

INCISOR™

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environment

Video enabled  Issue 155

March 2011



THE TIME IS NIGH

THIS ISSUE

IS NFC POISED FOR WIRELESS STARDOM AND FAME?
THE ORIGINS OF WIDI
IN-CAR TECHNOLOGY – IS THE CONSUMER READY?

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if you had to choose...

It probably hasn't slipped your notice that the event called Mobile World Congress has been taking place this month. Consequently, I've received a heck of a lot of press releases, and a lot of PR people have asked me whether I was going/did go.

The simple answer to that question is: no. I didn't go to MWC this year for the same reason I haven't been for several years. That's because MWC always clashes with my annual ski trip to North America (alternating between Canadian and US resorts, if you want to know). The dates of the ski trip are set by the needs of other people in the group, and some have kids, and kids have to go during half-term holidays. I've tried to convince the organisers of MWC to change their dates, but they don't seem interested.

So, the choice remains: do I go skiing, or do I go to MWC? It doesn't take long to decide.

My understanding is that the main themes at MWC this year were entirely predictable – tablet PCs/mobile Internet and the seemingly unstoppable march of the Android invasion. Nokia and Microsoft did spoil the party for some people's announcements, by telling the world they were now BFFs, but overall, I haven't yet identified a reason why I really should have chosen Barcelona over Banff.

Even when I was away skiing, I was working on our events programme with Top Gear Live (see advert on page 12). We're now in discussions with many, many interested parties, ranging from automotive CE companies, to semiconductor companies, to phone companies and – very excitingly – a Formula 1 team. It's true!

If you would like to be part of this programme, contact me soon. Even if you are half way down a double black run.

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

INCISORTV FOCUS THIS MONTH:



Missed the Bluetooth SIG Best of CES competition at CES 2011? No problem, see it here now.

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NFC: THE TIME IS NIGH

NFC is back on Dean Gratton's radar this month. Will the technology finally be intergraded into mobile phones to enable contactless payment – and other apps?

THE ORIGINS OF WIDI

Can Intel successfully introduce a new standard for streaming HD video content between PCs and TVs?

IN-CAR TECHNOLOGY – IS THE CONSUMER READY?

We are about to experience a new wave of driver information and entertainment systems. Vince Holton asks: is the average driver ready for this?

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Bluetooth SIG awards annual Innovation World Cup winner

The Bluetooth Special Interest Group (SIG) has announced the overall winner of its Bluetooth Innovation World Cup 2010 competition. The Pervasive Computing Group at the Imperial College in London beat out 270 other entries from all over the world to win for its entry titled, "Ear worn sensor for activity recognition, energy expenditure and gait monitoring," entered in the healthcare category. The award was presented at ispo, the sporting goods trade show, held in Munich during February. Dr. Louis Atallah represented the winners, collecting prize money of USD \$5,000, a Bluetooth Qualification Program voucher valued at up to US \$10,000, and an Anritsu test set worth USD \$17,000.

The Pervasive Computing Group proposed a small sensor worn on a person's ear that's able to measure balance, body posture, activity level, and heart rate, and then transmit that information wirelessly to a computer or other device where it could be viewed by the patient's health care provider. Because the ear sensor would have to be very small and light, it would need to have ultra low power consumption. This is, of course, possible if the sensor is designed using Bluetooth low energy wireless technology.

Mike Foley, Executive Director of the Bluetooth SIG, presented the awards at ispo. In addition to naming the overall winner, which also won the healthcare category, he also presented awards in two other categories: home automation and sports & fitness.

Nicholas Pau of New Zealand won the home automation category. Pau from the Wireless Research Centre (WRC) at the

University of Canterbury in Christchurch, NZ, proposed a device that would alert people when it's time to refill Liquefied Petroleum Gas (LPG) canisters used for heating or cooking, and also tell them if there's a leak in the canister. LPG is widely used in rural areas and smaller cities around the world where piped gas is not available.

Biju Thomas of the United States won the sports and fitness category. He proposed an impact sensor capable of providing detailed measurements of shock in sports accidents, such as a helmet that tells you how hard you hit your head if you fall while performing different sports activities. The severity of impact could be measured and transmitted to a mobile phone using Bluetooth low energy technology. This could help detect head injuries that seem minor, but turn out to be much more severe than a person realizes.

The Bluetooth Innovation World Cup 2011 will open for submissions on the 1st May.



Intel completes takeover of Infineon's Wireless Solutions business

Intel has completed the acquisition of the Infineon Technologies AG Wireless Solutions (WLS) business. WLS is a provider of cellular platforms to top-tier global phone makers, and Intel told Incisor that the acquisition was part of its strategy to accelerate always-connected computing platforms that span a variety of device and market segments, including laptops, cars, smart phones, tablets and smart TVs, and to head the company in the right 4G LTE direction.

The new wireless business will now be called Intel Mobile Communications (IMC) and will operate as a standalone business entity within Intel's Architecture Group to enable continuity of existing customer sales, projects and support, including ARM-based products.

"With the projected growth of mobile computing and its convergence with wireless device market segments, it is our intent to rapidly apply Intel's resources and assets to further grow our wireless business and move Intel Mobile Communications into a leadership position," said Prof. Dr. Hermann Eul, president of Intel Mobile Communications. "As we enter an era of multi-communication solutions, IMC's products and technologies will be integral to connecting a breadth of Intel and ARM-based mobile devices. We are truly excited to be a part of this growth."

IMC will continue with its current business model of supplying wireless and cellular platforms to its customers worldwide, in addition to support of Intel Core and Atom-based application processor platforms.



CSR merges with Zoran Corp

There have been rumours knocking around the industry for some time that CSR was about to acquire somebody, or even to be acquired itself. Well, on the 22nd of Feb the news came out that CSR is to merge with Zoran Corporation for an equity value equivalent to approximately US\$679 million (about £418 million). In line with previous practice (most recently when it acquired SiRF), CSR is calling this a merger, but most people are in no doubt that it is an acquisition, and one that propels CSR somewhat higher up the league of semiconductor companies.

For those of you that are unfamiliar with Zoran, the company provides imaging and video technology for digital camera, home entertainment and multifunction printer products. In 2010, Zoran had total pro forma revenues of \$441 million.

Under the terms of the Merger Agreement, Zoran shareholders will receive 1.85 ordinary shares of CSR in the form of American Depositary Shares (each an "ADS"), for each share of Zoran common stock held. In addition, CSR announced that it intends to return up to US\$240 million to shareholders via an on-market share buyback programme.

According to the announcement release, CSR's intellectual rationale for acquiring Zoran is 'to create a new company that will provide differentiated, integrated technology that addresses the rapidly growing market for connected, location-aware multimedia devices including handsets, digital cameras and home entertainment equipment. Combining the two highly complementary technology portfolios is designed to uniquely position the merged company to deliver advanced platforms to capture and stream media-rich content'.

On the financial side, and while no information on job losses was provided, the two companies do expect to generate run rate cost synergies of US\$50 million by the end of 2011.

CSR's Chairman, CEO and CFO will lead the merged company. Dr. Levy Gerzberg, Co-Founder, President, CEO and Director of Zoran will be joining the CSR board as a Non-Executive Director. Zoran will also propose one additional independent Non-Executive Director to join the CSR Board.

Commenting on the Merger, CSR's CEO Joep van Beurden said: "This is an exciting transaction on both a strategic and financial level. Digital electronic devices are becoming increasingly connected and full of media-rich features, including the ability to stream images from your camera to your PC or video conferencing from your Smartphone. Zoran's market leading imaging and video capabilities, combined with our own connectivity and location capabilities, make this a great opportunity for us. The same is true in the home entertainment space where wireless connectivity is increasingly being adopted in a range of consumer devices such as digital TVs – Zoran's image technology combined with our connectivity skills will provide a differentiated proposition which will be appealing for our customers."

Completion is expected in the second quarter of 2011 and is subject to CSR and Zoran shareholders and regulatory approvals and other customary closing conditions.

What do we make of this merger? Hmm... If we're honest, we're not sure. The investors seem a little more decisive. On the 8th Feb, CSR's share price was 434 pence per share. At the time of writing, five days later, it was at 383 pence per share. What does CSR have to do to rescue its share price?





CSR busy at MWC

In addition to busying itself by merging with Zoran (see previous page), CSR laid out its wares at the Mobile World Congress in Barcelona.

Its dual-mode CSR8000 connectivity platform with CSR Synergy for Android embedded wireless systems software was showcased in NEC Casio Mobile Communications' concept model smartphone. Synergy for Android was, incidentally, the subject of another CSR MWC announcement - it has been enhanced with full support for Bluetooth low energy (v4.0).

Masakazu Yamashina, Senior Vice President of NEC Casio Mobile Communications commented: "NEC Casio Mobile Communications is excited about the potential of Bluetooth low energy applications for consumers. As the leader in Bluetooth low energy, CSR is the obvious development partner for the premium connectivity experience our customers expect. The CSR Synergy for Android software made integrating this functionality quick and simple, helping us bring the Bluetooth low energy-enabled prototype smartphone to market in time for MWC."

