anticipation.

Okay, I'm now opening up iTunes to select some background music and for this month's music choice I have come across a debut album from Ellie Goulding, Lights – I'm loving the sound! It's early on a Saturday evening and I don't have to wrestle with the usual morals of "shall I start the wine?" as, alas, it's too late! I have a lovely glass of Faustino, Rioja beside me and I'm relishing its velvety smooth spiciness! Well, if the former Editor of the Sun newspaper can confidently quaff four bottles of wine a day whilst editing (albeit a tabloid!), then what's the harm with one bottle (or dare I say two!) – all shared with the wife of course!

A new generation

Over the last few decades, we have all witnessed a rise in the consecutive cellular generation, 1G, 2G, 3G and so on. With that in mind, I'd like to address the motivation and consumer trends that have a large part to play in driving this incremental advance in technology,

capability and features. However, before I begin to unravel the technical make-up and motivation of Long Term Evolution, I just want to share with you my own recent experience as a consumer. Indeed, there's a new generation and mindset of consumers buying into a whole new generation of mobile or cellular products; of course, I'm talking about the Smartphone phenomenon.

Very recently (in fact, last week) I signed up with O2 for eighteen months and, as part of the contract, I have a bundled number of free minutes, text/picture messages and data roaming access (free within the United Kingdom) and let's not forget that all important free phone! I chose the HTC HD2 (htc.com), and yes, this feature-rich beast was free (with the caveat that I subscribe to a certain package). A number of manufacturers models were up for grabs, such as Nokia, LG and Samsung. I also had the opportunity to select the Apple iPhone

3GS 16GB, but I have used HTC for a number of years now and have seen the company's product portfolio evolve beautifully. The HTC HD2 is no exception, as it's an absolute joy to use – the user interface is magical and, in my opinion, is a step beyond the Apple iPhone generation. HTC have been bold in architecting a refreshingly tactile user experience based on Windows Mobile and their very home grown HTC Sense – the software responsible for that magical user experience.

Supporting new trends

Over the many years I have used various HTC products, their devices have become my PC away from my PC. What's especially interesting is the evolution of functionality - it seems the mobile phone has become much more than merely a device that supports a telephone call or text message – it has become an

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'experience' and this is where our journey with Long Term Evolution begins.

In fact, when I first set-up the device (which, incidentally took moments) I discovered a wealth of applications. The usual suspects were available, such as Microsoft Office, Internet Explorer and Opera, but I noticed the HD2 had a number of pre-installed applications targeting the social media conscious. In the application base, I have dedicated applications for Twitter and Facebook, with the option to download other social media focused applications as and when needed. In part, I would dare to suggest that the explosive popularity of social media is also responsible for driving mobile network operators to provide faster and consistent access to the wider IP-enabled network.

The need for speed

Whilst I fear this article might be considered an unsolicited advert for HTC, my true focus is to demonstrate the changing use of what was once a device designed solely to make and receive calls when away from the home or office. A device that could be relied upon in an emergency to summon assistance from a family member or from the emergency services themselves. Okay, admittedly this key capability hasn't changed, but a host of new scenarios have, and their unconditional adoption by many consumers has jolted the entire industry to recognize that provision must be made for a telecommunications infrastructure that can support far greater access to the Internet irrespective of location.

The emergence of Femtocells, specifically targeting consumers with data roaming packages from their telecommunications service providers, encourages data use within the home from a cellular device! As I recall from last month's article, a phone is just a phone, right? Evidently not!

Explaining Long Term Evolution

Many consumers have enjoyed fast download speeds from their telecommunications service provider within their own homes and, with recent British government proposals to ensure everyone across the UK has broadband access, it certainly raises the question, "what about data access on the move?" Indeed, that's where mobile or wireless broadband, comes into play; as a

proposition to provide broadband-like data access for mobile devices, such as Smartphones, net/notebooks and let's not forget the new Apple iPad. The emergence of Femtocells, WiMAX and Long Term Evolution are all gathered to offer consumers every opportunity to remain connected, irrespective of location. Even the population and availability of Wi-Fi hotspots enable consumers to stay connected to the wider network.

