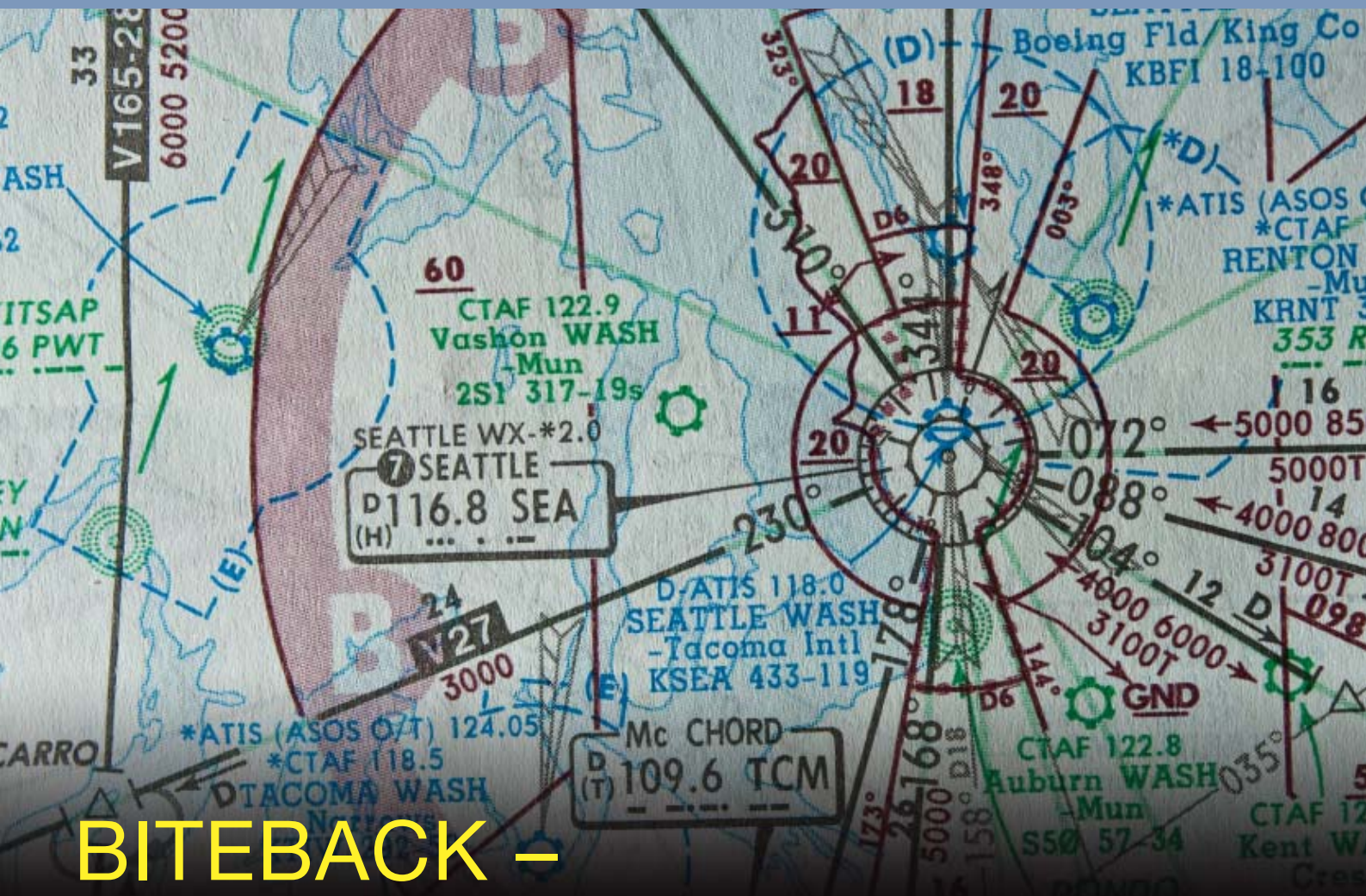


INCISOR™

for the short
range connectivity
environment

Video enabled  Issue 140

November 2009



BITEBACK – WIRELESS IN SEATTLE

THIS ISSUE

INCISOR.TV BITE-BACK EVENT #2 – WEST COASTERS ANSWER THE QUESTION: CAN BLUETOOTH BE COOL?

BLUETOOTH DREAMS REVISITED

INCISOR WPANEL REVIEW: HOW IMPORTANT IS EASE OF USE?

WI-FI DIRECT: A FLASH IN THE WPAN?

you say tomato, I say tomato

Are American people separated from British people by more than a couple of thousand miles of water and a common language? Would the second Incisor BiteBack event, which was staged on the 30th of October in Seattle, Washington, USA, with support from the Bluetooth SIG, Jabra and Parrot, reveal that there was a continental divide between Bluetooth usage in the USA and the UK?

If you want to know the answer, then you need to read the feature on page 10 and watch the movie that the IncisorTV cameras filmed. One thing is very clear – US consumers strongly resent the fact that their cellular network operators refuse them access to technology such as the Bluetooth File Transfer profile, and make them pay to share music tracks and pictures amongst friends. If it's not Bluetooth that is being shackled, it is other life-enhancing tech such as VoIP. This type of thinking is so 20th Century.

The BiteBack programme continues to gather momentum. We have clearly struck a chord, and next we move to Asia. It looks like we are visiting Korea at the beginning of December – more details soon. If you want to be involved, contact me.

Common to consumer responses at both BiteBack events to date has been the message that if Bluetooth is hard to use, it won't get used. This is the subject I gave the Incisor WPANeL to chew on this month. There are some very interesting views from the industry execs, and if you want to hear another passionate view on the topic, read my interview with Parrot's CEO Henri Seydoux on page 16 of this issue.

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

INCISORTV FOCUS THIS MONTH:



IncisorTV movie from BiteBack UK –
 Can Bluetooth be cool?