CSR also announced the CSR8600 wireless consumer audio platform, a next-generation architecture CSR will employ for a new family of system-on-chip devices offering high-fidelity audio quality, the latest Bluetooth wireless connectivity technologies and a highly efficient energy management system, all in a compact form factor with reduced BOM count. CSR believes that the 8600's tiny size, energy efficiency and other features make it ideal for use in a variety of compact portable and wearable products that offer longer battery life, including smart remote controllers, wireless headsets and headphones and portable media players equipped with wireless heart-rate monitor, foot-pod and other sensors.



Gigaset, Samsung, VTech certify CAT-iq 2.0 handsets

The DECT Forum has told Incisor that Gigaset Communications, Samsung Electronics, and VTech Telecommunications have passed the CAT-iq 2.0 test program and achieved the qualification for the first certified CAT-iq 2.0 handsets.

Not sure what CAT-iq is? Then watch the [Incisor.tv movie on the subject](#). Or, read this: CAT-iq 2.0 is the DECT Forum - driven voice centric profile for next generation DECT technology. DECT is, of course, the technology behind most of the cordless phones we use at home. Rather than get passed by in the rush to global adoption of IP, DECT is getting in on the party, and CAT-iq 2.0 offers HD voice, multiple lines, three party conferencing, call transfer, phonebook synchronization and many other features. According to the DECT Forum, CAT-iq 2.0 marks the introduction of DECT into the home gateway giving it native IP connectivity and making it a true broadband wireless home networking technology. Its integration into the Home Gateway implies that it will initially be carrier driven.

As with most things, there is a certification programme, and the first three CAT-iq 2.0 certificates have been issued to three different cordless phone vendors: Gigaset Communications (Gigaset C300H iq), Samsung Electronics (SMT-W3510), and VTech Telecommunications (VTech Avant 5000).

"The CAT-iq 2.0 Certification Program gives vendors the opportunity to enter the broadband VoIP market. This is a significant opportunity for carriers to offer more value add services like HD voice and multiple lines, supporting strategies to retain customer loyalty and win over



new customers", said Daniel Hartnett, who is Chairman of the CAT-iq Working Group within the DECT Forum.

Bluetooth CAGR in industrial/medical market to exceed 84% from 2009 through 2014

Bluetooth was officially introduced in 1998 and was first employed in a mobile phone in 2000. It is here that it has had its greatest success, if for no other reason than the sheer volume of handheld devices. But its usefulness continues to expand to many other applications, from printers to headsets, to PCs to automobiles and more. However, recent In-Stat research suggests that it is the Industrial/Medical market that now shows the most growth potential. In-Stat predicts that shipments of Bluetooth-enabled devices in this segment will see a CAGR that will approach 85% between 2009 and 2014.

"The health and wellness market represents a new and relatively untapped opportunity for Bluetooth, particularly Bluetooth LE," says Brian O'Rourke, Principal Analyst. "The range of equipment includes heart rate monitors, blood-sugar measurement solutions, exercise and fitness equipment, and much more. The technology enables doctors to receive patient results via Bluetooth mobile phones, among other devices."

In-Stat is pushing its new report - Bluetooth 2010: Classic Dominance, LE Potential, and High Speed Issues, This covers the worldwide market for Bluetooth technology and includes unit forecasts for Bluetooth-enabled products by category and by Bluetooth standard through 2014.

new products



In-car speakerphone with 3 speakers & virtual surround sound

Jabra is claiming an industry-first for the in-car speakerphone category. The new Jabra Freeway is claimed to be the first speakerphone to include Virtual Surround Sound, noise cancelling functionality and a three speaker system for top-notch sound quality.

The Freeway uses voice controlled communication to control calling, answering, redial and rejecting calls using just your voice. Voice Guidance communicates pairing instructions and status updates and Caller ID announces who is calling or the phone number if it is not in your phonebook.

If that's not enough tech for you, the Freeway also boasts a built-in Motion Sensor that automatically turns the in-car speakerphone on or off when the car door is opened or closed. And for those of us who are allergic to USB connections, Bluetooth A2DP also allows you to stream audio from GPS applications, music and phone calls wirelessly to your car speakers through the FM Transmitter.

But wait, we're still not finished. Advanced Multiuse permits two active Bluetooth connections from a mobile device at the same time, with the ability to switch between them.

Other features include the ability to remotely control your wireless stereo music using the Bluetooth AVRCP profile, it is HD Voice Ready and offers 14 hours talk time and up to 40 days of standby time.

The Freeway is available from the time you read this issue, and the price in the UK is around £99. Here at Incisor we've



been fans of the Jabra Cruiser & Cruiser 2 speakerphones for some time. 'Looks like they may soon be displaced in our affections...

... also updates Stone

Jabra, has also launched the next generation of another Incisor favourite, the Stone Bluetooth headset – see the [Incisor.tv movie focusing on the Jabra Stone](#). The Jabra Stone2 features an all new voice concept that means that making and taking calls is easier than ever before. The voice control system tells users who is calling via an audio concept (caller ID e.g. "Mum Mobile" or "David's Work") and allows users to just say "answer" to take the call or "ignore" to reject it. A Voice Guidance feature talks users through the process of pairing the headset to their mobile or smart phone, and announcing when the headset is connected or low on battery.

iBike Dash CC wireless cycling computer uses ANT. Strange...

Here's a puzzler for you: at the Bluetooth All Hands Meeting in April last year, Incisor.TV interviewed a company called Sound in Motion, which was showing a product called the Velo Computer. This was a Bluetooth-enabled cycling computer. You can see it here, in the [Incisor.tv 2010 AHM movie](#) (at 10:55).

Then, this month, we've received a press release from iBike, which is a sports technology company and creator of the iBike line of power meters, announcing the iBike Dash CC (Cycling Computer), which is described as a light-weight



wireless bicycle computer system that turns any iPhone or iPod touch into your own personal fitness trainer.

The iBike Dash CC measures your speed, power, heart rate, wind speed, time, trip, elevation, and calories and includes a free iBike app available from the iTunes App Store which features customizable tools, from simple speedometers to workout programs. The app is displayed on the iPhone or iPod touch screen with easy to read high-resolution color graphics and animation.

So, what's the puzzle? Well, it's as simple as this. We assumed the Velo Computer was the same as Velocomp. Allowing for the obvious 'Velo' aspect, they do sound as if they might be from the same source, don't they? If they are, it means that the wireless technology has been switched from Bluetooth to ANT, which would be a bit of an eye-opener. Does anyone know the reality of this one?

Well, anyway, whether it is the same product, or not, the iBike Dash CC is apparently available immediately for iPhone and iPod touch, priced at \$199 MSRP for the basic version and \$329 MSRP for the advanced version with additional features (including cadence, HR, calorie measurement, battery and charger).

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High quality, pro audio wireless is going digital

Tim Whittaker, Wireless Division,
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Licensed or licence-free, digital or analogue, White Space or pre-allocated – the high-quality pro-audio business – the guys who capture or amplify the sound in TV, theatre or even your local classroom or church – is in a state of flux, with pressures to maintain quality, drive prices down, and to cope with the ever-increasing popularity of wireless devices in the audio system, and with growing pressure on the spectrum.

A couple of decades ago, the choice was simple for radio microphones and similar devices: you either spent a couple of thousand dollars or more on a highly-specified and complex system and a reasonably predictable performance, or went for the low-cost end of the market, where low-cost circuitry could provide only an indifferent level of performance. Today, these boundaries have been blurred, as design techniques used in the high-end systems have migrated down into systems of intermediate and low cost – meaning that an educational or church AV system can have performance rivalling that of equipment specified for television or big theatre.

Examples of these techniques have included frequency synthesis and microprocessor control, so that even low-cost systems can operate on several RF channels (as opposed to a single fixed frequency); and space diversity, where selecting the best signal from two receivers with separate antennas reduces significantly the incidence of blank spots in the coverage.

Until just a few years ago, radio microphones and in-ear monitors used a single radio technology – frequency modulation by the analogue signal. Using components sold in volume for home and car FM radios, prices could be kept



*DECT radio microphone system for
conference rooms.*

reasonable. Crucially for music applications, the latency (delay from end to end) was very low – sub millisecond. However, these systems need dedicated radio spectrum, and most countries set aside a couple of licence free bands¹ for the occasional user. For the professional, licensed bands are a necessity, and each country's regulator (or a delegated organisation) co-ordinates spectrum – most of it in gaps in the spectrum allocated to UHF television – and sells these licenses.

The bad news is that digital television needs fewer gaps than analogue, and therefore legacy TV spectrum is being

sold off – the so-called 'digital dividend.' White-space data devices are also going to be introduced in the same gaps. This means that the quality (noise floor, interference level) of the licensed spectrum is likely to decrease, which will challenge analogue FM audio systems. Increasing popularity of non-professional wireless is going to have a similar effect on the licence-free spectrum.