WiMAX has received only moderate success, but it seems everyone is exuberant about the new generation of cellular technology, namely LTE. LTE isn't 4G, but has been coined '3.99G', since it's not a fully fledged 4G standard. The proposed 4G standard is currently named LTE Advanced. It seems not all mobile network operators have upgraded their existing 3G infrastructures, with LTE being the next step in terms of cellular evolution and data capability, but in 2010 the industry expect greater deployment of LTE, where consumers may be offered, in the short-term at least, wireless broadband dongles to LTE-enable their legacy equipment.

The upgrade of UMTS

The 3rd Generation Partner Project (3GPP) governs the actual requirements of Long Term Evolution and, as such, it proposes a number of high-level requirements which should result in the ability to offer increased services at a lower cost to the end-consumer, along with enhanced user experiences and more efficient and flexible use of new frequency bands. Similarly, the download target for LTE is 100Mbps with an upload data rate of 50Mbps. Mobile network operators are expected to support 200 concurrent users (telephone calls) whilst ensuring minimal latency of IP-based packet delivery. Overall, LTE is expected to meet the requirement of providing high speed data access for all.

A significant ingredient of LTE is Orthogonal Frequency Division Multiplex (OFDM). As the signal bearer, it relies on two access schemes, namely Orthogonal Frequency Division Multiple Access (OFDMA) and Single Carrier Frequency Division Multiple Access (SC-FDMA). I hope that some of you are already aware of OFDM, as it's already used in Wi-Fi and WiMAX. Primarily, it's been selected for LTE due to its robustness against interference.

Wireless broadband for all

The provision of mobile or wireless broadband enables consumers to sustain their IP presence through social media sites like Twitter and Facebook. The new generation of consumers can now be assured of never missing that all important message from their virtual friends. Likewise, when I use my HTC HD2 whilst travelling, I can be sure to have access to my email and the Internet on the go.

We are currently witnessing many mobile phone manufacturers, all eager to introduce the next feature-rich Smartphone and, I dare say, most of them are attempting to catch up with Apple's iPhone offering. This is resulting in products that are both snazzy to look at and, above all, fast. It may be the latter part of the year before we begin to see LTE-enabled phones emerge onto the market and, in all honesty, I simply can't wait to experience that kind of mobile speed!

Until next month...

It's clear that this new subject matter (for Incisor at least) provides a gateway to exciting new developments and I very much look forward to covering other subjects within this domain in the coming months. But for now, this is where Dr G signs off for this month and I have already a few ideas rumbling around in my wine-clouded head. In particular, ANT (thisisant.com) has captured my attention, so be sure to watch out for that story next month.

About the Author
Dr Dean Anthony Gratton is a bestselling author and columnist. He has authored several patents, contentious articles and a number of bestselling books on wireless technology. He has worked within the telecommunications industry for over sixteen years and provides consultancy to a number of high profile companies.

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low energy wireless news

ZigBee and Wi-Fi Alliances to co-operate

The ZigBee Alliance and the Wi-Fi Alliance are to collaborate on wireless home area networks (HAN) for Smart Grid applications. The initial focus of the collaboration will be ZigBee Smart Energy 2.0, which is the next-generation energy management protocol for Smart Grid-enabled homes based on the ZigBee Smart Energy Profile. The ZigBee Smart Energy 2.0 is expected to operate over Wi-Fi technology as a result of the collaboration.

The two organizations say that they will identify opportunities to use ZigBee Smart Energy 2.0, capitalizing on the strengths and capabilities of their respective technologies. This will expand the utility of the HAN in the management of energy consuming or producing devices. ZigBee Smart Energy 2.0 was selected last year by the U.S. Department of Energy and the National Institute of Standards and Technology (NIST) as an initial interoperable standard for HAN devices.

The two organizations aim to deliver close integration of the two communication technologies in a smart home environment, including devices ranging from utility meters, thermostats, and appliances to home entertainment devices, computing systems, and automobiles.