FROM INCISOR'S READERS

"Incisor is the industry go-to for wireless updates. It is open to new technologies like NFC, and willing to promote such technologies. I consider it the number 1 online/softcopy publication in the field. Thank you Vince and keep up the accurate integral work".

- Peter Coster, Ecosystem
 Development Working Group
 Chairperson, NFC Forum, Japan

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BLUETOOTH DREAMS REVISITED

Dean Gratton asks if it is time for Bluetooth to start dreaming again

INCISOR WPANeL REVIEW: HOW IMPORTANT IS EASE OF USE?

The answer must be 'vital', but what did our execs say?

WHAT THE BLUETOOTH INDUSTRY NEEDS NOW

Parrot CEO Henri Seydoux lays it on the line

WI-FI DIRECT – A FLASH IN THE WPAN?

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A new headset the world will want to wear.

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UWB exits Bluetooth stage left

Well, it has finally happened, and while your Incisor hack was actually on the ground at Bluetooth SIG HQ (see pic above). What has happened, you ask? Well, the Bluetooth Special Interest Group has officially and finally gone on record to say that it is dropping development of UWB as part of the alternative MAC/PHY, Bluetooth 3.0/High Speed solution.

Included as just a short paragraph in the monthly Bluetooth SIG News email, the explanation was that, having entered into a set of technology transfer agreements with the WiMedia Alliance in March this year, the SIG had been waiting for the former WiMedia member to sign the necessary agreements for the IP transfer. Well, to quote the SIG's announcement: "The Bluetooth SIG can now conclude that since the response for having these agreements signed has not been sufficient, the Bluetooth SIG will not pursue this further at the present time."

Incisor met with Bluetooth SIG exec director Mike Foley at SIG headquarters in Bellevue, Washington shortly after the announcement was made. Foley conceded that it was with some regret that the SIG was walking away from UWB, but that just a small - but significant - number of former WiMedia members had not and would not sign up to the agreement. Under those circumstances, there was nowhere for the SIG to go.

You have to wonder what those IP holders were thinking? As of today, UWB is in a very dark place. Some people are still fighting the fight (see this month's Incisor feature 'Unlike Bluetooth, UWB is rad' from Uraxs CEO Gary Smith Anderson), but others seem to have given up. Few people that know anything about this industry disagree that the Bluetooth connection was UWB's lifeline, so it is very, very hard to understand why some of those stakeholders chose to resist this co-operation.

Where is their business now, and what is the future for UWB? What, too, is the future for

Bluetooth High Speed? Word on the street is that 60GHz is the path of choice, but Incisor's understanding is that there are just as many IP issues here as there were with UWB, and that power consumption will be a major problem. This one ain't over yet.

2.5 Billion Bluetooth Low Energy chips to ship in 2014

The first Bluetooth Low Energy (BLE) products are already lining up, ahead of a specification ratified by the Bluetooth SIG. According to a recent study from ABI Research, the BLE market will develop in two very separate stages. How well the players in each stage understand the technology and its potential will determine its success.

BLE is supported by two different technology implementations: dual mode and single mode ICs. By and large the two modes of IC will also be produced by two different groups of vendors, with each dependant on the investment and commitment of the other. Next year, single mode ICs will account for less than 3% of BLE chipset shipments.

Just over 2.5 billion BLE chipsets will ship in 2014, says ABI, in a market that will grow at 78% CAGR between 2009 and 2014; but less than a third of those shipments will be for the single mode ICs.

"BLE will enter the market in two stages," says ABI analyst Jonathan Collins. "First with support for BLE embedded in mobile handsets, and then a second stage when BLE devices come to market. Key is that both dual mode and single mode suppliers are confident that each will deliver and support BLE."

BLE will enable sensors and monitors to communicate with mobile handsets and other BLE-enabled devices using very low power communications. While existing low power short range applications such as sports and fitness equipment will be the first devices to

market, there is further potential for more serious BLE health monitoring applications.

"The technology will be incorporated in the Bluetooth ICs at a relatively minimal additional cost to existing Bluetooth chipset vendors who will deliver the bulk of dual-mode ICs," says Collins. "But BLE's success will depend on the commitment of single mode IC vendors to invest in producing these chipsets and their conviction that they will get good return from their efforts."

Some way back - the end of 2007? - the Bluetooth SIG was forecasting that 2 billion Bluetooth chips would ship in 2011. For a while, that forecast has been looking a bit optimistic, but with BLE contributing the way companies like ABI think it will, then maybe the number is achievable.

TRaC, Agilent show Bluetooth Qualification test system

Test group TRaC has combined with Agilent Technologies to bring to market a Bluetooth test system. This uses Agilent's N4010A Wireless Connectivity Test Set, and was co-developed by the two companies. TRaC's goal was to deliver an automated RF qualification solution that covered the Bluetooth Specification Test Suite Structure and Test Purpose System Specification 1.2/2.0/2.0+EDR/2.1/2.1+EDR. TRaC's engineers are currently developing support for V3.0 + HS.

"As a Bluetooth Qualified Test Facility, we needed a leading-edge test system, but were unable to find an off-the-shelf solution that met our needs," explained Paul Russell, managing director of TRaC Telecoms & Radio. "The Agilent N4010A is the perfect platform, and allowed us to create an outstanding system that meets the needs of the global market."

The Agilent N4010A Wireless Connectivity Test Set used in the TRaC test system supports the Bluetooth EDR test mode and offers audio generation and analysis capabilities for Bluetooth audio test.

news



Broadcom – fiddling while Rome burns?

Broadcom has reported unaudited financial results for its third quarter ended September 30, 2009. These show that, like everybody else, Broadcom has been feeling the pinch.