Digital transmission, by contrast, can be engineered to work with much higher interference levels – this is, after all, part of the raison d'être of digital TV. Digital radio microphones are therefore being developed, for both the existing





spectrum, and also to open up at least two other licence-free allocations for local area radio:

- The 2.4 – 2.485 GHz general purpose licence-free band is now too noisy to be any good for analogue systems, but the use of frequency agility and/or hopping – well established in Bluetooth – is delivering good quality audio in several manufacturers' products.
- The 1.88 – 1.90 GHz band is allocated (with variants in detail) across most of the world for DECT cordless telecommunications. Nothing in today's regulations of this band limits its use to telephony, and the technology automatically seeks free channels, moving channel in real time where necessary.

Both DECT and Bluetooth are made in large enough volumes to get transceiver costs down to a few dollars, and both can deliver data up to a megabit per second. Both technologies can work with only 11dB signal-to-interference ratio, compared with FM which needs around 40dB (for mono)

At the same time, powerful digital signal processing is available at low cost – on-chip in many cases as multimedia applications are added on to phones. This DSP can be used to implement modern high-quality, low latency codecs like apt-X, AAC-LD or CELT² – all of which can deliver

entertainment-quality audio, mono or stereo, over data rates in the range 32 – 128 kbit/s.

This kind of system can deliver end-to-end delays of between 5 and 15 milliseconds, generally good enough for lectures and talks. Perversely, a bit of delay is actually beneficial for this type of material, because it means that the direct speech arrives at the listener before the amplified version, and this helps intelligibility.

For the professional and musician users who require extremely small delays, the radio system must still be designed for this purpose, and analogue will still have its place. Where interference levels are rising, modern digital modulation schemes like OFDM can be engineered so as not to require any voice-compression codec at all, with short enough packet lengths to achieve similar latencies to those of FM.

Cambridge Consultants is active across all these technical areas, helping our clients extract maximum value from a suddenly quite fast-moving industry. Making wireless audio systems a success will mean selecting an appropriate radio modulation technology and associated signal processing, to meet the demands of the relevant market segment, including technical performance and cost.

www.cambridgeconsultants.com

¹The UK, for example, allocates 173.8-175 MHz, and pan-European band 863-865 MHz.

²apt-X is a registered trademark of CSR plc; AAC and AAC-LD are products of Fraunhofer IIS; CELT is a technology of the Xiph.Org Foundation.

Cambridge Consultants Blogs

Why are we blogging? We believe that the technology market is much better when it is highly connected, and social media is a fantastic tool that instantly connects people who face similar challenges, irrespective of whether they are budding entrepreneurs running their first high growth start up company or a captain of industry in charge of a global bluechip company. So, if you'd like to add to the debates, please feel free to comment on any of our blogs. It would be great to hear from you.

Patrick Pordage
Marketing Communications Director
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[Wireless Medical Blog](#)

Examining mobilehealth and telehealth technology ad market challenges, this blog provides insight from implantable and hospital communications to consumer health applications.

[Mobile Wireless Technology Blog](#)

Smartphones, netbooks and tablet PCs are making mobile connectivity an essential part of everyday life for many people. This blog examines the issues faced by technology professionals, network operators and industry analysts working to keep people connected on the move.

[Short Range Radar Blog](#)

Devoted to the topics surrounding short range radar systems in the 0 to 10km range. Examples of systems covered include in-wall, through wall, short range border surveillance and in-fill radar for both ATC and military applications.



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INCISOR TALKS TO: Henri Seydoux, Parrot

In-car technology – is the consumer ready?

By Vince Holton

Savvy and switched-on readers will have noticed that one of Incisor's main focuses at the moment is the implementation of in-car driver information and entertainment systems. This is a hot topic, but it's also because we are involved in a project with Top Gear Live to promote such systems to consumers at Top Gear Live events (see details in this issue).

Bluetooth started a trend, providing handsfree calling convenience. This has since developed, and some cars can now handle A2DP music streaming. We've previously documented how Ford and Microsoft have blazed the trail with Ford's SYNC system, which has now blossomed into MyFord Touch. Ford is not alone, most car manufacturers are getting with the zeitgeist, and are promoting advanced in-car driver systems. BMW is currently promoting its Vision ConnectedDrive concept, and we will be learning more about that in next month's issue.

But..... What we don't know is whether the consumer market is ready for this invasion of technology into its cars. I decided to put the question to Henri Seydoux, CEO and founder of Parrot, a company which, with both retail products and OEM solutions, has probably put more advanced technology into cars in recent years than any one other company.

VH: An avalanche of new in-car infotainment systems seems to be about to land in our cars, but have consumers come to terms even with hands-free calling?

HS: Consumers are much more ready than we believe. Millions of cars are now Bluetooth-enabled for handsfree calling - at Parrot we're shipping 7 million systems a year - and awareness levels of connected services are high. The presence of this technology in cars encourages people - if they have it, they use it. It's setting a lot of challenges for the car companies though. Their systems must work with every phone, and their car has a useful life of 15 years. Handsets have a life of 15 months, so a car must support 3-4 generations of handsets, and this means



the ability to cope with updates. This is not easy to do.

VH: How ready do you think the market is for in-car mobile Internet?

HS: Whatever information you need when you are in your car, it is already out there on the Internet, so this is a natural progression, and in the future we believe that more of the music that people listen to will come from the Internet. As all of this technology becomes available in the car, usability is the number one challenge. Voice technology is the primary solution as it is easy for the consumer and avoids the need to take hands off the steering wheel and eyes off the road. Parrot has spent many years researching, developing and optimising voice recognition software. With our Asteroid system, you can simply say an artist's name, and the head unit will search the car's own resources, and also the Internet to find tracks for you to listen to.

VH: What are the legislative implications?

HS: University studies, particularly in the USA, have shown that there is no collaboration between the frequency of

accidents on the road and the use of in-car telephony. What is dangerous is anything that takes the driver's attention off driving the car. Bluetooth has already made the use of phones in cars a safer practice, and has managed legislative requirements, but now we have to continue to be clever, and to continue to develop the way that the interface works so that everything is done by voice, or text-to-speech. If, realistically, we want to be able to replicate the established Internet experience in the car - with constant interaction in order to manage our Facebook, Twitter lives - voice processing is the only way to go.

VH: Will there be a war to establish a dominant operating system for in-car systems? If so, will it come from the computing or the mobile phone industry, and what will win?

HS: It is very likely that there will be different approaches from different car companies, and different phone manufacturers. At Parrot we picked Android as the platform. We feel that Android already provides a very good experience on the smartphone, and that the ever-growing number of applications, with an apps store managed and nurtured by Google,



will mean that the consumer will be very well catered for. From an OEM perspective, Google has provided carmakers with a roadmap for the implementation of Google in onboard systems, and finally, we also consider Android to be a good value for money proposition.

VH: What are the main technical challenges that have to be addressed?

HS: The main challenge is to ensure that Android works with every cellphone, and with a very large number of voice commands. We need to make Android work not as a smartphone, but as a phone client. You need to add a lot of new functionality as a phone client.

VH: Does wireless technology have a role to play, and if so, what will prevail – Bluetooth? Wi-Fi?

HS: Today's phone technologies are already good. Android and ARM processors are well suited and Bluetooth is very well established and will continue to play a key role. Wi-Fi will be useful if it can be used to broadcast content - the Internet, primarily - into the car.

VH: Car companies are looking to address the market. Ford and BMW especially. BMW is showcasing Vision ConnectedDrive, which, amongst other things, is using sensors to allow cars to communicate with those around them, providing advanced warnings of accidents, delays, poor road conditions etc. Which do you think that consumers want more – warnings of impending danger, or Facebook in the car?

HS: At Parrot, our view is that the main wish list for consumers is to get their entertainment and information needs supplied by full access to the Internet in the car.

VH: Can the existing user interface (i.e. relatively small screens) cope with the needs of advanced systems, or are



Vince Holton interviews Henri Seydoux, as Parrot launches its Android based in-car mobile Internet solution. Click the screen to watch the Incisor.TV movie.

Head Up Displays (HUDs) the way forward?

HS: There will be a need to move away from using a control panel or touch screen as the primary interface between the driver and the car's systems. This is because it requires the driver to look away from the road, and to be distracted from the process of driving the car. Voice control is by far the most sensible interface, and voice processing and voice recognition have already achieved very impressive levels of usability and reliability, and are continuing to improve all the time. There is a good role for Head Up Displays in the future, but they are not ready yet, whereas voice control is.

VH: How much information SHOULD the car be sending to the driver, or is this all a distraction, and the driver should be concentrating on the task of driving the car?

HS: I recognise that the naysayers will resist the increased functionality of in-car systems – as with the initial reaction to the use of cellphones in cars, it is an easy target. However, I believe that the availability of better information, such as advanced warning of, and re-routing away from accidents, traffic delays, bad weather,

etc, and the provision of simpler and safer, voice access to all of this information and the driver's choice of entertainment, can only reduce driving stress and pressure on the driver.

VH: Will the integration of information systems push us ever closer to sci-fi style automated transport systems, where we don't drive our cars, we just climb in, programme where we want to go, and it takes us there while we watch movies/write spreadsheets/update our Facebook page or maybe just get friendly with our fellow passengers!

