



## DEVELOPMENTS IN THE CONNECTED WATCH SECTOR

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DO BLUETOOTH USERS WANT TO BE FOUND?  
FEMTOCELLS – A FAILING MARKET?

# you can't defy gravity

There's no denying that there is a definite pull in the direction of low energy wireless technologies.

Bluetooth low energy was the principal theme at the recent All Hands Meeting, the annual event for members of the Bluetooth Special Interest Group. Both Casio and Fossil are promoting low energy wireless technology in their watches – Fossil has even created an entirely new division called Meta Watch to focus specifically on this evolving market. You can read about it in this issue, and also our interview with David Rosales, Fossil's director of watch technology.

And, as Cambridge Consultants points out: "BLE has been purposefully designed so that it can be added onto a standard Bluetooth chip for almost no additional cost. In fact, the majority of chips in this year's mobile phones are probably capable of BLE already. In addition, tiny 'low-energy only' chips, costing under a dollar, are already being built into watches, exercise machines, remote controls and medical devices."

But let's not forget that Bluetooth is not the only player in this market. Companies such as Nordic Semiconductor and Texas Instruments back Bluetooth, but both companies also do good business with proprietary low energy wireless solutions. And, of course, there are standard-based offerings from the Wi-Fi Alliance, EnOcean, Z-Wave, Wavenis, ZigBee, ANT, etc, etc.

Staying with the title to this introduction, gravitational pull is taking us in the direction of low energy wireless. And you know what gravity affects, don't you? Yes you do, it is tides. They say that a rising tide floats many boats. Which of the current fleet will float, and which will sink? It's going to be interesting to watch (watch pun intended. Sorry).

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

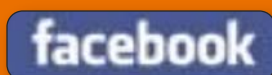
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**Sarah-Jayne Gratton, social media correspondent, writer.**

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# news



## McLaren Applied Technologies and Ubisense use UWB for sports performance monitoring

McLaren Applied Technologies, which is a company that is part of the group that operates the McLaren F1 racing team, has joined up with Ubisense, which develops Real-Time Location Systems (RTLS). The two companies are pushing a high performance sports coaching solution that can track the movement and position of individual athletes or teams practising on indoor and outdoor courts, pitches and at training grounds.

The system, integrated with Ubisense's RTLS technology, is designed to help professional coaches review and refine the performance of players in sports including tennis, football and netball. At the time of the announcement, scant technical information about the nuts and bolts of the technology was available. Incisor is aware that Ubisense uses ultra-wideband (UWB) in some of its RTLS systems, and we're currently awaiting confirmation that that is the case here.

The McLaren Applied Technologies solution is built on the RTLS system from Ubisense. Using a network of tags and sensors this allows the dynamic position of athletes to be observed multiple times per second. The technique has already been deployed in netball, tennis, football, ice hockey and horse riding.

Somewhat inevitably, McLaren made the F1 connection, telling us that it uses real-time data and insight platforms derived from Formula One to deliver performance improvements in the physiological and equipment aspects of sport. Working indoor and outdoors, the solution developed tracks the position of athletes

in real-time and delivers precise – to within 15cm, we were told - location information to a performance analysis dashboard. Using the solution, coaches can dynamically observe dwell time, player velocity and coverage across courts and pitches. Coaches can also conduct detailed post play analysis using aggregate movement data and iso-movement analysis for each individual player so feedback can be given, assisting continuous game improvement.

Richard Green, CEO of Ubisense, told Incisor: "Next year is obviously incredibly important from a sporting perspective. Over the next twelve months elite athletes around the world will be doing everything they can to optimise their performance. The system we have developed with McLaren Applied Technologies enables sportsmen and women, and their coaches, to scrutinise individual performance and team dynamics to an unprecedented degree so training programmes can be adjusted for success. Our technology already makes an enormous difference in manufacturing, giving world-leading brands visibility of key business processes. It's fantastic to join up with McLaren and take this technology into a brand new arena."

Once we get more information regarding about the tech behind what genuinely is an interesting story, we'll update this Incisor report.

## Betula on Android with PAN/DUN

Automotive software specialist Mecel has added Internet connectivity to its Betula platform, with an Android version that uses the PAN (Personal Area Network) and DUN (Dial Up Networking) profiles.

With these profiles, vehicle head units can access and display Internet content. The

mobile phone becomes a gateway to the Internet by letting the car either use it as a modem or can connect to it as a part of a wireless network.

Once the Internet link is established, Mecel suggests that the end user will be able to combine entertainment with an enhanced driving experience through sites providing traffic information, weather data, Internet radio and location based services such as fuel prices, hotel availability, parking areas etc.

Mecel's Bluetooth team is claiming to have extended value to the end user by providing Internet access, and added these profiles to the Android version of Mecel Betula SDK during spring 2011.

# news



## Most Brits will use mobile money by 2015. Really?

According to new research published by the Future Foundation, the majority of British people will be using their mobile phone to manage their bank accounts, pay bills and make purchases within the next three years. Hmm.... Read on, for now, but let's not lose grip on reality.

The research into mobile banking and the changing nature of consumer trends by the Future Foundation think-tank, commissioned by Monitise, the global enabler of Mobile Money services (we'll come back to this), reveals that the number of Brits who manage their money on their mobile has doubled in two years to almost 10 percent of the population today.

This number will apparently exceed 50 percent in the next few years as banks and retailers take advantage of the widespread adoption of smartphones, apps and 3G phone networks to deliver new services.

A major factor will also be the emergence of 'tap-and-go' payments using Near Field Communications, plus an increase in the range of Mobile Money services, e.g. person to person payments, location-based offers, shopping, transport, ticketing and entertainment.

The Future Foundation report surveyed 1,000 adults and found that Britain's growing army of mobile bankers:

- Like mobile banking and are doing it more and more - 57% have used mobile banking more frequently in the past year than they did in the previous year.
- Prefer the convenience and ease of mobile banking to online banking - 68% find banking on the handset easier than over the internet.

- Will embrace mobile commerce - 70% of mobile bankers are very keen to use their mobile to buy things.

The report also highlights how consumers' desire for 'simple complexity' - the ability to do complicated things easily and intuitively - will help shape the development of mobile banking. This, of course, is the absolute killer - unless people beyond the tech-savvy early adopters can use this tech easily, the Future Foundations' predictions will be worth nothing.

The Future Foundation also found that while users of mobile banking interact with their bank more frequently than the general population, they are using their mobiles for an increasing proportion of those interactions - mainly at the expense of branch visits and call-centre banking.

We think that the Future Foundation is engaging in some positive PR for mobile banking on behalf of Monitise, which commissioned the report, and which is, let's remember 'a global enabler of Mobile Money services'. We've tried using the technology here at Incisor, and, while we eventually succeeded, it was a massively complex process. Unless things change substantially, and quickly, we would have to say that the Future Foundations forecasts are overly optimistic. It will happen, for sure, but will the majority of British consumers be using their phones to manage their bank accounts by 2015? We don't think so.

## aptX in Samsung Bluetooth stereo headset

Samsung's HS3000 Bluetooth Stereo headset is using CSR's aptX audio compression technology, and Samsung claims that this has allowed it to create a Bluetooth headset that offers wireless stereo audio quality that is virtually

indistinguishable from that of wired stereo audio devices.

Anthony Murray, senior vice president of CSR's Audio and Consumer Business Unit told Incisor: "The HS3000 is Samsung's first aptX-enabled consumer audio product and follows our recently announced partnership. Samsung Electronics is clearly enthusiastic about aptX technology in the high-volume consumer electronics marketplace, and we look forward to continuing our partnership with them as they adopt our aptX technology across a broad range of mobile handsets, feature phones, smartphones, tablets and headset products."

CSR's aptX technology uses ADPCM principles to squeeze the entire 10Hz - 22kHz high-fidelity audio frequency range within the constrained bandwidth of Bluetooth transmission standards.

# news



## M2M service revenues driven by Automotive Telematics and Consumer Electronics

M2M (Machine to Machine) connections will be the catalyst for over \$35 billion of service revenues across a diverse range of industry sectors by the end of 2016, according to a new report by Juniper Research.