Net revenue for the third quarter of 2009 was \$1.254 billion. This represents a decrease of 3.4% compared with the \$1.298 billion reported for the third quarter of 2008. Net income computed in accordance with U.S. generally accepted accounting principles (GAAP) for the third quarter of 2009 was \$84.6 million, compared to net income of \$164.9 million, or \$.31 per share (diluted), for the third quarter of 2008.

Net revenue for the nine months ended September 30, 2009 was \$3.148 billion. This represents a decrease in net revenue of 10.9% from the \$3.532 billion reported for the nine months ended September 30, 2008. Net income for the nine months ended September 30, 2009 was \$6.1 million, or \$.01 per share (diluted), compared with net income of \$374.0 million, or \$.70 per share (diluted), for the nine months ended September 30, 2008.

As usual at times like this, although the numbers clearly state that Broadcom's business is well down, the big cheese is making positive - nay bullish - noises. Scott McGregor, Broadcom's President and CEO stated: "Broadcom executed well in the third quarter, generating revenue growth of over 20% sequentially for the second quarter in row. This strong revenue growth is well above the semiconductor industry growth rate, and was driven by a combination of our target markets continuing to recover, new product ramps and the breadth of Broadcom's product line."

"In addition, Broadcom was successful in generating strong sequential gross and operating margin leverage and cash flow from operations in the quarter. The third quarter spending included an unforecasted increase in performance-based compensation, which grew significantly due to Broadcom's strong operating performance, showing our continued focus on generating positive financial leverage."

An 'unforecasted increase in performance-based compensation', eh? That sounds like Broadcom has been mimicking the practices of the banking industry, and paying huge bonuses while seeing sales and profits fall. That's a bit of a worrying practice, isn't it?

Researchers look at 60GHz, competing technologies

Research company IMS has been casting an eye at the 60GHz market, and suggests that the high-speed wireless technologies competing in that space have great potential across a variety of electronic devices, and that they will ultimately lead to fewer cables in the home, enterprise and public spaces. However, the road ahead, says IMS, is obscured by competing technologies and patent holders all hoping to cash in on the next "killer application".

IMS Research predicts that some technologies will be adopted quickly and penetrate OEM devices in large volumes, whilst other immature technologies will primarily concentrate on establishing ecosystems and market recognition in the short-term.

Based on its latest research, IMS believes that the market is split by 11 devices and five high speed wireless technologies. But IMS doesn't think that 60GHz solutions will

mop up all of the available business. As well as 60GHz, other high-speed peer-to-peer technology uptake is also forecast (e.g. peer-to-peer 802.11, Wireless USB, etc.). A new report from IMS includes market size estimates for 2008 with forecasts to 2014, plus forecasts for end-equipment and IC shipments, along with IC ASPs and associated revenue forecasts for each technology by application.

Wireless expert appointed Head of ST-Ericsson's Strategic Planning

ST-Ericsson has appointed Edgar Auslander its Senior Vice President, head of Strategic Planning. Auslander has more than 20 years of experience in wireless communications and semiconductors.

"Edgar's impressive credentials will be key in helping us devise the best strategies that will contribute to our continued innovation and business leadership," said Gilles Delfassy, President and CEO of ST-Ericsson. "I'm confident that ST-Ericsson will benefit from his business savvy and deep industry knowledge, while we are shaping the long-term success of the company."

Auslander was one of the founders of Texas Instruments' Wireless Business Unit, which he contributed to transform in less than eight years to a global leader. He also served as its General Manager, Worldwide Strategy and Corporate Development.

Prior to joining ST-Ericsson, Auslander was Director, Ultra Mobility Group at Intel, responsible for the integration and support of wireless platforms for mobile internet devices and strategic alliances. Between 2006 and 2007 he was a Vice President at a venture capital firm in California.

news



Bluetooth SIG invites submissions for Best of CES

The Bluetooth SIG is once again inviting its members to submit their best products featuring Bluetooth wireless technology for the 5th annual [Best of CES](#) contest. The contest closes on 20 November, with products due to the Bluetooth SIG by 24 November – so there is still time to submit your Bluetooth enabled products.

Products will be judged based on interoperability testing, containing expected profiles, ease of use, and input received from media and analyst contacts. Bonus points will be awarded to those products which include Experience Icons on the product packaging or the product website, and also for products utilizing the Bluetooth Core Specification Version 3.0 + HS.

Ten contest finalists will be announced on 8 December. All finalists will be included in the Bluetooth SIG Best of CES Users' Choice contest, which will be open for judging by the public on [Bluetooth.com](#) from 8 December 2009 through 3 January 2010. All ten finalists will also be featured in the spring 2010 issue of *SIGNature* magazine and in the IncisorTV movie covering the SIG's Best of CES contest (see link above for 2009 event). If your product is under NDA until it's unveiling at CES, you can still qualify as a finalist – the SIG says it will refrain from promoting your product until the time you approve.

The winners of the Bluetooth SIG Best of CES and Users' Choice awards will be announced at the Bluetooth SIG member celebration party at the Hard Rock Hotel, Las Vegas, Nevada (USA), on 8 January.

Anybody wanting more information about the contest or should visit the Bluetooth SIG's [Best of CES contest page](#). This is a SIG member page, so appropriate log-in details are required.



“Dramatic Growth” for Augmented Reality via smartphones

Augmented Reality (AR), the overlay of graphics onto a video stream or other real-time display, has existed for more than 15 years, with customized applications in industrial automation, theme parks, sports television, military displays, and online marketing. Recently, an entirely new mass market has opened up in mobile handsets, due to the availability of video cameras, processors, GPS data, compasses, and accelerometers on smartphone handset platforms. In particular, personal navigation applications for the Apple iPhone and Android platforms have seen strong early adoption, due to the intuitive nature of the real-time display.

According to an ABI Research study, handheld platforms will transform the Augmented Reality ecosystem, with revenue associated with Augmented Reality growing from about \$6 million in 2008 to more than \$350 million in 2014. As advertisers learn to insert tags into navigation displays, mobile advertising revenue will grow slowly, representing a large portion of sectoral revenues in the 2013-2014 timeframe.