HS: That's maybe a little way off into the future, but it may well become the case that using a car becomes more like using a train or a plane, where we are not part of the driving process. Parrot is involved in many areas of new development, but at the moment these do not include automated driving, or parking systems. We know that car drivers and their passengers want in-car access to the Internet and the wealth of resources that it offers. And, crucially, they want that access using their own equipment and without being tied-in to more and more new contracts.

Promoting change in car systems

The car represented the first ecosystem for cellular telephony, starting with the first mobile phones in the '90s. In those days, the market was dominated by car-specific cellular phones, but now the situation has moved on. The handset that people carry around with them is the basemark, and now the car industry has to learn from the cellphone companies, and make their cars compatible with the phones that consumers use.

Now, the car company has to consider what phone the car's occupant or occupants are using. Are they using a USB thumb drive to access music files? A 3G dongle for

connected services? Taking all of these possibilities into consideration requires a huge commitment in software.

Then they have to consider the future roadmap for phones and in-car systems. Here at Parrot we have already launched a head-unit that runs on Android ([Parrot Asteroid - see p5, Incisor issue 154, February 2011](#) and [Incisor.tv movie at CES 2011](#)) and supports Bluetooth, USB, 3G services and mobile Internet in order to be able to provide application support – navigation, of course, but also traffic updates, points of interest, fuel costs and a fast growing choice of

applications. The technology is available as part of our OEM portfolio too.

At Parrot we think this is the next horizon – entertainment and information coming to the car through the Internet. And this must happen whether the driver has an £8,000 car, or an £80,000 car, and using the driver's own



cellphone equipment, with no requirement for new subscriptions.

Henri Seydoux
CEO and Founder, Parrot

INCISOR STAGES AUTO TECH EVENTS AT TOP GEAR LIVE 2011



Top Gear is a world famous British television series about cars. The show is currently presented by Jeremy Clarkson, Richard Hammond and James May, and features a mysterious test driver known only as The Stig. The programme has an estimated global audience of 350 million viewers.

Top Gear Live and Incisor

The global success of the Top Gear TV show has spawned the Top Gear Live events programme, which tours the world each year. So far, more than one million people have attended Top Gear Live events.



Click the image above to watch a video filmed at a Top Gear Live event.

Top Gear Live events include an interactive and static motor show, and this is where the connection with Incisor is made. Incisor will now produce and stage an exhibition and demonstration zone dedicated to in-car technology solutions and applications at Top Gear Live events during 2011 as part of the Top Gear Live motor show.

We will gather together leading providers of automotive technology solutions. These will include anyone that can contribute to the staging of a car-based gadget fest!

In addition to entertainment and call-handling systems, the scope of the displays can also include infomatics, telematics, M2M, GPS/location-based systems and even less palatable technology such as traffic management and wireless based road tolling systems!

Put your products in front of hundreds of thousands of consumers!

Incisor is looking for sponsor partners. If your company is involved in the design, development, manufacture, distribution or retail of in-car technology solutions, then you should be part of this Incisor event.

Contact: **Vince Holton**
Email: vholton@incisor.tv

www.incisor.tv

2011 Event Calendar

- 4-5 June**
Dunsfold (the spiritual home of Top Gear), UK Festival
- September**
Moscow, Russia*
- October**
Amsterdam, The Netherlands*
- November**
London, UK*
- November**
Birmingham, UK*

*Event dates to be confirmed

Facebook

infotainment broadband mobile in-car road cellphone informatics accessory location-based telematics entertainment in-car Bluetooth Wi-Fi Twitter GPS wireless Incisor applications call-handling connectivity Android tolling



NFC: The time is nigh

by Dean Anthony Gratton

I'm revisiting Near Field Communications (NFC) this month. Some of you may recall that I tackled this subject in the early summer of last year "This is it: will NFC overcome its growing pains?" (July 2010). Well, it's back on my radar this month, as I have seen several rumours (as always) offering speculation that the technology will be finally integrated into mobile phones to enable contactless payment. In fact, Don Tait, Senior Market Analyst at IMS Research, confirmed that NFC had already been integrated into many branded phones, to include Nokia, Samsung, LG and Google's Nexus following recent announcements at the Mobile World Congress (MWC) 2011 show a few weeks ago. And let's not forget the much rumoured Apple iPhone 5 is expected to include NFC!

Admittedly, NFC has been wavering about making that final journey to wireless stardom and fame – both of which have eluded the technology over the last eight years at least! Okay, before I start to delve into the NFC story, I just need to adjust my Windows Media Player a little to reduce Adele and her new album 21, down to background music level, as her soulful voice is overcrowding my thoughts.

Solid foundations

I was personally involved in NFC in 2004, participating within both the marketing and technology committees. At that time, I was busy thrashing out user scenarios – things like, how will the technology be used; does it really compete with Bluetooth (yawn); how will consumers identify what to do with the technology, and so on. I guess I'm a little surprised and disappointed that the technology doesn't seem to be any further forward! I recall some wonderful user scenarios, all viable and easy-to-use – NFC at the time was about simplifying user experiences, especially for other wireless technologies. NFC is an 'enabler' – it enhances and remains unobtrusive whilst being inherently secure. I'm not sure who's to blame, although 'blame' is a little harsh. In my experience, it takes that all important 'killer application' to push a technology, or



indeed a product, to market triumph. I dare say NFC could be verging on its long overdue success. The foundations for NFC are solid.

I'm sure most of us have seen the press; the biggest story surrounding NFC for the moment is mobile phone payments, ticketing and access. Tait added "Using an NFC-enabled phone for payment and ticketing & access are projected to be the main applications for the technology and this will boost market development over the next few years." So, to be honest, this isn't big news for me; it's not entirely new either, as I was working with people who shared similar ideas back in 2004, but I think the whole notion of using a mobile phone to make a payment perhaps scared the majority of consumers. When I was working on these scenarios, mobile phones were just mobile phones, but nowadays, a mobile phone has become an experience and to now extend that experience seems right; it does feel more natural with today's Smartphone-savvy generation.

What's more, NFC-enabled terminals and

associated infrastructure weren't supported for such an ecosystem, as Tait confirms, "Some of the major problems which have blighted market development include a lack of available NFC handsets on the market; limited contactless terminals and infrastructure to support the technology." Furthermore, as is tradition within stakeholder relationships or committees, member parties involved in driving such an ecosystem failed to agree on fundamental business models. This inevitably stalled NFC's growth and further compounded its success, as Tait clarifies, "there were unclear business models and disagreements between the different stakeholders of the ecosystem," which Tait described as 'blighting' its market development.

The tech-world according to Apple

Anyway, the fact that many major players are now integrating NFC into their products, should (with fingers crossed) ignite the stagnant technology and push it into mass market! I'm always a little hesitant at making binding predictions,



as the wireless telecommunications industry remains volatile and continues to be a moving target. Nonetheless, I do recall from my previous NFC feature that if Apple were to integrate NFC into their phone, then lemming-like manufacturers would follow accordingly. It seems very much the case, as Don Tait, IMS Research confirms "When Apple launches something, the rest of the market normally follows suit. It will be something like a snowball rolling down a mountain and gathering pace and will help drive NFC towards mass market." Sadly, the rest of the consumer electronic industry has to await Apple's move to ensure product success. You only have to witness Apple's very recent launch of its tablet product where other manufacturers quickly followed – it does seem (for now anyhow) that new product development has to whistle 'the tech-world according to Apple' mantra. I'm not knocking Apple – what they produce is brilliant; I'm just a little deflated that there doesn't seem to be any other innovation leader!

Okay, I mustn't become distracted!

Can 2011 be the year for Near Field Communications? It's about time NFC shared some of the wireless limelight. I have been privy to numerous stories over many years all suggesting that the technology is dead or 'this is it,' we will finally see the technology in the market! So, will the technology finally realize its mass market success, which it has been eager to kindle? According to Tait "IMS Research believes that 2011 will be the year that NFC finally comes good. The NFC market has encountered a number of false dawns since its inception over six years ago. But 2011 finally looks like the year when NFC finally takes-off. [sic]" I seriously hope so – I really do. NFC has the potential, along with the other purported applications, to simplify interaction with wireless technologies, such as Bluetooth pairing and Wi-Fi connection and set-up. Again, these are not new! I was playing around with these ideas many moons ago as I've mentioned, and I'm sure I have already discussed NFC's potential in a previous Incisor column.

Surely, this is it, right?

Crikey, I recall one use case, where an NFC-enabled phone could be used to collect information from a shop-window poster or a poster on the side of a car, bus stop, train station – well you get the idea! Anyhow, relevant information, such as product details, pricing, contact information, discount offers and so on, could be held by the phone to use at a later date. It's perfect – the consumer has the ability to gather such information at their discretion! However, the prospect of augmented reality (AR) may offer alternative use cases here, so it would be interesting to see if this use case will actually emerge. Seriously, one to watch!