Sectors identified by the report as having particular potential included: consumer and commercial telematics; smart metering; point of sale; retail; banking; mobile health monitoring; smart buildings and security.

"Industries are at different stages of development when it comes to M2M," Anthony Cox of Juniper Research told Incisor. "Commercial automotive telematics are driven by the requirement for fuel efficiency which engine management systems can deliver," said Cox, noting that in-car entertainment systems and infotainment will support telematics growth in the consumer vehicle market.

Other areas, such as remote monitoring in the healthcare sector, will take longer to develop but also hold significant promise in the long term, finds the report.

Juniper also found that companies which act as M2M enablers have developed important partnerships with carriers to facilitate the development of embedded connectivity, and that regulatory initiatives will remain an important fillip for the M2M market, such as European Directives on smart metering and Europe's eCall vehicle safety initiative. Regionally, Point of Sale (POS), retail and banking represents an increasing opportunity, particularly in developing markets in Latin America, owing to the lack of fixed-line



infrastructure, while Smart Metering, while still demonstrating high device numbers, has slowed following class action law suits in the US and other developments.

## CSR adds Bluetooth HD voice/wideband speech

CSR has announced platform support for the freshly-ratified HFP 1.6 Bluetooth profile which includes Wideband Speech – often referred to as High Definition voice or HD voice. CSR claims that the BC6145 is the first mass-market mono headset solution to support this new hands-free profile.

CSR told Incisor that it has designed HD voice support into multiple products for handset, headset and automotive-specific applications and plans to qualify the new profile across a broad range of platforms.

Various mobile network operators are now rolling out HD voice services to bring new levels of speech clarity to their users. At the network level HD voice will be able to support a wider speech spectrum than was previously available to consumers. With the increase in speech spectrum from 300Hz – 3.4kHz to 50Hz – 7kHz consumers should benefit from significantly improved intelligibility, even in the presence of noise. Other expected benefits include more accurate voice control of peripherals, better speech-to-text, and a brighter audio quality that makes the caller seem nearer.

The presence of the Bluetooth HFP 1.6 profile in both the cellular device and Bluetooth accessory therefore should allow the extension of the networks' HD voice services across Bluetooth. This is intended to eliminate the constraint of low 8kHz sample rates and the resulting loss of high and low speech frequencies. Instead, users may enjoy 16kHz clarity with calls sounding more natural, while voice dialling and many other functions will be improved.



BC6145 with HD voice is apparently available now.

## Integrated Bluetooth option for APx audio analyzers

Audio Precision (AP), an audio test company, has introduced a Bluetooth I/O hardware module for APx Series audio analyzers featuring a built-in Bluetooth radio and integrated control software. The APx Bluetooth option allows audio testing over Bluetooth. Its major advantage, AP told Incisor, is that it lets engineers measure their Bluetooth devices directly from within APx's software, eliminating the uncertainty and inconvenience of adapters and making Bluetooth audio test faster, easier and more reliable.

Once the new module is installed in an APx audio analyzer, all Bluetooth controls are integrated into the analyzer software. APx supports A2DP, HFP, HSP, and AVRCP profiles and SBC and CVSD codecs, allowing over 30 one-click acoustic and electronic tests to be carried out in seconds on Bluetooth -connected headsets, hands-free devices, automotive head units, A/V receivers and smartphones. Using the new module's built-in Bluetooth radio combined with the other connectivity options of APx (including high performance analogue, AES3 digital, S/PDIF, HDMI and I2S), every part of a device's audio chain can be measured with one analyzer.

Speaking to Incisor, Tom Williams, VP of Marketing for Audio Precision said: "We're very proud to bring AP performance to the wireless world. Now engineers can test their Bluetooth devices with the world's most advanced audio analyzer, confident that their results will be trusted everywhere.

The Bluetooth option for APx will ship at the end of June, priced at \$4500 in the USA.



LocalSocial is a Proximity Platform from Rococo Software. It lets mobile developers build applications that react when other people, devices or businesses of interest are nearby. It hides the complexities of using short range networking technologies like Bluetooth, NFC and WiFi, and can be used to:

- » **Browse Social Information** shared by people nearby
- » Let Businesses create hyperlocal **Deals, Ads & Offers**
- » **Build Peer-to-Peer Games** that connect to the Social Web



Download a LocalSocial powered app for Android on the Android market [SEARCH FOR: DOWSER OR TAGSTER]



Tim Whittaker,  
Cambridge  
Consultants

# Bluetooth Low Energy - this year's success story?

By Tim Whittaker, System Architect,  
Wireless Division

**Bluetooth Low Energy (BLE) has attracted lots of attention over the last year. It's an extension of the Bluetooth standard that addresses a whole new set of product applications, different from more traditional Bluetooth applications. With one of the largest independent wireless development teams in the world, Cambridge Consultants has been a key developer of Bluetooth technology, providing our clients with valuable business insight and product design services. In this edition of Incisor, we examine Bluetooth Low Energy and its future in the marketplace.**

BLE has been purposefully designed so that it can be added onto a standard Bluetooth chip for almost no additional cost. In fact, the majority of chips in this year's mobile phones are probably capable of BLE already. In addition, tiny 'low-energy only' chips, costing under a dollar, are already being built into watches, exercise machines, remote controls and medical devices.

It is important to note that BLE is not a substitute for standard Bluetooth. BLE chips are designed to turn themselves off for long periods of time, waking up only when there is data to be sent. This allows operation over many years even with a very small battery – perfect for the small amounts of data you might want to show on a watch, or collect from an exercise machine.

Here are some examples of the kinds of applications for which BLE is designed. Some could become as common as Bluetooth earpieces are now, whilst some might change the way we live...

- I wear a watch with an electronic display, and it's connected via BLE to my mobile phone. When my phone rings, the caller's name and number appear on my watch. I could even answer by pressing a button on the watch.



- I have a chronic medical condition like diabetes. It's important that I take regular blood glucose readings, and keep an accurate note. I also log when I take insulin, and how much. Low-cost BLE devices in the dosing device and in the instrument will do all this logging for me, and – if I wish – share this information with my doctor. This could revolutionise the quality of my healthcare management.
- I want to log my exercise regime and weight. BLE devices are cheap enough to put in exercise bicycles, treadmills, pedometers, weight scales. I then run an application on my smartphone that collects this data and tells me how I'm doing.
- BLE is also very well suited for the remote control of home lighting, security and entertainment. I could operate these applications from another of my smartphone apps.

What about the battery? Looking at a remote control unit being used 50 times a day, and its television listening continuously (it has a mains power supply), the battery life from a typical coin cell is 11 years – probably more than its shelf life! The BLE radio is designed to draw transmit and receive currents compatible with this type of battery.

So, how successful will BLE be this year? As with standard Bluetooth, the level of success depends heavily on the mobile handset manufacturers. If a successful volume base is forged through the established market based on mobiles, the resulting low cost will create myriad opportunities in new market areas. We are certainly active at the forefront of this exciting new technology area.

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

Developments in the connected watch market

# Time to start developing low energy watch apps

Or so Fossil seems to think. It has created **Meta Watch**, a new division that is a development group exploring technology based opportunities for watches. According to its first press release, it is setting out to offer developers freedom to start their own wrist revolution. Whatever that means!

The reality is that Meta Watch has announced a wearable development system that enables development of 'connected-watch' applications. The Meta Watch platforms utilize embedded Bluetooth technology to connect to smartphones, tablets and other electronics devices. The Meta Watch SDK/API apparently makes it easy for the watch to display information from mobile applications or Internet services.

Meta Watch platforms are available in analog digital or digital versions, and include: a 3 ATM water resistant stainless steel case; leather strap; mineral glass crystal; vibrating motor; three-axis accelerometer, and ambient light sensor. Optimized for low-power operation, both watch platforms are based on Texas Instruments' MSP430 ultra-low-power microcontroller and CC2560 Bluetooth host controller interface solution.