“Today’s customized, direct business-to-business AR supply chain will continue to see incremental growth in military, automotive, and entertainment applications, but those businesses will be overshadowed by the mass-market dynamics of mobile handset application sales and advertising revenue streams,” explained the study’s author Joe Madden

Madden commented that technology advances are still required for Augmented Reality applications to proliferate. “GPS location accuracy is not adequate currently for many applications, requiring additional techniques to refine location precision for



shopping applications, or for game applications in which virtual objects must be placed precisely on the display near corresponding real objects.”

Nokia – Suing people

This is a strange story: Nokia has filed a complaint against Apple with the Federal District Court in Delaware, alleging that Apple’s iPhone infringes Nokia patents for GSM, UMTS and wireless LAN (WLAN) standards.

The ten patents in suit relate to technologies that Nokia says are fundamental to making devices which are compatible with one or more of the GSM, UMTS (3G WCDMA) and wireless LAN standards. The patents cover wireless data, speech coding, security and encryption and, says Nokia, are infringed by all Apple iPhone models shipped since the iPhone was introduced in 2007.

“The basic principle in the mobile industry is that those companies who contribute in technology development to establish standards create intellectual property, which others then need to compensate for,” said Ilkka Rahnasto, Vice President, Legal & Intellectual Property at Nokia. “Apple is also expected to follow this principle. By refusing to agree appropriate terms for Nokia’s intellectual property, Apple is attempting to get a free ride on the back of Nokia’s innovation.”

This seems like it could be the start of a massive spat between the two giants. As of the time of writing, Apple hadn’t responded, but we suspect that this is a story that will run and run.

news



291.1M handsets shipped 3Q-09; vendors 'quietly confident'

"The outlook for mobile handset markets continues to improve", or so says Jake Saunders, ABI Research's VP for Forecasting. Saunders continued: "While 3Q-2009 showed a YoY 6.5% contraction in shipments to 291.1 million, 2009 should close out with only a 4%-5% contraction (to 1,138 million for the year)."

Handset vendors are starting to mutter confidently of 4Q-2009 cash tills jingling to the tune of robust handset sales. In 3Q-2009, North America and Asia-Pacific helped to spearhead a recovery.

Market shares are starting to thaw. Nokia saw its market share slip from 38.3% to 37.3% in 3Q-2009. Samsung continues to steam ahead, raising its market share to 20.7%. Despite some very novel handset model introductions in 2Q-2009, LG's market-share softened in 3Q-2009 (10.9%). All the other vendors either held their ground or lost a small amount of market share. The prime exception is Apple: its iPhone range of smartphones increased its market share from 1.9% to 2.5%. There have been arguments that Apple's limited handset line-up will constrain growth, but for the mid-term, ABI Research does not expect any slowdown in Apple's market-share growth.

"Despite the successes of the iPhone operating system, the leading player in the smartphone OS market is still very much Symbian (48%), followed by Blackberry (18%)," commented ABI's Kevin Burden. "The 'dark horse' in all this is Android." Motorola has its navigation-friendly "Droid" handset. As the list of vendors committed to releasing Android handsets expands, product momentum should translate into increased Android sales. ABI estimates Android could capture 10% of the smartphone market by 2014.



Smartphones are not the only handset segment to drive the market. GPS is also becoming a very desirable feature of handsets. By the end of 2009, ABI Research estimates, 21% of all handsets shipped this year will have onboard GPS.

Bluetooth headset shipments to fall 28% in '09

At least, that is Strategy Analytics' attention-grabbing headline, anyway. What the US market research company is actually saying is that Bluetooth headset shipments could shrink by up to 28% in the United States in 2009, and by 22% globally. Still big numbers, it must be said.

Bonny Joy, Senior Analyst at Strategy Analytics, suggested that the economic downturn has caused the Bluetooth headset industry to register its worst period since her company's records began. "We forecast Bluetooth headset shipments to decline 28 percent in the United States during 2009. Shipments reached 19.2 million units in 2008, but they will fall to 13.9 million by the end of 2009. The economic downturn has caused consumers and businesses to buy fewer Bluetooth headsets and the industry is set to register its worst period since volumes began taking off in 2000."

Neil Mawston, Director at Strategy Analytics, added, "Demand for mono headsets has slumped during 2009, although stereo headphones have been more robust. The stereo category is emerging and it continues to offer the brightest prospects for growth in 2010." For what business is being done, Strategy Analytics says that Nokia and Samsung have become the star performers, outgrowing rivals Motorola, Jabra and Plantronics.

The industry does seem to be aware that work has to be done to stimulate the



market. Support for Incisor's BiteBack: [Can Bluetooth be cool'](#) campaign has been strong from the Bluetooth SIG and from consumer electronics product companies such as Jabra and Parrot. The second event in this series will have taken place by the time this issue is published, and the resulting movie can be viewed [here](#).

CSR and Realtek deliver Bluetooth v3.0 + HS and 802.11n

CSR has partnered with one of Taiwan's leading wireless communication IC design houses, Realtek, to deliver a family of Bluetooth v3.0 + High Speed (HS) and 802.11n module designs for the PC and netbook markets. These CSR PC BlueCore-based designs support the latest Bluetooth SIG specifications to enable high data transfer speeds by using the PC's Wi-Fi radio to cope with larger file sizes. In addition to its implementation of the CSR9000 platform, already driving Bluetooth v3.0 + HS in embedded markets, CSR told Incisor it is now also enabling complete wireless solutions for the PC market using the CSR PC BlueCore in partnership with Realtek.