I have to admit to being more confident that this is it for NFC. I hope in future columns I



can be discussing the technology from a completely different perspective. A point-of-view where, according to IMS Research, "[we] estimate that in excess of 36 million NFC-enabled handsets will be sold in 2011" With such an educated and sound prediction, it may prove to become an exciting era for NFC – finally! I'm hoping that there isn't a need to educate consumers – well, at least there shouldn't be, as the technology's use case is primarily surrounded by proximity or touch, which I feel is such a natural expression. With many leading mobile manufacturers already integrating the technology into their handsets, surely the rest of the ecosystem should follow, along with the application-base at hand.

So, let's not dither.. NFC feels right for so many reasons!

Until next month ...

I already have my agenda for next month's column: I'll be looking at whitespace radio. I might be a little predictable here, but I guess - watch this space! (Even I can't avoid groaning at that!). Okay, back to my book and, alas, I'm still behind. Now turning to my chapter, yes, Chapter 13, Simplifying Connectivity with NFC, how utterly poignant! It's almost as if I never left the page! So, this is where Dr G signs off for this month.

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 incisor@deangratton.com and follow him on Twitter (@grattonboy) to enjoy his witty shenanigans, social media and technology-related Tweets. Additionally, you can read more about his work at deangratton.com.

Dean always welcomes your feedback on his articles and books.

Snippets

Android to accelerate convergence in consumer devices

There will be an installed base of 140 million Android portable devices, including smartphones and tablets, by the end of 2011, according to forecasts from IMS Research. The market intelligence firm says the recent unveiling of Google's Android 3.0 (Honeycomb) operating system for tablets, along with enhancements to the Android Market website, will do much to enhance growth prospects for this segment.

"This provides an exciting opportunity for pay-TV operators, which have traditionally been tethered to the living room, to expand the reach of their brands to multiple portable platforms with apps development," says Anna Hunt, principal analyst and author of the IMS Research's Convergence in Home Entertainment report.

4G/LTE/WiMAX

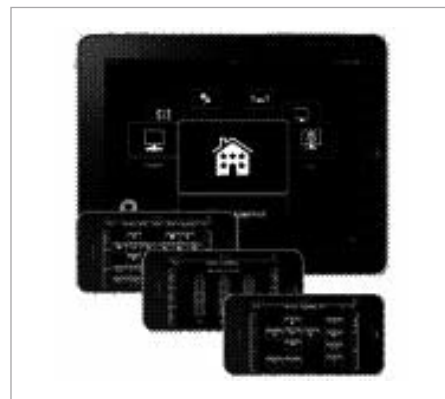
Rohde & Schwarz and Nomor develop LTE base station tester

Rohde & Schwarz and Nomor Research have collaborated on a solution for generating the uplink inter-cell interference signals required for testing LTE networks. Nomor Research's system-level simulation reproduces this interference as experienced by a multi-cell LTE base station. The uplink inter-cell interference signal is then physically generated by signal generators from Rohde & Schwarz. The solution circumvents the requirement to deploy a large number of base stations with multiple UEs to simulate realistic load generation.

mimoOn & TI deliver LTE PHY ref design for small cell base stations

mimoOn, is collaborating with Texas Instruments for its new TMS320CC66x DSP family, which is suited for small cell base stations. mimoOn and Texas Instruments will work together to provide a complete PHY reference design for LTE Release 8 with extensions to Release 10. Customers will apparently benefit as the process of integrating, optimizing & supporting LTE software has been taken care, allowing them to spend their efforts building differentiation above the PHY.

low energy wireless news



Cordless dental polishing from Nordic

Discus Dental (which has just been acquired by Philips) has specified a pair of Nordic nRF24LE1 2.4GHz System-on-Chip (SoC) solutions to deliver the wireless connectivity for the battery-powered, rheostat (continuously variable) foot pedal in the ZEN Cordless Prophy professional dental polishing system.

"This brings an end to the annoying cord clutter and drag suffered by both professional dental hygienists and their customers all over the world, while giving the clinician much greater comfort and control over their hand and body position," explained Brian Zargari, Senior Engineering Project Manager at Discus Dental. "In fact hygienists can now position themselves anywhere they need to be without constantly having to work against the pulling-back resistance of the metallic shielded cord on a traditional hard-wired polishing hand-piece."

In operation, a Nordic nRF24LE1 located in the ZEN Prophy hand-piece (powered by a built-in 3.7V rechargeable lithium-ion polymer battery that is recharged each time the hand-piece is placed back into its powered charging dock) communicates with a second nRF24LE1 located in the foot pedal. The nRF24LE1's on-board 8051 microcontroller is used to run all of the product's housekeeping chores including power management and power indicator on/off functions. Non-volatile SRAM memory manages pedal press calibration, with its PWM interface controlling motor speed in the hand-piece and 12-bit ADC monitoring battery voltage (life).

When powered up, the hand-piece listens for wireless status updates from the foot pedal and modifies motor speed accordingly. Because this happens several times per second, to the clinician it feels like a regular wired response.

"This is an excellent example of the benefits wireless can bring to traditionally corded

applications in terms of freedom of movement and far more natural comfort levels," Geir Langeland, Nordic Semiconductor's Director of Sales & Marketing told Incisor. "Why should the user wear themselves out conforming to the requirements of a corded product when with wireless it is the product that can now conform to the requirements of the user – especially now that price, performance and power consumption of ULP wireless technology has reached a point that supports even the most cost-sensitive consumer applications."

TI's Android dev platform brings ZigBee / RF4CE to smartphones, tablets

At Mobile World Congress, Texas Instruments was showing an Android 2.2 software development platform that it says is designed to simplify the mobile device integration of the ZigBee and ZigBee RF4CE protocol stacks. This is all about enabling consumers to manage commands like smart TV and set-top-box (STB) remote control features or utility management through smartphones and tablets.

"The simplified integration of ZigBee and ZigBee RF4CE connectivity offered by TI enables the logical control of everything from a digital video recorder to a complex home lighting solution, a compelling experience for consumers who want more functionality from their favorite mobile devices," said Volker Pruessler, marketing manager for TI's Low-Power RF products.

Utilizing an Android-based touch screen user interface that directly controls ZigBee-driven networking devices, example use cases developed on TI's OMAP 4 platform-based Blaze mobile development platform included TI's ZigBee RF4CE remote control, which enables an Android-based mobile device to

control a PC-based media center, and TI's ZigBee Home Automation (HA) profile application, which enables an Android-based mobile device to control the color and dimming of LED lamps in a consumer lighting system.

TI told Incisor that its Android software development platform for mobile ZigBee and ZigBee RF4CE applications will be available during the first quarter of 2011.

SQ Remote Blaster lets Z-Wave owners extend control

Square Connect has been showing a control device for infrared controlled home entertainment. A new version of a product unfathomably - but heroically - named the Blaster, the "Blaster Pro" integrates Z-Wave wireless connectivity, allowing expansion of the control sphere beyond the home theatre to include lighting, window shades and other appliances. The SQ Blaster range of products use the iPhone, iPad and iPod touch as control interfaces, with applications for other smart phones and tablet devices under development.

The SQ Blaster, which is a Wi-Fi/infrared device, combines with the companion application SQ Remote (for iPhone, iPad) to provide the user with a configurable universal remote control system with macro capability. The SQ Blaster device is encased in either cherry wood or bamboo, and provides the option of in-room IR blasting (sorry, we didn't write this) or wired control through cabled IR emitters. Multiple devices can co-exist on the same Wi-Fi network, and multiple control interfaces (smart phones, tablets) can be used concurrently.

Don't rush out to buy just yet, though, as the Pro version of the SQ Blaster is not scheduled for commercial release until early Q3 2011. When it does arrive, it will include Z-Wave control capability, scenes and simple scripting on top of the normal SQ Blaster feature set.

low energy wireless news



UHF Passive RFID gets off on the right foot

RFID Item-Level Tagging (ILT) is being deployed very rapidly in apparel and footwear markets, says ABI Research. Item-level passive UHF tags now make up an increasing share of the total world market for RFID tags. The firm forecasts that more than three quarters of a billion RFID tags will be used in global apparel markets in 2011.

“RFID systems allow apparel retailers to get a better handle on inventory, reducing costs and preventing out of stock situations that result in loss of sales,” says ABI Research principal analyst Bill Arnold. “The growth in retail item-level tagging is huge, both in shipments and in total spending. The average growth rate is close to 60% for the next three years. In fact, the number of tags that will be used for retail ILT in apparel alone is likely to exceed the total number consumed over the past five years for all RFID markets combined.”

Major US retailers such as Macy’s, JC Penney, and Wal-Mart are leading the charge to make RFID systems commonplace in the retail environment.

Typical ROI times for such RFID deployments are only three to six months, but, says Arnold, “The state of the global economy is still creating serious delays in getting money allocated to retail RFID. Executives are still very uneasy about business conditions and availability of credit, and while ILT systems are technically scalable right down to small businesses, credit will be the big limiting factor for smaller independent stores.”

A related use of RFID in retail is in EAS (Electronic Article Surveillance) systems: loss prevention tags containing only one bit of data. This segment is led by Checkpoint and Tyco Retail Solutions.