"Meta Watch makes our everyday mobile experience much better by enabling us to view important mobile notifications at the right time with virtually no effort", said Bill Geiser, Vice President Watch Technology, Fossil. "Of course, you can get this information today, but it requires many different steps. Meta Watch simply makes it more convenient and, in the process, it opens the door to new partnerships like we have with TI and a growing network of development partners."

In turn, Eran Sandhaus, Director of marketing, wireless connectivity solutions at TI told Incisor: "TI welcomes the opportunity to work with the Meta Watch team on creating a new channel for the community, and to helping developers push the watch's capabilities to the next level. TI's MSP430 ultra-low-power microcontroller and CC2560 Bluetooth host controller interface provide a solid foundation for the next generation, connected devices based on the Meta Watch's sleek form factor. We look forward to seeing the Meta Watch community flourish with ideas for wearable technology that will spark new consumer experiences for years to come."

Incisor understands that the Meta Watch development kits will be available in July 2011, and cost US\$200. Meta Watch has a web site - [www.metawatch.org](http://www.metawatch.org).



## WHAT DO THE TWEETERS THINK?

We asked Incisor Twitter connections what they would like to be able to do with their watches – besides tell the time, that is! These are some of the replies that we received.

@davidchow: I would quite like my watch of the future to be able to lock and unlock my house/car. Jaeger-LeCoultre does for the Aston Martin!

@billg I want my watch to minimize the # of times I have to pull out my phone or tablet; & I want it to look good doing it.

@grattonboy: I don't have a watch...

@martinclarke: When will Rolex have a Bluetooth watch :O)

Vince Holton is our principal Tweeter. Follow him at: @VHolton



SEE OVERLEAF FOR INTERVIEW WITH DAVID ROSALES, FOSSIL →

Incisor interview:  
David Rosales, Fossil



David Rosales, Fossil

# Meta-What?

## Why did Fossil need to create a new business for watch development?

Here at Incisor we thought that Fossil's decision to create a new business division – Meta Watch – to promote the connected watch concept was an interesting development. Why not do this as part of the well-established Fossil brand? And why the focus on Android developers? There are other mobile operating systems out there!

There was only one way to find out, and so Vince Holton talked with David Rosales, director of watch technology, at Fossil.

**VH:** Why has Fossil created a new identity – Meta Watch – to advance development in wearable watch systems?

**DR:** We think it is a little early for connected watches to target the consumer market. The 'connecting fabric' required for making it easy to connect all Bluetooth watches to all devices isn't fully in place. As a result we don't think it makes sense to leverage consumer-oriented branding at this stage.

**VH:** It's a while since we talked watch applications – what are you now seeing as the most exciting apps for the connected watch, in the short-term (i.e. what we can make happen now) and in the longer term?

**DR:** There is not one "killer app" for connected watches, in fact, we believe there are thousands of potential applications. This is why we developed a platform for customers and partners to create custom watch features, functions, and applications.

**VH:** You recently showed the watch and dev kit at the Google IO developer event, which took place in Mountain View, California. What sort of reaction did you get from Android developers to the basic concept of linking a watch to a phone or other device?

**DR:** The reaction we received was very positive. The feedback we have so far tells us that the market potential is there. The mobile internet experience is well underway



to evolving to multiple screens where the screen you use is the one that is most convenient at the time. We believe the watch is the screen for hands-free, glanceable information while you are on the go.

**VH:** Were any new/interesting/radical applications suggested by the Android kooks?

**DR:** Every idea is radical right now since this category is still emerging. Google IO is a wonderful place to discuss ideas. I heard literally hundreds of ideas involving robotics controls, wearer presence, navigation, security, and so on.

**VH:** Is the Android developer market the most fertile, or are you also getting interest from the iOS and Windows Mobile/Phone 7 communities?

**DR:** We chose to use the Serial Port Profile of Basic Rate Bluetooth because it is so ubiquitous in smart phones and devices. Android is a great OS for this type of work because there are many elements that are

open to developers: communication between applications is simple, the Bluetooth stack has a good API, you can run background services, etc. While the first launch will provide project source for Android OS, there is high interest in support for other mobile operating so you should expect to see open source Meta Watch projects for other major OSs where the basic capability is available.

**VH:** Why are you taking these watches to the developer community based on basic rate/classic Bluetooth, rather than Bluetooth low energy?

**DR:** Basic Rate Bluetooth has the most device penetration today, not just with handsets, but with embedded devices and other systems as well. Equally important, there are a lot of opportunities for a connected watch to add value today using Basic Rate Bluetooth. There is no doubt that Bluetooth Low Energy will be able to provide additional value to connected watch solutions in the future.

[www.metawatch.org](http://www.metawatch.org)

# Casio Develops BLE G-SHOCK

Incisor readers saw one of Casio's prototype watches using Bluetooth low energy at CES (see the [Incisor.TV movie here](#)), and now Casio is showing a production-level BLE watch.

Casio told Incisor that the new G-SHOCK is the first in a line of new watches that will use Bluetooth Low Energy, with a function that can adjust time automatically all over the world. Casio is positioning the new next-generation wristwatches as - "smart watches".

The watch supports communication with BLE-enabled smart phones. These will automatically acquire the local time when moving between countries and regions in different time zones, which means that the synchronized watch will adjust to the time in its present location automatically.

In addition, Casio suggests that the integration of BLE support opens the doors to new ways of using watches as new applications are developed for smart phones; for instance, communication between



watches through smart phones. The expectation is that these new smart watches will be able to connect to networks of various kinds of BLE devices.

Casio has designed the watch to offer a battery life of approximately two years from a single button-cell battery. This is based on

using BLE wireless communication for an average of 12 hours per day.

As with previous Bluetooth-enabled watches, the G-Shock includes an alert signal to notify of incoming calls and e-mail and SMS messages sent to the user's smart phone. A smart phone's ring alerts and vibration can be stopped by tapping the watch, and the alarm and vibration functions of a smart phone can be activated using a watch button.

Casio showed the new BLE G-SHOCK watch at the Casio Booth at Baselworld 2011, one of the year's big events for the watch industry, and combined it with a prototype Bluetooth Low Energy smart phone from its buddies at NEC Casio Mobile Communications.

Casio says it will release the new watch 'sometime in 2011'. Now we just need some people to come up with some good applications that will get consumers fired up and wanting to buy it!

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- free development tools for onboard applications & profiles



Learn more about Bluegiga low energy at [www.bluegiga.com/bluetooth-low-energy](http://www.bluegiga.com/bluetooth-low-energy)

# new products



## Don't abandon your iPhone 4 for BlackBerry!

Chinese company NUU Limited has launched a slide-out Bluetooth keyboard case for Apple's iPhone 4, and claims that the MiniKey provides greater speed, better accuracy, and convenient function keys for heavy iPhone typists. NUU suggests that it is particularly useful for anyone thinking of switching from BlackBerry to iPhone.

The NUU MiniKey features backlit keys, text-editing shortcuts, extended battery life, and an automatic sleep mode. After a period of inactivity, the Bluetooth connection will automatically be severed and the case will go into standby mode. When you're ready to use the keyboard again, just tap a key and it will reconnect.

The NUU MiniKey's design is optimized for the iPhone 4. Pointing the finger, somewhat, NUU states that - unlike many keyboard cases on the market already - the MiniKey works with the iPhone antennas. This prevents degradation of the data signal and helps preserve reception. Continuing the trumpet blowing, NUU describes the keyboard and its keys as 'shaped for easy orientation' and that, combined with the backlighting, this makes the keyboard easy to use.

Lastly, no functions or connectors on the iPhone are blocked by the NUU MiniKey. The camera and flash remain fully functional, as do the dock connector, volume controls, speaker, and other iPhone buttons.

The NUU MiniKey is available now.



## iBike Dash CC wireless cycling computer uses ANT+ plus Bluetooth

Velocomp LLP, a sports technology company and creator of the iBike Dash line of cycling computers and power meters, tells Incisor that the iBike Dash CC (Cycling Computer) and new iBike Phone Booth Bicycle Mount are now available at all Apple retail stores.