"Working with the ZigBee Alliance members will enable more than the extension of the ZigBee Smart Energy profile to Wi-Fi," said Wi-Fi Alliance chief executive officer Edgar Figueroa. "The collaboration will help bring about the vision of a truly interconnected smart home. As a result of this agreement, representatives from each organization will be able to provide input on one another's Smart Grid activities to speed any proposed solutions."

The Smart Home and Smart Grid are targets for many short-range wireless technologies. In most instances the low power tech's like ZigBee, Z-Wave, EnOcean etc are able to provide a complete solution, as very small amounts of data are involved, and there is not much need to send data into the cloud. This

partnership between the ZigBee and Wi-Fi Alliances could provide a handy solution for more complex applications.

ZigBee Alliance adds standards to public download site

The ZigBee Alliance has now made two of its standards, ZigBee Home Automation and ZigBee Remote Control available for public download.

The enhanced ZigBee Home Automation public application profile, announced in August 2009, features expanded security and device support. The standard offers control for home appliances, lighting, environment, energy use, and security. It defines control of HVAC systems, power outlets, motorized devices, doorbells, mechanized window shades, security and other devices.

The ZigBee Remote Control public application profile offers control from nearby rooms, enables unique two-way communications between the remote and device, and is claimed to deliver improved remote battery life for a variety of consumer electronic (CE) devices like HDTV, home theatre equipment, set-top boxes and other audio equipment.

"These two ZigBee standards for the home offer a variety of benefits for CE product manufacturers and consumers," said Bob Heile, chairman of the ZigBee Alliance. "ZigBee gives product manufacturers new ways to innovate and differentiate. As a leader in the home space, our standards provide consumers with more ways to control a smart home than ever before."

Today, 28 products from a variety of ZigBee Home Automation categories have been certified by the Alliance and wear the ZigBee Certified product logo. The categories include buttons, deadbolts, dimmers, electrical switches, gateways, key fobs, meter relays, portals, sensors, smart plugs, and development kits.

Smart Home connectivity – talking the same language?

IMS Research has been looking at the Smart Home connectivity market and believes that this is a question that everybody wants to know the answer to - and everyone seems to have a different opinion!

IMS says that there are pros and cons for the utilization of each of these technologies, and no 'one-size-fits-all' solution. For example, Z-Wave offers a full existing ecosystem of products, with proven interoperability. Yet some companies are reluctant to back Z-Wave, due to the proprietary nature of the technology and in the U.S., its lack of inclusion by the National Institute of Standards and Technology (NIST) as a recommended technology for smart HANs (home area networks).

Conversely, ZigBee Smart Energy has gained support from NIST, and is slated for inclusion by some utilities in smart meters with integrated HAN-enabled gateways. This could make it easier for ZigBee-enabled devices to communicate directly with advanced metering infrastructure (AMI) signals, via the smart meter. Yet a number of companies here are still reluctant, due to the interoperability issues that have plagued ZigBee in the past.

The role of 802.11 in smart home energy management applications is somewhat understated by many commentators. There is significant demand for parallel broadband-based AMI infrastructures to enable homes without smart meters to react to demand-response signals from utilities. The development of lower-power 802.11 solutions also makes Wi-Fi more suitable for smart home applications; yet price and power parameters are still holding the technology back in the minds of many smart device manufacturers.

IMS Research concludes that in order for devices using different networking technologies to be able to 'talk to each other', multi-comms hubs and bridging devices will become increasingly important in the coming years.

low energy wireless news

Energy harvesting tech reduces Olympic Village re-fit costs

The end of the 2010 Winter Olympics saw a major re-work of the floor plan configurations of the accommodation that had been used by the Olympic athletes. Rooms that were bedrooms for athletes became living and dining areas. Technology provider Echoflex Solutions had built flexibility into Olympic Village town homes at the build stage, knowing that once the games were over, walls would be removed in order to revert back to floor plans more suitable for single families. With this massive re-configuration in mind, Cheakamus Crossing Village managers chose EnOcean-based energy harvesting and wireless controls – apparently saving them 70% in installation and renovation costs when compared to hardwired solutions ($1000 per unit in renovation repair costs).