Research director Michael Liard adds, “Retail adoption of RFID at the item level parallels the course barcodes took about 30 years ago. The main difference this time is that retail department stores, not grocers, are leading the charge.”

ZTE and NXP put NFC in next gen handsets

NXP Semiconductors and ZTE Corporation have announced a partnership to incorporate NXP’s Near Field Communications (NFC) PN544 technology into ZTE handsets. ZTE plans to include NFC chips into its line of smartphones and feature phones, such as the Android-based QSC6270 platform devices as well as more entry-level feature phones. The NXP PN544 chip is fully compliant with all released NFC specifications on the Single Wire Protocol (SWP) connection with the SIM and the Host Controller Interface (HCI).

“We have seen enormous growth in our year-on-year handset shipments in Europe and the US and selected NXP as our partner because they are the market leader and their solution enabled us to reliably go to market in record time,” Mr. Zeng Zhaoxiang, vice president, ZTE, told Incisor.

NFC was co-invented by NXP in 2002. In 2004 NXP co-founded the NFC Forum to lead the collaboration with all industry stakeholders and help standardize the technology. NFC technology evolved from a combination of contactless identification (RFID) and interconnection technologies. Using natural touch gestures NFC devices can easily pair with accessories, interact on a peer-to-peer level to exchange data, and connect to a huge installed base of reader and tag infrastructures.

Ruediger Stroh, executive vice president and general manager, Identification



Business, NXP Semiconductors added: “Our focus is to make secure connectivity easy by working closely with partners like ZTE and across the ecosystem to optimize each design via the use of NFC and the appropriate embedded secure element.”

ZTE handsets with NFC will be available in Q2 2011.

Oberthur puts NXP Mifare on SIM cards

Oberthur Technologies is to license NXP Semiconductors’ Mifare technology. Mifare is a secure contactless technology that is being used in contactless infrastructures around the world. NXP has licensed Mifare technology to various manufacturers. The adoption of the technology into mobile phones is being promoted by Mifare licensed UICC card vendors and the Mifare4Mobile Industry Group, which standardises the uniform management of Mifare applications on NFC-enabled secure elements.

Oberthur Technologies will integrate Mifare into its SIM cards globally. The goal for the two companies is to drive the adoption of NFC-enabled phones in infrastructures such as public transit, event ticketing, customer loyalty programs and access control around the globe.

Under the licensing agreement, Oberthur Technologies will expand its existing UICC product portfolio, adding Mifare DESFire and Mifare Plus technology. This will, says the company, lead to increased availability of UICC cards, allowing mobile operators and service providers to broaden their offerings in mobile contactless services.

Oberthur Technologies is both a Mifare licensee as well as a founding member of the Mifare4Mobile Industry Group.

low energy wireless news



'NFC transforms the car experience' - NXP, Continental

At Mobile World Congress this year, NXP Semiconductors and automotive supplier Continental showcased a technology concept car which demonstrates how near field communication (NFC) technology will introduce new ways for people to interact with their car. The two companies were looking to demonstrate that NFC can be used for much more than the broadly discussed use cases of payments and ticketing and that that it will become an integral part of consumer's everyday life.

The Continental concept car demonstrated how, using NFC, consumers can open their car in the morning by presenting their NFC-enabled phone to the door, triggering an authentication cycle between the phone's secure element and the car. The car will give the driver a personal welcome message, set their comfort preferences and then by placing the phone in a dock on the dashboard, it becomes part of the on-board entertainment and communication system, presenting a selection of personal music choices, enabling audio streaming and setting up hands free calling. The secure mobile device can also disarm the engine immobilizer and allow the engine to start, and the NFC phone is able to receive

important diagnostic data such as fuel consumption, mileage and service data, which can be viewed away from the car at a later time. Using GPS, the location coordinates of the car can also be sent to the phone via NFC, enabling consumers to locate their vehicles in a new city or large parking lot.

NXP and Continental have a long history in cooperating on the development of keyless entry systems, and with the growing interest in NFC technology the two companies are now taking this secure application to the mobile phone. A spokesperson told Incisor that adding NFC connectivity to the key or the car directly are options any automotive OEM can consider, and that the NFC enabled mobile device could become part of an enhanced extended dashboard.

"NXP and Continental have been working together for many years, delivering significant innovations such as keyless entry systems and now, the world's first NFC concept car. Imagine, with an NFC enabled mobile device, we'll be able to easily and seamlessly interact with technology and applications as we transit between our home and office, making driving a truly personal experience," said Ruediger Stroh, executive vice president and general manager, Identification Business, NXP Semiconductors "NFC is a technology that is transforming how we interact with technology around us. This concept car is an amazing example of

how we will all use NFC in our cars in the next few years and, as an increasing number of NFC-enabled handsets with embedded secure elements enter the market, we now begin to see the development of increasingly innovative applications, which put the mobile phone at the heart of the consumer experience",

Andreas Wolf, head of the body and security business unit at Continental, added "Near Field Communication is a step forward that we make with our technology partner NXP in order to turn our vision of Always-on into a reality. With NFC we will help car manufacturers worldwide connect future cars more smoothly to fast, evolving consumer electronics. We will see totally new functions facilitated by the NFC-based connections between cars and mobile phones."

NXP is an established player in vehicle immobilization and keyless entry products that enable Smart Entry/Go Systems benefits to the driver. In total more than 500 million keys rely on NXP's immobilization and keyless technology, and apparently, every second car being sold today is equipped with an immobilizer or keyless entry chip made by NXP – you learn something every day!

There is a video of the NFC car being demo'd at MWC at the press area of NXP's web site. [This link](#) should take you there – scroll down the 'NXP in action' videos and watch the movie titled 'NXP &'.

Snippets Low energy

Boxee and Nordic take remote controls into the future

Nordic Semiconductor tells us that the double-sided remote controller in the Boxee Box by D-Link – incorporating an operationally simple navigation interface on the front and full QWERTY keyboard on

the flipside – uses the company's 2.4GHz wireless connectivity technology.

The Boxee Box removes the hassle of hunting and pecking for TV shows and movies on the Internet and allows users to view such content on a TV rather than having to sit in front of a computer.

Access to many major on-line movie rental libraries is also available, plus the ability to send and receive recommendations with friends on Facebook and Twitter, assign individual accounts to multiple users within a household, and view personal (home computer, network or cloud) media files such as videos, music, and pictures.

low energy wireless news



Consumer sleep assessment monitor uses ANT

Fatigue Science has employed Nordic 2.4GHz ANT transceivers in its ReadiBand wrist-worn sleep monitoring device.

Major international mining, energy and transport companies are apparently already using the ReadiBand to monitor fatigue and optimize operational safety. The ReadiBand – which is worn continuously like a wristwatch and runs on rechargeable batteries – is also being used to improve athletic performance by the Vancouver Canucks NHL ice hockey team, and by Olympic athletes at the Australian Institute of Sport.

In operation, the ReadiBand uses a series of algorithms to measure sleep quality from a user's wrist movements, technically termed 'actigraphy'. Collected data is then wirelessly downloaded to a computer for analysis using Nordic 2.4GHz ANT transceivers while the user is still wearing the ReadiBand. The information is subsequently processed through a specialized performance prediction model, which originated from research work within the US Department of Defence.

"After performing direct comparisons between a number of competing products, we found that Nordic clearly offered the best 2.4GHz wireless solutions for ultra low power applications and our decision has since been validated by excellent quality technical documentation, application notes, local FAE assistance, and technical support" commented J Stautzenberger, the electrical engineer who led the ReadiBand's electronic design team.

Geir Langeland, Nordic Semiconductor's Director of Sales & Marketing added: "The ReadiBand is a great example of the 'consumer revolution' now occurring in the health, wellness and medical sectors. By making clever use of modern technology, Fatigue Science has managed to remove the cost and complexity of what was previously a fairly exclusive, 'high end'



medical test procedure and in doing so open the door to regular physicians and consumers concerned about sleep fatigue, while adding a brand new level of health and safety monitoring to industries where tiredness can quite literally kill."

TI helps Sony Ericsson down the ANT road

ANT Wireless, which is a division of Dynastream Innovations, and Texas Instruments were showcasing the Sony Ericsson Xperia arc at Mobile World Congress. The two companies are heralding this as the first commercially available smartphone to natively communicate with the ultra-low power (ULP) ANT+ network of health and fitness devices.

This ANT+ connectivity is enabled by TI's WiLink 6.0 triple-radio single-chip solution, native in Sony Ericsson's Xperia arc as well as the newly-announced Xperia neo and Xperia pro. These Xperia smartphones are apparently the market's first line of ANT+ enabled mobile handsets. They use the WiLink solution to link directly with the ANT+ ecosystem, which is claimed to include more than 14 million ULP health and fitness devices.

"This milestone and these MWC demonstrations represent major advancements to connect consumers with mobile handsets and ANT+ ultra low power wireless sensor devices," said Eran Sandhaus, director of marketing, wireless connectivity solutions, TI. "TI is committed to giving consumers an incredibly simple and efficient way to collect and use fitness and health data."