Priced starting at \$199, the iBike Dash CC includes the "Smart Phone Booth protective bicycle case, a wireless bicycle sensor, and free iBike app with customizable bicycling and training tools, available from the iTunes App Store. The included iBike app shows you how to pace yourself, so that you have more than enough energy left for the last few miles. The app keeps a calendar of your weekly and monthly rides, making it easier to see if you're improving.

iBike Dash includes an ANT+ speed sensor with optional sensors for cadence and HR - though it is claimed to be compatible with all ANT+ speed, cadence and HR sensors. It is compatible with iPhone 4/3GS/3 and all iPod touch models and also allows hands-free calls using your iPhone and Bluetooth headset with no interruption to ride data collection.



## Bluetooth? Check. VoIP? Check. Skype? Check.

Jabra has expanded its portfolio of Bluetooth-enabled, VoIP-optimised and Skype-certified products. Jabra told Incisor that the new range of headsets and speakerphones ensures one audio device can be used for making and taking both mobile calls and also VoIP calls through a laptop, tablet, smartphone or PC. The two new handsfree audio devices offer a suite of products that enable multi-tasking and a plug & play installation process.

The Bluetooth part of the Jabra VoIP portfolio includes the Jabra EXTREME - For PC, which can be simultaneously paired to both your PC and your mobile phone. It comes with a pre-paired USB adapter that automatically connects to a PC and Skype software to provide clear sound quality and apparently makes Skype calls a breeze.

The Jabra EASYGO - For PC is the economy version, and is a lightweight headset that's designed to 'handle all of the needs of an entry-level Bluetooth user'. It can be simultaneously paired to both your PC and your mobile phone via a pre-paired USB adapter.

## Snippets

### TRaC team achieves Chartered Engineer qualification landmark

The Institute of Mechanical Engineers has awarded Chartered status to all members of test and consultancy services company TRaC's Warwick, UK-based Analysis Department. The department now counts among its staff two Fellows of the Institution. Dr. Khaled Owais has been elected as a Fellow of the IMechE for his analysis expertise, joining his colleague Dr. Peter Moir who became a Fellow in 2005. Core members of the team have written finite element software that has been marketed worldwide by Hewlett Packard as well as authoring specialist software for military, scientific and industrial applications.



Sean O'Sullivan, Rococo

# Bluetooth users want to be found (well, some do)

By Sean O'Sullivan, CEO, Rococo Software

A very interesting thread spun up recently on the SIG Member page on LinkedIn (1) about Bluetooth visibility on mobile phones. It arose as a result of a call for Bluetooth visibility to be "public" (i.e. discoverable) by default on mobile phones in order to enable a variety of interesting use-cases for consumers. The comment and debate that followed was very interesting, and prompted me to set out my own stall on the issue. What \*is\* the issue anyway? Well - that may require a quick recap first.

## On/Off, Discoverable or Not?

From a technical perspective, as you may know, Bluetooth can either be on or off. If Bluetooth is on, the phone may be discoverable or not.

So far, so good. As it happens, most phones follow some sort of sensible default with regard to the on/off status. As you might expect - on a brand new device, just out of the box, Bluetooth is off until the user explicitly switches it on. Makes sense. Also - if an application (as opposed to a person using the phone) wishes to switch Bluetooth on, it will mandate a manual confirmation step (a Bluetooth Permission Request) that requires the user to confirm via the UI that they are happy to have Bluetooth turned on. This is a security measure to stop rogue apps silently switching on your Bluetooth without you knowing about it, as a first step to "bad behaviour".

Nothing contentious there then.

Once Bluetooth is on, a phone may either be Discoverable or not. When Discoverable, a phone will show up in the neighbourhood when other devices scan for Bluetooth devices nearby. A phone must be discoverable in order for another device to attempt to pair with it (another security feature). And again, if an application wishes to make a phone discoverable, then there is an enforced step in which the user must positively confirm the switch via a UI dialogue.



So here's where the fun begins.

Different phones (and I'm going to restrict myself to phones for this discussion) have different ways of handling Bluetooth discoverability. Some will let a user, or application, make the phone permanently discoverable. Many however, will not. Let's take two quick but important examples of those that will not:

**iOS:** Only discoverable when in the Settings -> Bluetooth Devices. Outside that - not discoverable.

**Android:** Can make the phone discoverable for up to a maximum of 300 seconds (5 minutes); after that - will automatically switch discoverability off again.

Ok, now we can finally get on to the issue in hand :-)

The issue: there are many use cases that people wish to support, that would require a user to leave their phone discoverable, either:

- permanently discoverable,
- or discoverable for periods longer than 300 seconds,
- or discoverable under more flexible application control ("discoverable while this app is running" for example)

## What sort of use cases are these?

(Full disclosure here - I work for a company that is explicitly trying to enable these use cases for the world - see [www.mylocialsocial.com](http://www.mylocialsocial.com) for details)

Well - let's take ads for a start. or to be more specific - hyperlocal ads and deals - to use the language of Google. There are many situations where, as a consumer, I'd like to ensure that a business can "see" me and do "something" of interest for me. Here's a few:

- I'd like my local coffee shop to see me every time I'm on premises, or even wandering by, so that they know how much frikken time I spend in their place! I'm also happy if we replace the little cardboard loyalty cards with virtual ones,



and now they can turn an anonymous customer in to one they can engage with with digital blips of loyalty every time I'm on premises, and even encourage me to share the fact that I get free coffees or random-acts-of-cake-ness on twitter in return for more loyalty points.

- I'd like a music store to detect that I've entered the store, and feel free to look at my last.fm profile, enabling them to create a real time deal for me on the spot, while I'm in the store. That way they may relieve me of 5 bucks for a re-mastered Elvis Costello that otherwise I may not have had the patience to find in the store.
- I'd switch on a "Gimme Deals Now" option when I went to an electrical retailer, or car showroom, or any other place where they have relatively high value goods on offer.
- In Japan, I'd switch on a "collect lunch offers" app every time I wandered in a new neighbourhood - enabling the lunch places nearby to blip me deals and specials, which I can then peruse or keep for later.

And so on - you get the idea.

Aside from "business to person" cases like these, there are some great "person to person" cases for being able to have Bluetooth be discoverable.

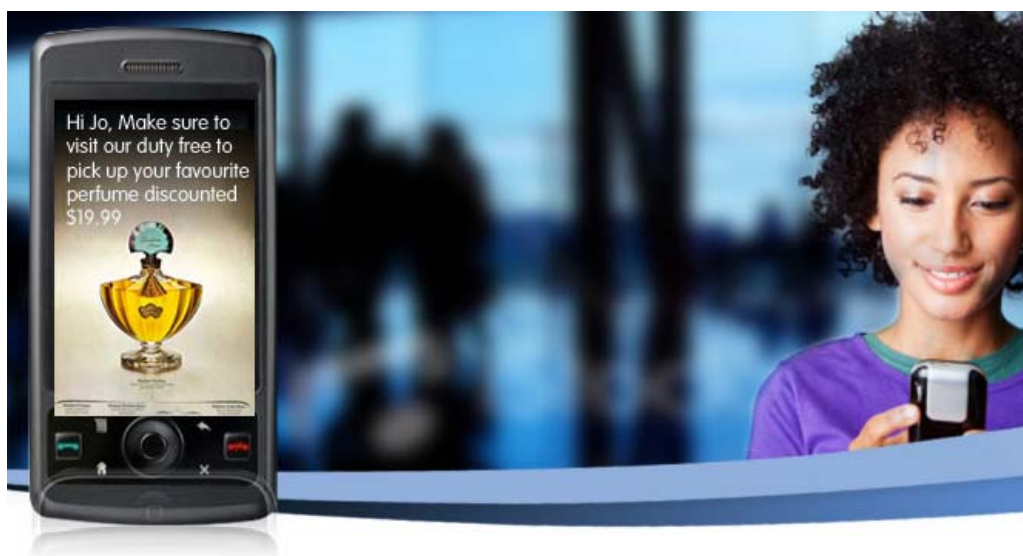
Here's some:

**Business networking:** it's easy to imagine how we could amp-up the LinkedIn mobile App, by enabling it to

- share my profile with people nearby (within Bluetooth range)
- look out for people of interest to me ("tell me if anyone from Samsung walks by...")
- collect business cards in a mobile locker for review later (see the way the guy who just gave the talk gets hammered by 30+ people as soon as he steps down from the podium - wouldn't it be great if he could set his locker open with a tag (Launch Talk) and then let people drop their business cards, aka LinkedIn contacts in to his locker so he can review them later? with a note attached?)