According to Echoflex, hardwired solutions proved more costly and non-EnOcean wireless solutions proved flawed (non-EnOcean controls caused lights in neighbouring units to be unintentionally turned on and off). Factory-set unique IDs overcame the problems encountered by non-EnOcean wireless solutions. Since they are wireless, EnOcean-enabled controls eliminated the costs of fishing wires through walls and ceilings, and then of removing wiring and repairing spaces after the winter games were over.

In this installation, Echoflex claims that $1000 per room was saved by bypassing wired limitations via wireless communications. In addition to the benefits of wireless, the lighting controls are also self-powered, harvesting energy from motion caused by each press of the switch. The motion energy harvesting module inside each light switch provide maintenance-free operations for 20+ years. No batteries are required for operation and the switches can be moved according floor plan changes or tenant preferences.

2-way comms for energy harvesting sensors

With the introduction of EnOcean's new Dolphin platform, bi-directional, self-powered wireless sensors and actuators mean that EnOcean sensor modules can transmit information as well as receive it.

A room temperature regulator, for instance, is not only able to send the temperature set for a room to its central controller. In the reverse direction it can now also receive commands from this central point and indicate them. At the same time the radiator is controlled and the momentary room temperature adjusted to a new setting. In this way large hotels can control and reduce their energy consumption centrally, without having to set the temperature separately for each room.

EnOcean told Incisor that the benefits of the new Dolphin modules go beyond extra convenience and enhanced flexibility in hotel management. In many applications, including sensitive ones such as medicine or security, the receipt of a wireless signal now has to be acknowledged. If no acknowledging signal is returned, there may be defects in the system that can be immediately detected and corrected.

A major component of Dolphin system architecture is the bi-directional STM 300, TCM 300 and TCM 320 wireless modules. These come in versions for a standard frequency of 868 MHz or 315 MHz, so they can work in applications worldwide.

The new platform remains backward-compatible with all earlier unidirectional, self-powered wireless switches, sensors and actuators in EnOcean technology.

Energy Micro on firmer ground, secures $13 million funding

Energy Micro, the microcontroller company created by Geir Forre, is in the limelight again, and this time the news seems to be more positive. Forre was the founder of wireless chip company Chipcon, which was bought by Texas Instruments for $200 million in January 2006. TI ended-up taking Forre to court, alleging that he had been trying to recruit Texas Instruments staff in contravention of terms and conditions laid down at the time of the Chipcon acquisition.

The dust seems to have settled, and Energy Micro must have the confidence of the investor community, as the company has secured an investment of $13 million from Northzone Ventures and Investinor in its first external funding round.

The investment will apparently be used to continue the development of Energy Micro's microcontroller product portfolio, to develop and bring to market a family of energy friendly radio products and to expand the organisation and sales channels to support future high growth. Energy Micro launched its first product, the 32-bit EFM32 Gecko microcontroller family, in October 2009.

Speaking at the time of the announcement, Førre, now CEO of Energy Micro said: "Energy Micro had the enviable position to be able to choose from a number of top tier VCs who all wanted to invest in the company. We are very proud to have Northzone and Investinor as our first external investors and members of the board, and believe they will contribute significantly to the company's development and growth in the coming years."

low energy wireless news

Nordic & Gigifit base iPhone fitness apps on ANT

Ultra low power (ULP) RF specialist Nordic Semiconductor ASA has told Incisor that Digifit Connect – which is claimed to be the first iPhone and iPod touch accessory to enable fully integrated fitness and heart rate monitoring – employs a Nordic Semiconductor 8-channel nRF24AP2 single chip ANT solution with ANT+ interoperability.

Digifit Connect is the enabling interface to the Digifit Ecosystem. In operation, the Digifit Ecosystem comprises three parts. The first is the Nordic Semiconductor nRF24AP2-based wireless bridge known as Digifit Connect. This connects via the 30-pin connector to an iPhone or iPod touch to allow 2.4GHz ULP wireless communication with ANT+ compatible health and fitness sensor products. Then there are the Digifit Ecosystem apps and finally there are ANT+ interoperable wireless ULP health and fitness sensors, such as heart rate monitors, foot pods, cycling speed and cadence sensors, as well as weight scales.