TI appears to be ramping up its portfolio of multi-function chips. The WiLink 6.0 single-chip solution supports WLAN, ANT, Bluetooth and FM radios, while the WiLink 7.0 platform adds GPS to the list. These solutions also enable direct ANT+ sensors to mobile phone communication. ANT and TI recently released a dual-mode single-chip solution delivering ANT+ and Bluetooth connectivity, and the complementary ANT + Bluetooth Health and Fitness Aggregator Kit.

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.

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[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](#)

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INCISOR TALKS TO: INTEL

The origins of WiDi

You can probably understand that it wasn't incredibly difficult convincing computer industry executives and engineers at such companies as Dell, Sony and Toshiba that people would soon want to beam movies, videos and photos from their laptop screens on to a big screen digital TV. The tough part was making it all happen without adding hardware or extra cost to the manufacturing and selling of laptops. Incisor caught up with Intel to get the skinny on how one of its latest propositions could be a game-changer in the wireless video streaming market.

It was 2006 when a team of Intel engineers began working on what would later be dubbed Wireless Display, or WiDi, technology, which allows people to wirelessly stream video and photos directly from their WiDi-equipped computer to a big screen TV with the use of a small companion adaptor.

"We wanted to create things that we had never done before," said Kerry Forrell, who was then in Intel's Mobile Platforms Group collaborating with researchers and engineers inside Intel Labs, Software and Services and other parts of the company. "We wanted to impact technologies coming in the next two years, and we wanted people to experience something they've never done before."

WiDi first hit the market in 2010. Intel built the wireless HD media streaming technology into some of its laptop chipsets being coupled with first-generation Intel Core i5 and Core i7 processors. These were sold exclusively at Best Buy in the USA. Dell, Sony and Toshiba were the first to sell WiDi-ready laptops, and they came bundled with a Netgear wireless adapter that connected to the TV. Local Best Buy stores were where many people first saw a laptop wirelessly beam 720p HD video to a big screen TV.

In those first few months of 2010, WiDi won a "Best of CES" award from CNET and favorable reviews from consumer tech experts at The Wall Street Journal, Engadget and other publications. PC Magazine even called it the "hottest sleeper technology" of the year, stating that "the technology behind WiDi is very interesting" while hinting that it may end the year without being a huge hit.



WiDi may have been a "hot sleeper" in 2010, but it woke up at CES 2011 when a new and improved 2.0 version of WiDi was released as a standard feature with the new "2nd Generation" Intel Core i3, i5 and i7 processors, allowing every new laptop to wirelessly stream 1080p HD video.

Laptops with 2nd generation Intel Core processors come with built-in WiDi, allowing them to stream high quality photos and 1080p HD video to a big screen TV.

"Essentially, WiDi can roll out anywhere where second-generation Intel Core-powered laptops are being sold," said WiDi Product Line Manager Forrell, who estimates that by the end of 2011 about 50 different laptop models will be available in

more than 15 countries and sold at 40 different retail outlets.

Significant technical changes were made moving from the 2010 to the 2011 version of WiDi, according to Forrell. For one, WiDi was moved off of the chipset and is now built onto the processor, utilizing the CPU's integrated memory, graphics and media compression engine.

"Laptops have mobility, but small screens, so they're not ideal for sharing a rich HD experience," said Forrell. "But WiDi unleashes that experience on bigger screen and on bigger speakers."

Forrell said you can even have multiple WiDi laptops within a family or even allow visiting friends to take turns streaming to



TV or stereo adapters inside a home.

"By adding a real-time media compress engine onto the processor and adding security in the media framework - the Intel Insider feature -- we can take real-time 1080p and project almost anything up to digital TV display," including Blu-ray and premium HD movies and entertainment.

Right pieces at the right time

Gary Martz, product manager for Intel's My Wi-Fi technology, recalls that since the beginning, WiDi was something that needed to be experienced in order to really "get it."

"None of our execs saw the real potential until after the WiDi team had an end-to-end prototype that they could actually get their hands on and try out," Martz said. "This was truly an example where PowerPoint wasn't enough."

After showing Intel executives what the technology could do, the next step was to talk with potential customers. Forrell and a few Intel co-workers traveled to Austin, Texas to meet the CTO team at Dell headquarters.

"When they tried it for the first time - when they saw a laptop wirelessly streaming video to a big screen TV - they stopped and said: "Wow ... we can actually see this working. Our family, friends, wives would actually use this."

Early on, Forrell and Martz wanted to dream up applications to put on top of two areas of innovation. Those areas were the Wi-Fi peer-to-peer development Intel engineers were working on, and hardware video compression technology work from the graphics and processor teams.



Logo indicating a computer has built-in Intel WiDi Wireless Display technology.

"We had early notions of using Wi-Fi PAN (Wi-Fi Personal Area Network, which is used for syncing and connecting PCs with gadgets, cameras, keyboards and printers) as a way to deliver a great video experience early on," said Martz.

But he and the team looked around the industry and ultimately chose to develop inside Intel, where they felt there existed a clearer perspective of technology advancements that were in the works and getting ready to hit the market.

The wireless, video and end-to-end solution work for WiDi continues to be done by teams in and around Hillsboro, Oregon in the USA., where Intel has its largest concentration of research, development and manufacturing.

Forrell remembers how the 2007 WiDi prototype didn't quite have all of the necessary pieces. A key advancement came when Intel My Wi-Fi technology launched in 2009, allowing Intel Wi-Fi cards to make peer-to-peer connections so laptops could connect an Internet access point as well as other device in an ad hoc fashion. This same wireless card could be used to connect a laptop to a wireless receiver plugged into a TV.

When WiDi was first built into Intel chipsets in 2010, Intel processors provided enough power to do 720p video compression in software. In 2011, WiDi was pulled off of the chipset and onto the second-generation core processor, which also featured a built-in hardware media engine that does full 1080p video plus protected content.

"Fast processors, media engines and wireless," said Forrell, were the killer combo of innovations that came together at the right time.

WiDi set to work with many devices

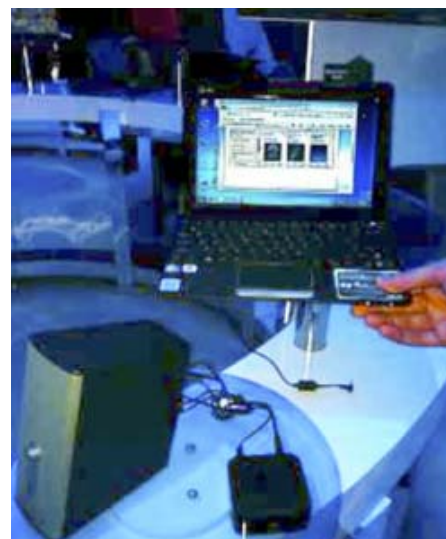
Intel seems to be pretty pumped about the potential. While WiDi is poised to add more excitement to computers, we were told, it's also generating new opportunities for other businesses.

Forrell mentioned that later this year, Toshiba plans to release a TV with WiDi. "WiDi is built for easy plug and play," said Forrell, adding that this makes designing into new smart TVs easier. "Since they already have the hardware, smart TV makers can take our receiver software and port it to their hardware."

Netgear, D-Link, Belkin, IO-Data and Buffalo Technology have also announced that they'll be creating and selling new adapters to work with the earlier and latest versions of WiDi.

Forrell foresees WiDi soon moving inside Blu-ray players, game consoles and set top boxes, not to mention netbooks and even smart phones. In September, Intel publicly showed developers a prototype tablet running wireless display.

Audio-only WiDi is also coming, and was demonstrated on a netbook at the recent CES.



New Tech at CES 2011: Intel Shows netbook with Wireless Audio Distribution

"I drove this aspect of WiDi with another hardware engineer from our wireless team and an Intel Capital portfolio company named Ozmo Devices," said Martz. "We started hearing and seeing a lot of people using their WiDi laptops and video adapter to stream music from Pandora, iTunes and other services. We also had a market need for a lower-cost WiDi adapter. We prototyped an audio-only adapter ... and got Logitech interested." Logitech is expected to ship an audio WiDi adapter by mid-year.

"Our motivation beyond enhancing the WiDi ecosystem was been to help drive adoption of Intel's Wi-Fi technology into Netbooks," Martz said. Insiders believe netbooks with WiDi will be out by summer.

"One thing that often goes unmentioned is the big impact that WiDi has had on Intel's Wi-Fi business in the consumer space," said Martz. "This has been especially important since the Centrino brand went away."

Martz said there continues to be quite a few challenges, both technical and market related. "From a technical perspective we need to drive down our latency between the PC screen and the TV screen," he said. "There are competitive challenges, but the economics, enhanced experience (1080p, DHCP2) and ecosystem development by Intel will lead to even better results in 2011."

Here at Incisor, we wonder whether Intel getting behind WiDi could just end the debate over which technology will become the default for streaming video content to TVs and other devices. UWB? Wireless USB? Bluetooth high speed? Wireless HD? WiGig? Are you feeling threatened?

high speed wireless news



Zero to a billion; 802.11ac rockets, says In-Stat

The continued quest for connectivity in a multitude of devices has now been joined by an additional requirement, an insatiable appetite for speed. 802.11ac is a new Wi-Fi technology standard developed to provide Gigabit speeds. In-Stat forecasts that the impact of this new standard will be equally as fast, as it will push shipments of 802.11ac-enabled devices from 0 in 2011 to nearly 1 billion by 2015.