**Place-based social networking, or Proximity based** networking: Also known as dating, or flirting, or just casual sharing of twitter streams, facebook streams and more - with people nearby - right now!

All these use cases, and many many more - can really only work well when users can make themselves Bluetooth-discoverable in a richer and more controlled way than they can do today.



So - what should be done?

Well - there are a few ways to get involved if, like the LinkedIn group, you feel strongly one way or the other about this issue.

- join the call here (2) to ask Google to allow more flexible controls on Discoverability in Android
- join a Bluetooth BET and have your say (3)
- engage with the SIG online (4) or via LinkedIn (5) and make your voice heard
- call Steve (Jobs) and ask him to sort out Bluetooth on iOS :-)

### Conclusion

Many of those arguing against options for Bluetooth to be discoverable for longer periods (or permanently) are concerned with security risks, rogue application behaviour and a spread of FUD (Fear, Uncertainty, Doubt) that can result from consumers experiencing services that are

either just annoying (at one end) or downright dangerous (at the other). However, I believe that we can build solutions that put the power and control in the hands of the consumer. Remember - this is a consumer becoming increasingly sophisticated and comfortable with social media and technology in general. If necessary, we can evolve the standard to natively support some of these exciting use cases, and in so doing, we can unleash some of the untapped potential of Bluetooth.

- [\(1\) LinkedIn Thread for Bluetooth SIG members](#)
- [\(2\) The thread discussion making Bluetooth Discoverable in Android](#)
- [\(3\) Bluetooth BET Video and explanation from AHM 2011](#)
- [\(4\) SIG Contact Page](#)
- [\(5\) Linked Bluetooth SIG Group Page](#)



Click on the movie screen to learn more about LocalSocial from Rococo.

# Parrot shows wireless can be awesome

Remember the Parrot AR Drone (see it [here in the Incisor.TV video from CES](#))? As remote control helicopters go, this one is totally cool, and everybody wants one. Upping the ante, Parrot has launched AR.Race, a race game that is downloadable for free on the App Store and which allows 1-4 pilots to challenge each other on the same circuit. Inflatable items are there to provide obstacles and to test the pilot's skills, including 2 pylons, a donut and a finishing line.

Now, despite the fact that there's Bluetooth and Wi-Fi involved, this isn't really Incisor-type content, but we know that – like us – there will be plenty of you out there that want to know more. So.....

After activating the Bluetooth of the iDevice, each player has to connect via Wi-Fi to the AR.Drone and launch the AR.Race application. Once the number of pilots is

decided, five game levels are available, with or without the use of the inflatable items.

Players can choose to activate a piloting assistance option that enables the AR.Drone to make high speed turns.

There are 5 types of circuit available. These start without the inflatable items, which, along with various tasks, are added to increase the level of difficulty.

Additional notes from Parrot remind us that the finishing line is independent from the 2 pylons and that players can create as many circuits as they want, such as creating zigzags with the pylons or using natural obstacles such as trees to create more unique circuits.

Now, would everyone else that wants a go please join us in the line of people wearing 'WE WANT TO PLAY' T-shirts.



## INCISOR TV Video presentations

When it comes to assessing what is really going on in the market, there is no substitute for seeing products in action and hearing 100% accurate information from the people at the sharp end. Incisor TV provides that insight.

**Click on the links below to watch recent Incisor TV presentations**

IncisorTV at CES 2011 – Bluetooth Best of CES  
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 Bluetooth High Speed Technology  
 Frontline – Interoperability testing  
 Bluetooth SIG BETS programme  
 Frontline – BPA500 protocol analyser  
 Aftermarket Bluetooth versus Factory fit  
 Who needs stress? Says Jabra  
 EnOcean Alliance – energy harvesting technology  
 Aftermarket Bluetooth versus factory fit  
 Bluetooth 2010 All Hands Meeting  
 Anoto - 10 years of digital pen and paper  
 BiteBack Sweden  
 CES 2010 Daily Show report – Day 1  
 CES 2010 Daily Show report – Day 1  
 CES 2010 Daily Show report – Day 1  
 BiteBack Asia  
 BiteBack USA  
 BitBack UK  
 IncisorTV commercial for CSR/SiRF merger  
 DECT Forum and CAT-iq in 2009  
 Bluetooth SIG – Best of CES 2009  
 WiMedia Alliance – UWB in 2009  
 Incisor showreel  
 WiMedia special - UWB - a high performance solution / part 1  
 WiMedia special - UWB - a high performance solution / part 2  
 WiMedia special - WiMedia and Bluetooth  
 WiMedia special - Updating the WiMedia roadmap  
 WiMedia - The future for UWB  
 Bluetooth low energy wireless technology  
 IncisorTV commercial for CSR – BlueCore7  
 IncisorTV commercial for CSR RoadTunes  
 IncisorTV commercial for CSR BlueCore Player  
 A guide to Bluetooth Version 2.1 + EDR  
 10 years of Bluetooth / Best Bluetooth of CES 2008  
 CES 2008 – Profile of Parrot  
 Introducing Incisor  
 2007 Wireless Symposium

# INCISOR.TV VIDEO REPORT

Sponsored by



The Bluetooth SIG has created six new *Bluetooth* Ecosystem Teams (BETs) to help drive the proliferation of billions of *Bluetooth* v4.0 enabled devices into six key vertical markets. The BETs offer a tremendous opportunity for current and prospective Bluetooth SIG members to help commercialize what is next for *Bluetooth* enabled products. Incisor.TV interviews SIG executives, in order to learn more about this key change to the way the Bluetooth Special Interest Group addresses new market opportunities.

Click on the screens to view the six BETs movies.

## WHAT ARE BETs ABOUT?



### THE BLUETOOTH TECHNOLOGY NETWORK EFFECT

Suke Jawanda, the Bluetooth SIG's Chief Marketing Officer, provides an overview of how the BETs programme will take Bluetooth technology's success to the next level.



### BLUETOOTH TECHNOLOGY'S EVOLUTION ON THE PHONE

Chuck Sabin, Director of Product Management and Planning at the Bluetooth SIG, talks us through the roadmap for the Mobile Phone BET.



### THE HEALTH AND FITNESS BET

Anders Edlund, Marketing Director, EMEA, explains the SIG's intentions for the Health and Fitness BET.



### THE AUTOMOTIVE BET

Chuck Sabin covers the Automotive BET, and Bluetooth technology's evolution in the car.



### SMART HOME/SMART ENERGY BET

The Smart Home means many different things, says Anders Edlund.



### THE PC/CE BET

Chuck Sabin provides an overview of the SIG's vision for Bluetooth technology's evolution in the Personal Computer and Consumer Electronics sectors.

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**ZigBee**  
Member

# low energy wireless news



## Evolve Guest Controls joins Z-Wave Alliance luminaries

The Z-Wave Alliance has a new principal member - Evolve Guest Controls. Evolve is a provider of energy management solutions. The other principal members are: 2Gig Technologies, Cooper Wiring Devices, Danfoss, Fakro, Ingersoll Rand, Leviton and Sigma Designs.

Evolve offers its hospitality customers Z-Wave energy and home management tools for in-room control options, including: lighting, TV, electronics and thermostat products. Evolve claims to own the largest Z-Wave commercial installation project with more than 65,000 Z-Wave enabled devices in a single hotel. This was challenged by the EnOcean Alliance, by the way, with no response from Evolve or the Z-Wave Alliance.

Evolve told Incisor that it has deployed energy management and wireless RF systems in more than 2,800 hotel rooms and suites, including Hilton hotels, Westin hotels and the Wynn Hotel and Casino. Hotels have begun adding

new technologies to rooms and incorporating energy saving programs to help guests lower their carbon footprint. In fact, according to the Hospitality Financial and Technology Professionals (HFTP) blog, "in-room technology [in hotels] is positively 'leaping' forward."