"CSR was amongst the first companies to qualify a Bluetooth v3.0 + HS product and this partnership is the next step in delivering the high-speed, power efficient data transfer rates of Bluetooth v3.0 to the PC and netbook markets," said Anthony Murray, Senior Vice President of CSR's Audio and Consumer Business Unit. "Our strategy through this partnership is to give our customers the flexibility to combine our best-in-class Bluetooth platform with their preferred Wi-Fi supplier."

Realtek's 802.11n single-chip in 65nm LP process technology combines with CSR's PC BlueCore to enable fully designed PCIe half minicards with high speed Bluetooth and Wi-Fi.

Could this be the Bluetooth headset the world will wear?

It is no big secret that people feel awkward about wearing Bluetooth headsets in public. Some of the market researchers are saying that usage is declining, not growing. It is true, there are some clunky headsets out there, but there are also some that are quite discrete and – dare we say – stylish. So, user reluctance is a little hard to understand.

But things could be about to change with the launch of the Jabra Stone, a new headset from GN Netcom, the Danish company that is already well established as a leader in headset solutions. The Jabra Stone is described, with some justification, as a revolutionary wireless headset that signals a new era in style and breaks the mold of the traditional Bluetooth headset.

It certainly has a shape like no other headset on the market, and wraps behind the ear, eliminating the standard on-face microphone. As another really neat feature, the Stone comes with a wireless portable charger that also functions as a compact carrying case that fits into the palm of your hand – simply plug your headset into the charger and power-up whenever and wherever you want to. Once you've docked the headset into the charger, this becomes one tactile device, that everyone wants to hold and examine.

It is not just all about looks though. The Stone contains some pretty advanced technology, including noise cancelling technology while taking the microphone arm off your face. Jabra's trademark for its system is Noise Blackout Extreme, and this is a new generation of noise cancelling technology that reduces ambient sound without compromising voice quality. It does provide an excellent balance between noise elimination and the delivery of a natural sounding voice. The technology uses dual microphones to capture sound while intelligently filtering background noise only.

Anne Rasmussen, Vice President, Mobile Division at GN Netcom told Incisor: "The Jabra Stone is truly the most revolutionary product we have ever created and we are confident that it is going to change the way consumers think about Bluetooth headsets."



"The unique shape combines with noise cancellation technology so advanced that a boom arm isn't needed make it an all new concept."

The Stone also has discreetly placed controls that, unlike many Bluetooth headsets, are easy to operate. With a nearly invisible touch-controlled volume pad on the outside of the headset, users can slide their finger up or down to control the volume while on a call. The headset's flexible frame is lined with soft rubber padding, and stayed comfortable after several hours of use while this writer drove across the USA. An ultra-soft ear gel around the speaker ensures a natural feel and the headset is flexible for a perfect fit. Nobody likes the struggle to put a Bluetooth headset on as you try to answer a call, and the Stone avoids this, slipping on without a problem.

The Jabra Stone supports Bluetooth 2.1 + EDR & eSCO, easy pairing and multi-point so that you can connect two Bluetooth enabled devices at the same time with Multiuse capabilities and provides up to 8 hours talk time and 12 days standby time with the Jabra Stone Charger. Other features include voice dialing (depending on the phone used), and music streaming

music from A2DP enabled mobile phones. Oh, and it is lightweight – weighing only 7g.

Here at Incisor we are ready to go on record and say that this is one excellent headset. It looks good, works well, and crucially, when we have shown it around, people who have previously said they wouldn't wear a Bluetooth headset have said "wow, can you get me one?" That is telling, which is why, in answer to our own question in the headline for this review, we would say – yes, we certainly think so.

At the time of launch, the Jabra Stone was available exclusively in the UK at Carphone Warehouse stores and is priced around £99.00.

See the IncisorTV movie showing the Jabra Stone here. (click to view)



new products



Creative wireless speakers go for 'best in class'

Creative Technology, the well-known maker of bits and pieces to use with your computer, has announced the Inspire S2 Wireless, a wireless speaker system for new generation compact notebooks, PCs or mobile devices. It provides wireless music playback via a built-in wireless receiver or any notebook or PC with a USB port by means of a plug and play USB Bluetooth transmitter. Users can also play and control music on the speaker system from other Bluetooth-enabled devices anywhere within range.

Creative told Incisor that the Inspire S2 Wireless speaker system retains the Creative Inspire tradition of "best in class" performance, and explained that the speaker system incorporates apt-X technology, the audio codec from APTX.

Each palm-sized satellite speaker measures a mere 7.4cm x 7.3cm x 10.3cm, ideal then for small spaces, such as that barely visible bit of your desk next to your notebook, PC or other mobile devices. The satellite speakers feature 2-inch drivers and combine with the new Creative Direct-Throw subwoofer. A control knob on the subwoofer allows the bass level to be adjusted depending on whether you want your ears to bleed, or maybe you live in an apartment and it is 2.00am.

The speaker system supports the A2DP (Wireless Stereo Bluetooth) and AVRCP (Bluetooth Remote Control) profiles and comes with a digital volume control on the right satellite speaker, an AUX-In input for connecting to notebooks, PCs, or portable media devices, a headphone-out connection caters to private listening and a dual-colored LED on the right satellite speaker to indicate speaker status.

The Creative Inspire S2 Wireless speaker system is currently available at an SRP of £129.99 in the UK.



More in-car Bluetooth from Clarion

In-car audio, multimedia and satellite navigation company Clarion has added to its current range of built-in Bluetooth audio head units with the release of the CZ309E.

According to the Clarion press release, the new radio/CD-R/RW/USB/SD/Bluetooth unit offers a higher level of integration with mobile phone or PDA functions, including hands-free calling, mobile phone book and SIM phone book access, and call log recall.

In addition to the normal CD, MP3 and WMA file playback, the Clarion CZ309E uses the Bluetooth A2DP profile for wireless music streaming from Bluetooth-enabled handsets, iPods and MP3 players. The unit also supports external audio players via a front-facing USB slot or 3.5 mm mini-jack.