"The goal of 802.11ac is to provide data speeds much faster than 802.11n, with speeds of around 1Gbps," says Frank Dickson, Vice President of Research. "The timing for 802.11ac approval is to have a draft standard created by 2011 and have the first 802.11ac products out by the end of 2012. The technology behind 802.11ac has not been finalized. However, it will likely involve bonding four or even eight channels together and some tweaks to the modulation scheme."

Some of the research findings included: mobile devices with Wi-Fi will still dominate shipments; in 2015, shipments of mobile phones with embedded Wi-Fi are projected to approach 800 million; by 2015, In-Stat projects that 100% of mobile hotspot shipments will be 802.11ac-enabled; e-reader Wi-Fi attach rates will increase from 3% in 2009 to 90% by 2015; in 2012, Wi-Fi automotive shipments will reach nearly 20 million.

Seamless roaming for WLAN

connectBlue has unveiled a solution that is claimed to maintain the signal quality on the existing wireless connection when

scanning for a new network is initiated; for instance, as a device in motion is moving from one access point to another. The seamless handover is achieved by using two or more of the latest connectBlue Wireless LAN Ethernet Port Adapters on each cooperating device in motion.

In the typical situation, a client retains the wireless connection with an access point until the radio signal gets too weak. The client then has to initialize the scan for a new access point that can offer a better radio signal. This handover phase can take anything from 100 milliseconds to several seconds before the communication is up and running again.

"Such a long handover phase is unacceptable in tough applications where the connection has to be stable, reliable and uninterrupted," explains Rolf Nilsson, CEO of connectBlue. "Using the connectBlue solution, the customer achieves reliable roaming and there is neither need for changes in the access points nor any special firmware."

Seamless roaming and redundancy is integrated as a standard feature in the latest release of the connectBlue Wireless LAN Ethernet Port Adapter

Ruckus integrates 802.11 with Cellular Networks

Wi-Fi company Ruckus Wireless unveiled a product and technology roadmap at Mobile World Congress, including what Ruckus describes as a new category of mobile Wi-Fi gateways, aimed at helping mobile operators integrate carrier-purposed Smart Wi-Fi technology into 3G and 4G cellular infrastructures.

With these new products and technologies, Ruckus is suggesting that mobile

operators will now be able to deliver Wi-Fi services more economically by leveraging their existing mobile core networks to realize immediate capacity relief and enhance the subscriber experience.

"Ruckus has again innovated new products and technologies that will ultimately make it easy for mobile users to move from Wi-Fi to cellular and back without fumbling with network selection and passwords, losing sessions or having to be aware of which wireless technology their devices are using," said Selina Lo, president and CEO of Ruckus Wireless.

The Ruckus Mobile Wi-Fi portfolio features a new Wireless Services Gateway (WSG) combining 3GPP WLAN access gateway (WAG) functions and WLAN controller capabilities on a carrier-purposed platform. This acts as a central point of control for Smart Wi-Fi access points while enabling seamless service integration with the mobile core. Ruckus has also extended its BeamFlex smart antenna and Smart Mesh backhaul technologies to enable broad deployment of multi-access, small cell base stations in the future.

4G/LTE/WiMAX news



Cambridge Consultants to support ip.access in femtocell development

At Mobile World Congress, Cambridge Consultants announced that it has been appointed by ip.access, a developer of femtocell and picocell solutions, to help with the development of a range of femtocell technologies targeted at new uses and applications. ip.access told Incisor that it had turned to Cambridge Consultants due to its extensive experience and expertise in a huge variety of wireless technologies and markets

We talked with Dr Nick Johnson, CTO of ip.access, who told us: "We continue to strive for innovation that will drive the future growth of the picocell and femtocell infrastructure market and help deliver the dynamic changes that are needed in cellular networks. Working with companies of Cambridge Consultants' calibre helps us to bring those changes ever closer. Their expertise will play a critical role in the rapid turnaround of complex design challenges and we look forward to unveiling the results of this project."

As well as discussing the ip.access announcement, Cambridge Consultants demonstrated a range of new and existing technologies and platforms. Cambridge Consultants has been active in the emerging technology area of Whitespace radio, and will be demonstrating its UK Whitespaces database*.

Cambridge Consultants also showcased the latest version of its Bluetooth accessory development toolkit that provides support for Apple authenticated accessories for iPhone, iPad and iPod Touch. This toolkit targets accessories that are more than just audio accessories, enabling smartphone integration with almost any product.

**Cambridge Consultants is contributing to an Incisor special feature on Whitespace radio in next month's issue.*

2010 femto market inhibited by legislation

ABI Research analysts reckon that global femtocell shipments generally met their expectations of in 2010, but have identified one salient exception that demonstrates how a simple regulation can impede a market's growth.

"About 1.3 million femtocells shipped into world markets in 2010," practice director Aditya Kaul told Incisor. "That number is in line with ABI Research's forecasts. The total could have been significantly higher – perhaps 20% higher – were it not for the continued low performance of the Japanese femtocell market."

That low performance can be traced to a simple cause: the Japanese government's unique requirement that every femtocell be installed by a qualified technician. When those truck-rolls are multiplied by hundreds of thousands of installations, the drag on the market is no longer trivial. Mobile network operators have long called for the removal or relaxation of this rule and the regulator presaged action early last year, but no change has been seen as yet.

Other regions do not carry that burden, and other markets have been further stimulated by offers of free femtocells from operators: AT&T generated good traction when it started shipping free femtos in 2010. Its reward for the largesse? Customer retention and greater "stickiness."

"Based on contracts awarded, ABI Research expects 3-4 million femtocells to ship in 2011," Kaul continues. "If operators start shipping femtos to their top 2% 'data hogs', that would really drive the case for data offload. Used as strategic tools, femtos not only retain customers but relieve network strain, enable femtozone apps and other services, and partner well with devices like the iPad. We should see that trend start to take off in 2011 or 2012."

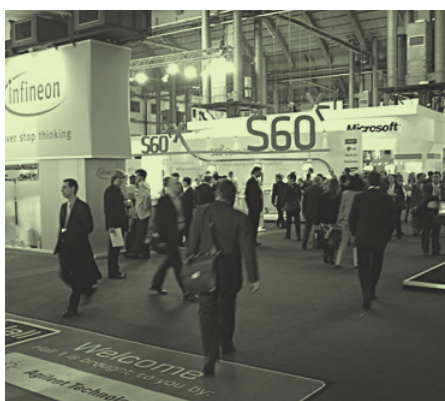
Picochip shows HD video over LTE

At Mobile World Congress, Picochip - the femtocell technology promoter that never rests - showed 25 customer products based on picoXcell and picoArray technology. These included a number of products for residential and enterprise use, Airspan's new Airsynergy LTE picocell, and metropolitan femtocells from Alcatel Lucent and BelAir Systems. There were also operator branded products, including a DataCell used by Korea's SK Telecom for capacity offload.

Nigel Toon, CEO of Picochip, told Incisor: "MWC this year has been great for us and we've seen really strong customer interest, from both established femtocell players and new entrants to the market. Last year our focus was on proving the residential proposition and introducing people to the potential of the femtocell. In 2011 we are demonstrating that the femtocell has come of age and illustrating just how much it can do – from providing coverage in metropolitan and rural areas, to innovative presence detection and LTE."

Live demonstrations on the Picochip stand included simultaneous up and down streaming of HD video via LTE. This was billed as the first public demonstration of end-to-end interoperability between an LTE femtocell and commercial user equipment (UEs), in partnership with Cavium (formerly Wavesat) and Continuous Computing. Picochip also featured a presence-detection application developed by Argela, showing home automation and integration with IPTV streaming.

events



	DATE	EVENT	LOCATION	NOTES	LINK
2011	March 1 - 3 2012	Embedded World 2011	Nuremburg, Germany	-	http://www.embedded-world.de
	March 15 - 19 2011	ISH 2011	Messefrankfurt, Frankfurt, Germany	Trade fair: Building, Energy, Air-conditioning Technology, Renewable Energies	http://www.ish.messefrankfurt.com/
	April 11 - 14 2011	Bluetooth SIG All Hands Meeting	Intercontinental Hotel, Budapest, Hungary	Annual meeting for all Bluetooth SIG members	http://www.bluetooth.org (requires member logi-in)
	April 12 - 14 2011	Bluetooth SIG All Hands Meeting	Budapest, Hungary	10th Annual All Hands Meeting	https://www.bluetooth.org/events/ahm/ 2011ahm/overview.htm (requires member log-in)
2012	Jan 9 - 12 2012	Consumer Electronics Show (CES)	Las Vegas, Nevada, USA	-	http://www.cesweb.org
	Feb 21 - March 1 2012	Mobile World Congress 2012	Barcelona, Spain	-	www.mobileworldcongress.com

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