"Evolve chose to use Z-Wave technology for its hospitality initiative based on two vital factors that the technology offers: interoperability and scalability," Avi Rosenthal, vice president of Evolve Guest Controls told Incisor. "We have formed strong partnerships with various Z-Wave Alliance members and we are honored to move forward as a principal member expanding Z-Wave's global presence."

## UK Smart Metering contract awarded

G4S Utility Services, a UK provider of field metering and data management services, has been awarded a contract to provide Macquarie's Corporate and Asset Finance Group, which is a smart meter financier, with a fully accredited Meter Asset Provider (MAP)

system with an ongoing data management service. G4S Utility Services claims to be the UK market leader in Field Metering Services, making over 50 million visits to properties per year throughout the UK on behalf of major utility companies and end consumers, including British Gas, E.ON EDF Energy and Scottish Power.

The initial three year contract, which started in January 2011, will be delivered from G4S Utility Services' head office in Newcastle, in the North of England. The contract includes the opportunity, at a later date, to expand volumes and terms in line with the UK Smart Meter deployment programme. The contract builds on G4S's existing smart meter provision services for British Gas.

Kim Challis, Managing Director, G4S Utility Services told Incisor: "Macquarie is the leading meter asset provider in the UK market and are an existing partner to G4S in the domestic and commercial smart metering sectors. We are delighted to be providing Macquarie with this key service which leverages our extensive industry and process knowledge. We will be tailoring our in-house dual fuel meter operations systems to deliver this service accordingly."

## Industry leaders use **INCISOR.TV** web video

Incisor.TV creates high-quality web TV content for companies in the technology sector. Here are examples of recent Incisor.TV movies. These are now showing on the web sites of the Bluetooth Special Interest Group, and the energy harvesting technologists at the EnOcean Alliance.

Click on the images to view the movies at the Bluetooth and EnOcean web sites.

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Click [here](#) to see other examples, and contact [Vince Holton](#) for more information.





# Femtocells: You're either right or impatient!

by Dean Anthony Gratton

**I always attempt to place a technology into a positive light. I like to think that I assess the technology constructively, whilst avoiding any influence from industry gossip or prejudice – in other words, I do my best to formulate my own opinions and to offer my own spin on what's right and what's not. This is my philosophy and, with this in mind, I find myself revisiting femtocells. Questions surrounding this technology have long caused me to scratch my proverbial head.**

## First contact

My first contact with femtocell technology was in 2008, when I was working for a large European telecommunications company. I had read some background material to better understand the technology proposal and the business justification. This actually led to my first article for Incisor, "Dissolving the boundaries: Introducing femtocells", which I wrote in April 2008, and in which I offered a casual exploration of the technology. At that time I welcomed it with open arms and took it at face value, but I feel now, looking back, that I failed to 'lift the lid', so to speak, and challenge what I now understand to be fundamental flaws in the business model. My initial exploration later led to a follow-up feature in March 2009, "Femtocells: Where are they now?" as, on behalf of Incisor, I caught up with Stan Claes, director, femtocell technology at Thomson Telecom (now Technicolor). Again, I was wrapped up in the overwhelming technical challenges that Stan's team faced and was charmed by his incredible passion for the technology.

A year or so later and I found myself writing another feature with a somewhat more critical perspective of the potential femtocell market. I had, by this time, solidified my understanding not only of the technology, but, more importantly, also of the business justification. The technology, despite the original hype, had settled into a niche market, serving mobile phone

consumers who had limited cell coverage within their home or business. In turn, this had had a major impact on the overall market potential. Inevitably, this had, in turn, had a consequential effect on the innovators that were striving to sell their products.

## Separating the wheat from the chaff

In early 2011, I learned that funding for the Technicolor femtocell project had ceased, for reasons which will, naturally, remain confidential (unless, of course, an anonymous Twitter account is created, revealing all the dirty shenanigans and super-injunctions!). What a catastrophic blow to Technicolor's development team and its group leader – they had invested time in a project that had spanned at least four years. What happened? Why was the project cancelled? The question then occurred to me; was Technicolor just one of many companies that would now start to withdraw from active femtocell development? Were we witnessing the separation of the wheat from the chaff? With these questions flooding my head, I just had to catch up with Stan Claes to really capture an accurate picture of events. I duly submitted a number of emails to Stan, eager for his attention, and he came back to me, happily agreeing to meet up on Friday 13th May – should I be overly cautious on such an ominous day?

So, I had to embark upon a small journey to Brussels which, I'm sure everyone already knows, is in the centre of Belgium. Following a Eurostar trip that plunged me into the heart of Europe, I had to seek a further local train to Mechelen, in the province of Antwerp, to meet with the former femtocell director. Stan and I had agreed to meet up at "Den Beer" on the Grote Markt near St. Rumbold's Cathedral (pictured) – did someone say beer? The wife (Sarah) had also accompanied me, as she was eager for an excuse to escape London and her computer screen!

## It's been a tough market

I have always been the type of person to come straight to the point. This is a trait that has often landed me in trouble, as some are aghast at my directness – honestly, I don't see any point in travelling the long way around! Nonetheless, before hitting Stan with the killer questions, the first item on the agenda was to answer the request from the waiter, "What would you like to drink?" That's easy I thought, "Een Duvel voor mij, alstublieft." Once our drinks had arrived, I was eager to knuckle down and learn the gossip.



*Stan Claes and Dean Gratton musing over their respective alcoholic beverages.*

Stan didn't enter into the nitty-gritty, and respectfully declined to answer my probing questions as to why funding had come to an end, but you could read between the lines! In short, (and to be absolutely clear, opinions expressed here in this column about Technicolor are my own) I saw it like this: Technicolor (formerly Thomson Telecom) had endured a turbulent ride,



along with an aggressive market. At times like this, when companies are faced with uncomfortable prospects, decisions as to where funding should be directed become increasingly clear cut – no matter how well the creative teams have performed in overcoming arduous technical challenges. Nonetheless, Stan was very welcoming, and, while admiring the local architecture of Mechelen, I hit the ground running, and shared my thoughts as to why, I believed, femtocells had failed.

### **You're either right or impatient**

Despite the suggestion that alcohol dulls the senses, Stan was synaptically quick to remark "You're either right or impatient". He explained how the growth of new technology should not be measured by the industry simply accepting the statistical data that optimistically predicts exponential year on year growth, but more, as a task of patience. I dare say I'd agree with that philosophy but, alas, industry venture capitalists and other financial sharks, who have dipped into their coffers to fund what is supposed to be a wealth-generating opportunity, normally want to see a fairly immediate return on their investment.

Stan used his previous experience with DSL technology to demonstrate the patience required to allow a technology to progress, in both evolutionary terms and uptake. Stan had been involved with DSL technology in 1996, and mentioned that he was faced with similar doubters, who branded DSL as unsuccessful and claimed it would never work. Stan holds firm today about femtocells and argues its time will come – I have to say, I'm not so sure...

### **The original proposition**

I want to now return to the original femtocell proposition. But first, I just want to mention that Stan and I had two different perspectives. Stan, to a greater extent, was focused on the network operator whilst I was more focused on the consumers' perspective, so indeed this became an interesting reunion. In 2008, it was envisaged that femtocell products would be sold to the consumer, perhaps bundled in as part of their monthly subscription. The industry's reaction prompted a shift in how the femtocell 'selling to the consumer' mentality would work. And rightly so! If I'm paying for a monthly subscription for a cellular service, then that's what I would expect! Get this... When I don't have the service or coverage promised by my network operator, they suggest: why not purchase a femtocell and you can enjoy the service that you've already paid for? Genius! (Sorry, that's just

British sarcasm!). Stan agreed that the femtocell solution solved the network operators' problem surrounding poor cell coverage – I mean, the good for nothing dirty rotten scoundrels (if I could use more colourful and poignant language I would!).