The Digifit Ecosystem is a suite of interacting apps that track any kind of cardio exercise anywhere a user takes their iPhone. Michael Williams, Founder and CEO of the company behind the Digifit Ecosystem, iTMP: "With our Digifit Ecosystem, all of my fitness and health information is tracked in one central repository right on my iPhone. And because I have it all together now on one internet-enabled device, I can send my data to the cloud with a single tap. And while there are many great fitness apps for the iPhone, most require lots of manual input or use GPS which does not work indoors and really drains your battery outdoors. Our apps track your cardio exercise anywhere you take your iPhone and because we use ultra low power wireless our battery consumption is negligible."

Nordic's nRF24AP2 ANT chip integrates a ULP 2.4GHz transceiver with the ANT Wireless' ultra low power protocol stack. The microampere average power consumption and interference immune performance of the chip allows it to run off coin cell batteries and operate in the license-free 2.4GHz Industrial, Scientific and Medical (ISM) RF band.

RFID market to reach $5.35 billion this year

Despite the economic doldrums which required downward adjustments to its RFID forecasts for 2009 and 2010, ABI Research's believes that the outlook is good for steady growth through the next five years, according to new market data just released by the firm.

Practice director Michael Liard told Incisor: "We expect the overall RFID market to exceed $8.25 billion in 2014, or approximately $7.46 billion with automobile immobilization excluded. That would represent a 14% compound annual growth rate (CAGR) over the next five years."

Automobile immobilization is the largest single RFID application and has a low growth rate which impacts overall market size, so it is often excluded when examining market trends.

This year alone, ABI predicts the RFID market will reach a size of $4.47 billion (without automobile immobilization), 15% more than the adjusted 2009 figure.

"Not all segments of the RFID market are created equal," said Liard. "To 2014, the greatest growth will be found in RTLS (Real Time Location Systems), baggage handling, animal ID, and item-level tagging in fashion apparel and retail."

Other key opportunities include Electronic Vehicle Registration, continued penetration of RFID-enabled e-ID/e-government
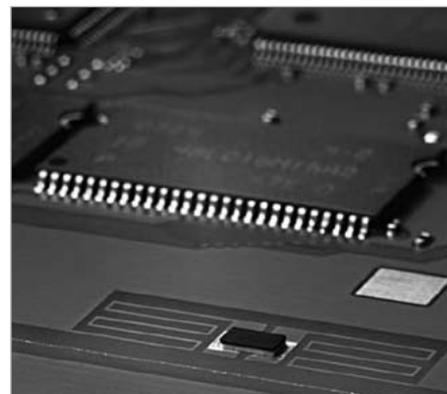
documents (including health cards), and continued expansion of library systems. Also worth watching: slowed but continued progress in retail CPG supply chain management, and multiple flavors of asset management that leverage RFID technologies, including specialty passive UHF tags.

Murata reduces UHF RFID tag size

Murata claims that its Magicstrap UHF RFID solution enables significant reductions in close-coupled UHF RFID tag size. The Magicstrap tag requires no external antenna and allows manufacturers to effectively reduce the size of a close-coupled UHF RFID tag to 3.2 x 1.6mm.

Magicstrap is Murata's multilayer ceramic RFID module which includes the IC alongside antenna matching circuitry that is said to be sufficiently wideband for worldwide UHF use. It can be used with an external antenna such as a metallic antenna pattern on a tag inlay, or using the ground plane of a PCB or the foil layer of a pharmaceutical blister pack as an antenna, and now, without any booster antenna at all in close-coupled applications. Magicstrap conforms to EPC Global C1G2. This means any UHF reader in the world complying to this standard can be used to communicate with Magicstrap in the near field. Murata explained that a simple loop antenna needs to be connected to the R/W-device in order to use this function, and that this interoperability by compliance to a global standard distinguishes it from solutions operating in other frequency bands like HF or LF.