For the head-bangers amongst us, Clarion tells us that the in-built 4 x 40 watt high-power amplifier drives a high-quality audio reproduction, whilst four preset HQ settings (pop/Rock/Classic/Flat) and a + 10 dB boost option deliver a tailor-made in-car audio experience.

The Clarion CZ309E is available now, and in the UK the RRP is £179.00. Clarion has previously launched three Bluetooth-enabled head units in its range – the CZ509E, CX609E, FB288RBT and FB289RBT, whilst the majority of Clarion audio units support Bluetooth with the addition of an interface.

Femtocell solution for enterprise, metro and rural apps

picoChip has launched a Class 3 femtocell reference design that aims to bring femtocell technology to campuses, rural



Femtocells benefit both end users and operators

areas or 'metrozone' hot-spots. The PC8219E is described as a turnkey solution and builds on picoChip's PC8208 and 8209 PHYs to provide an extended-reach HSPA femtocell baseband. The PC8219E features eight user capacity, 2km range and support for vehicular mobility.

Although femtocells are often thought of for residential applications, picoChip suggests that there is a growing recognition that the advantages they deliver, in terms of capital and operating expenditure, can be more broadly applicable. Simon Saunders, Chair of the Femto Forum commented, "The first femtocell deployments have been focused on the residential market but we are now seeing overwhelming interest in moving beyond the home. Numerous operators have called for outdoor femtocells which will extend coverage and provide additional mobile broadband capacity to rural and metropolitan areas as well as enterprise campuses. Leveraging the architecture and economies of scale of mass-market femtocells means that operators can deliver major improvements to their outdoor network in a cost-effective and precisely targeted fashion. This also brings the benefits of mobile broadband to a wider audience than would otherwise be possible, helping to address the 'digital divide'."

Nigel Toon, President and CEO of picoChip, added: "We are already shipping in volume for residential applications, but this announcement demonstrates how femtocell technology is more broadly applicable. Given the prevalence of mobile devices there is huge potential to address the widespread problems of in-building coverage, to fix coverage blackspots or add capacity where it is needed. This is important for HSPA but becomes essential for LTE."

The PC8219E has already been delivered to customers and deployed by carriers.

Keeping the connected patient on track

Technology product design and development firm Cambridge Consultants has unveiled VenaHub, a data collection and aggregation system that promises to simplify personal health management in a connected health environment. VenaHub employs a small pocket device to capture data from a user's ecosystem of wireless medical devices, which it then integrates into a customisable online health information portal.

Anticipating growing consumer demand for low-cost home health management devices, Cambridge Consultants explained to Incisor that VenaHub addresses the need for a simple, consumer friendly and cost effective means to enable proactive self-management of chronic diseases. This is not the first 'Vena-' product. Cambridge Consultants had previously launched a Vena-enabled inhaler prototype in spring 2009, while A&D Medical deployed Vena-enabled weight-scales and blood pressure monitors in August 2009.

"Current solutions in the telehealth space are expensive, which means none of the parties involved want to pay for them, whether they are an insurer, hospital or patient," said Mike Dunkley, Vice President at Cambridge Consultants. "But the novel, compact, and portable VenaHub is cheap and can plug into the USB port of any PC. Critically, it can also collect data from devices even when it's not plugged into a computer. This technology could not only disrupt the current medical home market, but could overcome the reimbursement barrier that has prevented connected health solutions from being widely deployed."

The vision for VenaHub's web interface is much like an app-enabled phone or PDA where users would be able to customise different applications to suit their own needs and conditions. These applications could be created by the device makers themselves, or by third parties who develop meaningful and engaging applications using patient-specific or helpful corollary medical or wellness information. For example, an asthmatic patient could tailor their portal to see various types of information - charts of their recent inhaler use, reminders for refilling prescriptions or doctor's appointments, lung function data



via a peak flow chart - all juxtaposed against the coming week's pollen forecast.

The wireless technology at the core of VenaHub is based on Cambridge Consultants' Vena wireless healthcare device platform, which implements the standards selected by the Continua Health Alliance to allow patients to manage their own health and wellness anytime, anywhere. It embeds the Bluetooth Health Device Profile (HDP) optimised for the secure transport of medical data, onto a single, cost-effective chip. Vena also offers the IEEE 11073 standards for compatible exchange of information between health devices. Cambridge Consultants told Incisor that VenaHub demonstrates how simple wireless technologies can be deployed to provide consumers with a tool they can use effectively at home with minimal effort and expense to manage chronic conditions like diabetes or Congestive Heart Failure as well as interact with their healthcare network. VenaHub can also be used for fitness and wellness applications.

"VenaHub demonstrates both the vision and core engineering capabilities of Cambridge Consultants. We believe it brings functionality that could accelerate widespread adoption of home health practices," said Paul Williamson, Head of Wireless Medical at Cambridge Consultants. "We have created a low cost solution that could be brought to market quickly while targeting the move to mobile platforms in the medium term."

VenaHub was launched in concert with the 6th annual Connected Health Symposium, presented by the Centre for Connected Health, a division of Partners HealthCare. The Connected Health Symposium, entitled 'Up From Crisis: Overhauling Healthcare Information, Payment and Delivery in Extraordinary Times,' took place in Boston, Mass during October. The symposium addressed how healthcare can 'have its renaissance when it moves beyond the hospital and clinic and into the day-to-day lives of patients and consumers.'

Can Bluetooth be cool – Part 2

BiteBack visits Seattle

And an interesting social media exercise...

Well, it's a month since the first IncisorTV BiteBack event, in which we took our cameras to a UK live music venue and talked to people about the way they really felt about Bluetooth – did they use it, if so, for what, and would they say that Bluetooth was cool, or naff? You can see the movie that we made [here](#).