I honestly don't think Stan's team failed – the potential market has shrunk and the need has diminished. Major network operators across UK and Europe may be offering femtocells - something like 'Coverage+' - as part of a monthly subscription. Presumably they see this as a more palatable way of acquiring consumer uptake and securing the longevity of their consumer-base. Nonetheless, the whole market has become niche, serving only a minority consumer-base that doesn't have cell coverage. My current rationalisation is admittedly focused, for the best part, on the UK and Europe. Stan reminded me that the uptake in the US was large, and that femtocell usage was comparable to macro cell use – okay, so that's huge, but nevertheless, I don't see femtocells working to resolve a fundamental issue in the long-term.

### **The business model has shifted – it had to!**

Stan confirmed that there are currently only three major operators that are mass deploying 3G femtocells, which have become an integral part of the cellular network. Whilst this supposition is indeed accurate, I argued with Stan that this is nothing more than a 'bodge' or a Band-Aid approach to extending cell coverage in areas where coverage is poor. I am completely aware of the associated cost in deploying a new cell infrastructure – however, it does solely remain the responsibility of the operators to deliver a service that the consumer has been promised and is paying for.

I'm sure that the network operators are abundantly aware of the mass uptake in new generation Smartphones and the fact that these products are very (data) connectivity-focused. Phones are becoming smarter, so I guess the operators should also follow. As the demand for connectivity increases, so too will the demands on the existing infrastructure. The paradigm shift from voice to data has exploded, with consumers today wishing to be 'forever present'. This is not necessarily fuelled by the need for email or the Internet, but social media has a large part to play in the need for bandwidth. The original femtocell proposition has therefore also shifted - it had to!

### **No more shortcuts or Band-Aids**

In summary, the initial femtocell business proposition failed. What's more, as I have

already intimated, femtocells have found a niche – serving a small number of consumers, and that's it. I realised, whilst revisiting the original proposition, that the initial intention was to sell this technology on to the consumer. It has clearly backfired, as the industry revolted, ultimately accusing the network operators of nothing short of gluttony.

The evolution in Smartphone technology has, in turn, made consumers data hungry again, fuelled by 'attractive' data packages offered by network operators. But guys, honestly, you are going to have to keep up with this exponential, bit-hungry demand and developments in technology!

So, no more short cuts or Band-Aid solutions...

### **Until next month ...**

I suppose, for me, there's always been that nagging doubt over femtocells. I'm so pleased to have spent time with Stan and Technicolor to better understand the technology and its premise. If you want to share your thoughts about the femtocell proposition, why not drop me an email – I would love to share some other ideas!

Okay, I have to crack on with my new books, and, yet again, I'm falling behind. The social media book is due to complete (end of May) – can't wait! So, that's it for another month and the summer is officially upon us. This is where Dr G signs off. I'll see you next month with a glowing and healthy summer tan!

### **About the Author**

*Dr Dean Anthony Gratton is a bestselling author and columnist, and has worked extensively within the wireless telecommunications R&D industry. He was an Editor of the Specification of the Bluetooth System: Profiles, v1.1, participated in defining the initial Bluetooth Personal Area Networking profiles, and was active in the Near Field Communication technology and marketing committees. His wireless research work has been patented.*

*You can contact Dean at [books@dean Gratton.com](mailto:books@dean Gratton.com) and follow him on Twitter (@grattonboy). Additionally, you can read more about his work at [dean Gratton.com](http://dean Gratton.com).*

# An Internet address for every light bulb

What if every light bulb had its own unique Internet IP address? The possibilities are endless: You could monitor, manage and control every light bulb from any Internet-enabled device – turning lights on and off individually, dimming or creating scenes from your smartphone, tablet, PC or TV – to save energy as well as electricity costs. Your “smart lighting” network could have dozens or even hundreds of appliances connected through a wireless network designed for maximum energy savings, communicating information about their environment, about power consumption levels, and alerting you to any problems. NXP Semiconductors has introduced its GreenChip smart lighting solution, and told Incisor it will make the Internet-enabled, energy-efficient lighting network a reality – not only for businesses, but also for consumers trying to make the most of energy savings in the home.

“The GreenChip smart lighting solution signals a fundamental shift in the way we interact with lights – at home, in the office, even outdoors,” says John Croteau, senior vice president and general manager, power lighting solutions and high performance RF, NXP Semiconductors. “By bringing together wireless IP connectivity with our energy-efficient lighting and power conversion technologies in a compact, low-cost solution, we are transforming the way we design, control and manage lights. For individual consumers, Smart Lighting means highly personalized, intelligent lighting environments – lights that turn on and off when and where you need them, at the desired level of brightness – while saving power and electricity costs. Our smart lighting solution also brings us one step closer to the ‘Internet of Things’ – a world in which every home appliance can be monitored and controlled via an IP address – at a very compelling price point for consumers.”

Croteau went on to tell Incisor that the GreenChip smart lighting solution reduces the requisite electronics to the size, cost and power consumption to fit in an everyday light bulb. It brings together wireless IP connectivity, energy-efficient lighting and low standby power (down to 50mW).

The GreenChip smart lighting solution is available in two versions – GreenChip iCFL for compact fluorescents and GreenChip iSSL for LEDs – and currently includes:



- The GreenChip iCFL or GreenChip iSSL chipsets, which function as dimmable drivers for smart lamps
- An ultra-low-power standby supply controller with 10mW no-load capability;
- A 2.4-GHz IEEE 802.15.4 standard-compatible wireless microcontroller with a Tx/Rx current below 17mA
- Low-power, IP-based wireless connectivity enabled by JenNet-IP network layer software

NXP predicts that GreenChip-enabled light bulbs will be able to operate on the same wireless sensor networks consumers may be using at home for energy metering, smart appliances and security systems. NXP’s JenNet-IP network layer software provides the ultra-low-power wireless connectivity in the GreenChip smart lighting solution. If you’re unfamiliar, JenNet-IP is a

6LoWPAN mesh-under tree network with low memory footprint, specifically targeting low-power IEEE 802.15.4-based networking for residential and industrial applications. Based on NXP’s JenNet network protocol stack, JenNet-IP provides a self-healing tree network that is claimed to be proven at over 500 nodes, supporting IPv4 and IPv6 with over-network upgradability. JenNet-IP offers 128-bit AES encryption with secure authentication and device joining, and will be made available under an Open Source license in Q4 2011.

TCP, a leading manufacturer of CFL and LED lamps in North America, has been an early adopter of Smart Lighting technology, and is using the GreenChip smart lighting solution for both its CFL and LED lamps.

Incisor understands that reference designs using GreenChip smart lighting solutions are available now from NXP

# Wi-Fi Direct: Creating a wireless powerhouse?

by Brian O'Rourke, Research Director,  
Digital Entertainment, In-Stat



**Wi-Fi Direct is software that sits on top of IEEE 802.11x silicon, so Wi-Fi Direct's success is fully dependent on the success of that underlying 802.11x chip solution. Because it is software and not a change to the silicon, it does not require a new IEEE specification, and is governed instead by the Wi-Fi Alliance - the Austin, Texas-based trade association.**

Wi-Fi Direct creates a very powerful Wi-Fi solution, as it enables the premier wireless networking standard to add peer-to-peer capability, with no need for a Wi-Fi access point. This creates a much more compelling and complete wireless standard, and brings Wi-Fi into competition with specifications such as Bluetooth. And because Wi-Fi Direct is software based, the marginal cost of Wi-Fi Direct-enabled silicon over basic Wi-Fi silicon is minimal.

Wi-Fi Direct enjoys wide backing from Wi-Fi silicon vendors. Companies such as Atheros, Broadcom, CSR, Intel, Marvell, Qualcomm, Ralink, and Realtek all have plans for widespread release of Wi-Fi Direct-enabled silicon. In fact, many of these companies received Wi-Fi Direct certification for at least one chip solution in the fourth quarter of 2010, shortly after the specification was released by the Wi-Fi Alliance in October.

In terms of adoption by 802.11x type, 802.11a/g chip vendors are not likely to add Wi-Fi Direct, as the standard has a limited life span remaining. However, it will be seen in the vast majority of new 802.11n silicon beginning in 2011. And it will be standard in 802.11ac silicon as it begins to ship.