Murata has also launched a compact UHF RFID reader/writer module that is claimed to be 80% smaller in volume than competing solutions on the market. Measuring just 23 x 13 x 2.8mm, the reader/writer module can be incorporated into the next generation of mobile devices and portable RFID readers.

low energy wireless news

20 Finalists for NFC Forum Global Competition

The NFC Forum has selected 20 finalists for its NFC Forum Global Competition 2010. Entries were apparently received from a variety of countries throughout Asia, Europe and North America. The Forum told Incisor that submissions cover a broad span of consumer and business application areas, including mobile couponing, healthcare, building access and security, retail merchandising, online user authentication, nutrition management, gaming, online banking and support for the disabled.

The list of entrants and their submissions is a bit long to include here, so anybody wanting to see them all can go to the appropriate page on the NFC Forum's site - http://www.nfc-forum.org/competition The Competition's Commercial Track recognizes the commercial solution judged "The Best NFC Service of the Year 2010," while a Research Track honours the academic organization that develops "The Most Innovative NFC Research Project of the Year 2010." Three winners in each track will be awarded cash prizes. First-place winners will receive 5000 euros, second-place 1500 euros and third-place 1000 euros.

"This year's NFC Forum Global Competition finalists underscore the remarkable versatility and applicability of the technology," said Koichi Tagawa, chairman of the NFC Forum. "These creative solutions introduce new business models, capabilities, and convenience, and we are delighted to showcase them at this year's WIMA event." Each team of finalists will deliver a presentation and live demonstration at the WIMA NFC Developers Summit demo space on April 21, 2010. Following these events, the jury, composed of senior and recognized professionals and experts from academia

and sponsoring companies, will vote to select the three winners for each track. Winners will be announced at an awards ceremony that evening at WIMA. The finalists will continue to showcase their entries in the WIMA demo space on April 22.

NFC Forum adds 19 new members

Support for NFC technology continues to expand. The NFC Forum has 19 new members from 14 countries. The organization made the announcement during its week-long all-members meeting taking place in Shanghai.

The new NFC Forum members are from several sectors of the NFC ecosystem, the numerous industries that are stakeholders and contributors to NFC technology. Industries represented include semiconductor and terminal manufacturers, higher education, service providers, compliance and testing organizations and systems integrators.

"The increasingly diverse and global composition of our membership demonstrates the growing support for NFC adoption worldwide," said Koichi Tagawa, Forum chairman. "The NFC Forum applauds the leadership of these member organizations, all of which are working actively to ensure that NFC provides greater value and convenience for both consumers and enterprises."

The NFC Forum welcomes the new members at four levels, including two Principal Members - Marvell Technology Group and Rogers Communications, plus nine Associate members, four Implementer members and four Non-Profits.

events

DATE	EVENT	LOCATION	NOTES	LINK
April 1 2010	Connected Home	Houten, The Netherlands	- -	http://www.connectedhomeevent.eu/uk_index.html
April 19 - 22 2010	Bluetooth SIG All Hands Meeting	Fairmont Olympic Hotel, Seattle, USA	-	www.bluetooth.org
April 20 - 22 2010	4th Global NFC Business & Technical Developers Summit	Monaco	-	http://www.wima.mc/content/Home-page/home_pageUK.php
April 27 - 28 2010	LTE Forum 2010	Stockholm, Sweden	-	http://www.lteforum2010.com
May 26 - 27 2010	Energy harvesting & storage Europe / Wireless Sensor Networks Summit	Munich, Germany	-	http://www.idtechex.com/energyharvestingandstorageeurope10/en/
June 7 - 11 2010	Bluetooth SIG UnPlugFest 36	Beijing, China	-	www.bluetooth.org
June 8 - 10 2010	Connections US	Santa Clara, California, USA	Digital living conference & showcase	http://www.parksassociates.com/events/connections/2010/
june 15 - 18 2010	Smart Grid Interoperability Summit	Toronto, Canada	-	http://www.smartgridinterop.com/
October 4 - 8 2010	Bluetooth SIG UnPlugFest 37	Barcelona, Spain	-	www.bluetooth.org

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