The exercise was a revelation, and substantially changed the way we felt about consumer perceptions of Bluetooth technology. The main observations that we made from the UK event were these:

- Young people (say, 16-25) do not use Bluetooth headsets. They see no reason to do so.
- Older people (25+) do, but mainly because they have to due to legislation – i.e. when they are in a car.
- Everybody, but everybody considered Bluetooth mono headsets un-cool and would not want to wear one in public.
- Nobody we spoke to had ever used a Bluetooth stereo headset.
- The single most popular application for Bluetooth is file-sharing – music and pictures. This application was described by a number of people as 'cool'.
- The majority thought that Bluetooth might be more popular if it was marketed better. Most said that they never saw Bluetooth marketing.
- Many said that a) Bluetooth used to have a better visibility/awareness than it does today and b) in the social groups that people exist in, Bluetooth is used less now than it used to be.
- Several said that for the key application – file sharing – Bluetooth was too slow.



The BiteBack UK movie itself has since been watched by many thousands of people, and the exercise generated a great deal of interest from the wireless industry. The Bluetooth Special Interest Group had been following what we were doing and executive director Mike Foley used his Twitter and Facebook reach to propose the idea of another BiteBack event in the SIG's home town of Seattle. That got immediate support, and so the plan was set. Both GN Netcom with its Jabra brand, and Parrot - two of the companies that have done most to reach out to the consumer market with Bluetooth - wanted to be part of the BiteBack programme too, and so they were soon on board.

We found ourselves a venue – the [SEE Sound Lounge](#) in Seattle's hip and trendy Belltown area, set a date – the 30th of October – and booked our flights to get there. Remember the date, by the way, as this was the Halloween weekend. Halloween is a big deal in the USA, more of which below.

Social Media actually works!

We then wanted to promote the BiteBack event to Seattle gadget-eratti, and so there ensued a concerted social media campaign. I used Twitter and Facebook to broadcast the messages and to help me find the right people on the ground in Seattle to help me spread the word effectively. Huge thanks to [Colin Christianson](#), [Chris Pirillo](#) and [Kristina Hudson at the Washington Interactive Network](#). All of them are hugely well-connected people in the Seattle area with massive profiles on the various social media networks. They pushed the BiteBack message out far and wide. At the same time, Bluetooth SIG execs Mike Foley and Diana Hoffman, and the SIG's PR agents at INK, all used their So-Me networks to push the BiteBack message out.

If we were concerned that we might have an empty venue, we needn't have worried. On the night, the SEE Sound Lounge was →

so packed with people you could barely move. The Bluetooth SIG, Jabra and Parrot were all in attendance, and spent the evening showing some of the latest and coolest Bluetooth products to the assembled crowds. This was leading edge-evangelisation – face to face, telling the story, showing the products. It doesn't get much more real!

The American way

So, how would the views of Americans differ from those of Bluetooth-using Brits? Well, you are going to have to watch the movie to get the full picture, but here are a few of the highlights:

- The single most popular application for Bluetooth amongst British users, which was file sharing – music tracks particularly, but pictures, contact details too – was hardly used by the American crowd. This wasn't because there was no desire to do so. No, it was much more sinister than that. The reason they are not using Bluetooth to share files is because of the cynical decision by the all-powerful US cellular operators to disable the File Transfer Profile (FTP) in the phones that they supply to US consumers. They (the operators) would much rather that their customers pay to transfer their copy of 'Party in the USA' thousands of miles across the cellular network rather than Bluetooth it 3 feet across a table. Words fail The good news is that most of the people we talked to were aware that it was their operator that was doing this to them, and there was a great deal of resentment towards the money-grabbing capitalists. Hopefully, the message will get back eventually. It doesn't happen in the UK and other parts of the world, so come on you guys, smell the coffee (Seattle, so Starbucks, presumably)!
- There is a similar reluctance to wearing mono headsets amongst young Seattle-ites, but if anything, the people we talked to were less rude than the UK people!
- There seemed to be a higher level of awareness of stereo Bluetooth headsets in the USA, but still nobody was using them.
- Show a Bluetooth product like the [Jabra Halo](#) stereo headset, as we did, and this would generally get a 'wow, I had no idea you could buy cool products like that' –type reaction. A few people seemed to be using Bluetooth speaker systems, but only one person admitted to ever having

seen a Bluetooth photo-frame such as the [Specchio from Parrot](#).

- Almost 100% of the people that we talked to agreed that they would use Bluetooth more if they knew more about it – if the products that used Bluetooth were better marketed.
- Likewise, show them a Bluetooth mono headset that they might want to wear, such as the rather sexy [Jabra Stone](#), a [Bluetooth-enabled head unit](#) that they can install in place of rubbishy old CD system in their car, some handy wireless speakers so that they can listen to their music with their mates, and their eyes light up. Clearly, there is still a lot of work to be done to spread the broader Bluetooth message. By the way, I know that I am referencing products from BiteBack's sponsors here, but there are two good reasons for that. First, they are BiteBack's sponsors, and have shown their commitment, so, hey, what else would you expect me to do? And second, Jabra and Parrot both make some of the coolest, stylish and most innovative Bluetooth products out there, so they qualify entirely on merit.
- The US people were the same as the UK people. They said that if a Bluetooth gadget they were trying to use failed to work as they wanted, when they wanted, they would probably put it away in a draw and forget about it. The ease of use requirement will never go away. It has to be simple, simple, simple.

For the rest, you will have to watch the video. Be warned, though! This was a party event, with a fancy dress theme, and that theme was Disco Monsters. You are going to be seeing some people in some weird and wonderful outfits. Underneath the strange garb, these are still young, technically sophisticated Seattle people. If Silicon Valley used to be the epicentre of young, techy geekdom, Seattle took over that mantle some time ago. These are A List, top-most-relevant-consumers for the developers and vendors of wireless-enabled electronics devices. Their views count.