However, adoption of Wi-Fi Direct software in Wi-Fi silicon is only half the battle to ensure its success among consumers. Another vital issue will be making the Wi-Fi Direct standard useful with application programming interface (API) software. APIs ease the connection between devices, and increase the usability of Wi-Fi Direct for consumers. Without solid APIs, Wi-Fi Direct will only be marginally more useful than the current 802.11x ad-hoc mode - the first, complex, little-used attempt at Wi-Fi peer-to-peer connectivity. Wi-Fi chip vendors are already delivering API solutions. For example, Broadcom has announced its Maestro API suite, Atheros has Direct Connect, and Qualcomm has introduced AllJoyn. Nevertheless, there is a danger in Wi-Fi silicon vendors creating APIs. A rival company may be hesitant to use one of these solutions for fear of helping, and possibly becoming dependent on, the competition. And without widely accepted APIs, it will be difficult for a Wi-Fi Direct ecosystem to

develop. This could create an opening for a third-party software vendor to provide an API.

Wi-Fi Direct devices came to market in very small numbers in late 2010, a result of the 21 Wi-Fi Direct-certified products approved by the Wi-Fi Alliance in the fourth quarter of 2010. Many more products will hit the market in 2011. The first applications to adopt Wi-Fi Direct include mobile PCs, mobile phones, and digital televisions (DTVs). These devices share a trait: they are the respective centres of the PC, CE, and mobile device clusters, and they ship in the hundreds of millions of devices annually. So it makes sense for Wi-Fi Direct to start with these applications, and then move to the rest of the PC, PC peripheral, and CE ecosystems. Ultimately, we expect Wi-Fi Direct to be successful and that, by 2014, all Wi-Fi devices that ship will be enabled with Wi-Fi Direct, creating a one-stop shop for wireless networking and connectivity.

## Snippets

### Multimedia wanted by 54% of Chinese enterprise mobile users

Responses to surveys of mobile business customers in the US, China, India, Indonesia, UK, Germany and France conducted by ABI Research indicate that mobile devices providing the best experiences with multimedia, applications, and productivity features are those most favoured by business users.

Multimedia was the top reason Western European respondents chose their current mobile phone; 50% of those who plan to upgrade to a smartphone chose applications and Internet access as the top reasons. More than 50% of Indian and Indonesian respondents chose their smartphones based on multimedia capability, and the top reason stated by 54% of Chinese respondents who plan to upgrade to a smartphone is a better multimedia experience.

# high speed wireless news



## New sponsors for Wi-Fi Alliance

Huawei Technologies, LG Electronics and Samsung Electronics have become Sponsor members of the Wi-Fi Alliance, and each has appointed a Director to the organization's Board. They join Apple, Atheros, Broadcom, Cisco, Comcast, Dell, Intel, Microsoft, Motorola Solutions, Nokia, Sony Corporation, T-Mobile and Texas Instruments as Sponsor members of the Wi-Fi Alliance.

"Our Sponsor membership represents a strong cross-section of the industry - from makers of consumer goods and networking equipment, to service providers and appliance manufacturers," Edgar Figueroa, CEO of the Wi-Fi Alliance told Incisor. "Adding Huawei, LG and Samsung to our Sponsor member roster helps us keep pace of where the industry is going and continue to deliver the best user experience on Wi-Fi devices."

The Wi-Fi CERTIFIED product logo and testing program was launched in March 2000 and provides a seal of interoperability and security, designating products that the Wi-Fi Alliance judges to provide the best user experience. The Wi-Fi Alliance has completed more than 10,000 product certifications.

The new directors joining the Wi-Fi Alliance Board are Dr. Wen Tong, Wireless CTO and Dr. Peiyong Zhu, Senior Director, Wireless Research and Standards at Huawei Technologies. From LG Electronics there are Dr. Byoung-Hoon Kim, Research Fellow (VP), and Mr. Jae-Hyung Song, Senior Research Engineer, while from Samsung Electronics there is Joonho Park, Ph.D., Senior Vice President, Head of Standards and Technology Enabling Team, and Rakesh Taori, Director, Standards and Technology Enabling Team.

The new Sponsor members are active participants in the Wi-Fi Alliance and the Directors are active in the Board effective immediately.

## Business Wi-Fi/ cellphones ship almost 247M units in 2010

Global economic challenges have slowed sales of IP phones, but the movement toward IP telephony systems continues, say researchers at In-Stat. While corded IP phones remain the standard in business, Wi-Fi/cellular handsets continue to grow, as new In-Stat research indicates that shipments of these dual-mode devices approached some 247 million units in 2010.

"In the past, cellular operators earning their revenue from a per-minute service plan would not support a handset that would use Wi-Fi to move those minutes off of the cellular network, without getting something in return," Norm Bogen, VP Research told Incisor. "Over the past few years, cellular operators have yielded to consumer demand for VoIP services on their cellphones and have formed partnerships with VoIP vendors, such as Skype, to keep traffic on their network."

Recent research by In-Stat found that business Wi-Fi/cellular phone shipments grew by nearly 40% in 2010 over 2009. Among the leading handset OEMs in the dual-mode segment, HTC saw the biggest share gain, while Cisco and Avaya are leading the market for enterprise IP phones. Among other major competitors are Aastra, Alcatel-Lucent, LG, Mitel, NEC, Polycom, ShoreTel, and Siemens. Outside of service provider deployments and Skype, consumer adoption of VoIP has been minimal.

## HGI members discuss strategy for next gen connected home services

The Home Gateway Initiative (HGI), for those Incisor readers that don't know, is a body that brings service providers and manufacturers together to enable next generation communications services. As part of the HGI's forward looking work, plans for the analysis of next generation (NG) communications in the connected home have been drawn up in Paris by broadband service providers (BSPs) and manufacturers. Ideas were brought to the table by Samsung and France Telecom that will lead to integrated communications that 'enhance the end user experience'.

HGI, which translates the BSP's service plans into published technology requirements, agreed on applicable next generation technologies and devices. The technologies considered are DECT CAT-iq, SIP, UPnP Telephony, and RCS. The applicable devices are the Home Gateway, connected TV, multimedia cordless devices and Internet tablets.

Members at the HGI event discussed service deployment issues, communications use-cases, and technical architecture requirements and choices.

According to Philippe Calvet, HGI Business Group Chairman Communication, services are key for BSPs. With the arrival of new communication services, Calvet told Incisor that it is key to federate a new ecosystem of connected communication devices including smart phones around the Home Gateway. It is also crucial for initiating calls from other devices. This HGI work is intended to shape the rollout of a range of next generation communications services.

## events



2011

DATE	EVENT	LOCATION	NOTES	LINK
Aug 2 - 3 2011	Wi-Fi Alliance Smart Energy Forum	Hyatt Regency o'Hare, Chicago, IL, USA	-	<a href="http://www.wi-fi.org/events_overview.php?id=342">http://www.wi-fi.org/events_overview.php?id=342</a>
Sept 1 - 2 2011	Wireless China Industry Summit	The Landmark Hotel & Towers, Beijing, China	-	<a href="http://www.wirelesschina-summit.com/">http://www.wirelesschina-summit.com/</a>
Sept 18 - 21 2011	CTO Telecom Summit	Scottsdale, AZ, USA	-	<a href="http://www.ctotelecomsummit.com/">http://www.ctotelecomsummit.com/</a>
Jan 9 - 12 2012	Consumer Electronics Show (CES)	Las Vegas, Nevada, USA	-	<a href="http://www.cesweb.org">http://www.cesweb.org</a>
Feb 21 - March 1 2012	Mobile World Congress 2012	Barcelona, Spain	-	<a href="http://www.mobileworldcongress.com">www.mobileworldcongress.com</a>
April 24 - 26 2012	Bluetooth Special Interest Group All Hands Meeting	Renaissance Vancouver Hotel, Vancouver, Canada	-	<a href="http://www.bluetooth.org">www.bluetooth.org</a>

2012

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