Meanwhile, BiteBack rolls on. The Bluetooth SIG, Jabra and Parrot have all committed to further events, and our next stop is Asia. Details are still being finalised, but it looks like the IncisorTV team will be meeting with Bluetooth consumers in Korea during the first week of December.

The same crew will be running BiteBack

Asia, and we will be working again with Mike Foley and the Bluetooth SIG, and with Jabra and Parrot. There is no limit on who can be involved. If you want to be part of BiteBack, then contact me.

For now, enjoy the movie from BiteBack 2 – Wireless in Seattle.

BiteBack sponsored by:

Bluetooth Special Interest Group



www.bluetooth.com

GN Netcom / Jabra



www.jabra.com

Parrot



www.parrot.com

INCISOR W-PANeL

THIS MONTH: THE IMPORTANCE OF EASE OF USE

Incisor expert panel of the most influential spokespeople in the short-range wireless industry speaks on short-range wireless technologies and issues affecting the industry

Introduced by Vince Holton

Welcome to this feature in which the Incisor WPANeL speaks on a topic of interest to short-range wireless industry observers.

The members of the Incisor WPANeL are the senior executives from the organisations that manage the administration and development of Bluetooth, DECT/CAT-iq, EnOcean, NFC, Wi-Fi, UWB/Wireless USB and ZigBee technologies.

The ongoing WPANeL members, each an expert in short-range wireless technology, are Mike Foley, exec director of the Bluetooth SIG, Erich Kamperschroer, chairman of the DECT Forum, Graham Martin, chairman of the EnOcean Alliance, Mr Koichi Tagawa, chairman of the NFC Forum and Bob Heile, chairman of the ZigBee Alliance. Sadly, Edgar Figueroa, executive director of the Wi-Fi Alliance has decided that he doesn't have time to contribute to the WPANeL at this time, so we are currently seeking a replacement spokesperson for the Wi-Fi industry.

Last month the WPANeL group gave us their views on technology developments we can expect over the coming 6 months. These can be read in [last month's issue](#).

This month's topic: is wireless technology easy enough for consumers to use?

This is, of course, a very simple question, but one which has massive relevance across the whole of the wireless industry. The

question is this: is wireless technology easy enough for the average consumer to use, and if it is not (and here's a clue, the answer is almost certainly no), what needs to be done to improve things?

This question has been at the forefront of my mind as I have been working on the 'BiteBack: Is Bluetooth cool?' campaign over the last couple of months. Making movies such as [this one that we made with the Bluetooth SIG, Jabra and Parrot in Seattle](#) at the end of October has given me firsthand experience of the fact that consumer understanding of wireless technology is very, very low. The subject of that programme is Bluetooth, but this consideration crosses all wireless technologies. I still hesitate over setting up Wi-Fi connections, and even the life of the classic DECT telephone user is set to become more complex as the technology embraces the world of IP and more sophisticated applications. My questions to the Incisor WPANeL execs included:

- Is the wireless industry guilty of believing that everything is OK, and nothing needs to be done?
- I believe, as do others in the industry, that as an example of how wireless could be made simpler, a closer link should exist between Bluetooth and NFC so that one-touch pairing could be the order of the →



day. If the tech is there to make this happen, what is standing in the way?

- Is Wi-Fi Direct a step in the right direction, or are we kidding ourselves if we are thinking that Wi-Fi will suddenly become a cuddly, understood by all technology?
- How much has the market for wireless technology been held back by over-complex installation and set-up?
- Should less time be allocated to developing profiles and ever-higher speed/lower power, and more time to making it possible for more people to be able to use wireless?

I said it was a simple question, and in essence it is. However, ease of use is perhaps the single most important factor affecting global take-up of wireless technologies. I am very, very interested to hear your thoughts on this matter.

The panel's views are below. If you have views, or suggestions as to how we can develop the WPANel concept, or topics you would like to see covered, email me at vholt@incisor.tv.

Vince Holton
Publisher, Incisor & IncisorTV

Is wireless technology easy enough for consumers to use?

The Incisor W-PANel responds



Mike Foley
Executive director,
Bluetooth Special
Interest Group

This month's topic is at the crux of everything we do at the SIG – making Bluetooth technology so easy that even your grandmother can use it and will use it because from one application to another she's familiar with the experience and because it's an experience that simplifies and enhances her life.

Approximately 10 years ago I challenged the industry to achieve this vision. In my younger years I spoke in a blunter tone suggesting that the technology had to be "brain-dead" simple to use. It's now 10 years later and the question is still being asked. Why? Well, all this points to one simple fact – it ain't easy. The SIG is an organization of over 12,000 members, working across a multitude of industries, within countless different devices, and representing every major country around the globe. With that much built-in diversity, it's ridiculously hard to

get parties to agree on and adopt all of the nuances necessary to make any technology "plug and play" – yet, we've done it to the current extent, and will continue working to make it better, to make it easy.

Today, a consumer can usually pair a headset and handset without reading the instructions. Same thing for pairing an in-car hands-free system and handset or wireless headphones and mp3 player. While we're building the technology to make the rest of the applications like sharing or tethering even easier, these popular use cases will continue to be the models of consumer behavior we can build upon. Could the technology itself be easier to use? Sure. Even the humble microwave could be easier to use, but all technology has to start somewhere and all technology improves by leaps and bounds in short periods of time.

So what's on my wish list for ease-of-use improvement? I think sometimes engineers make problems overly complex, which results in overly complex solutions. Despite this, there are great examples of products which are simple to use. The largest use case for Bluetooth technology, game consoles, is an excellent example. To hook up a WiiMote with the Wii Console, a button is hit on each and a few seconds later they are connected. Simple. If it wasn't that simple, Nintendo probably wouldn't have shipped the solution.

Looking ahead, I can see a time where NFC makes sense to use as a touch-and-pair Bluetooth scenario – touching my mobile phone to my PC for pairing would certainly be easier than the current multi-step process. I'd also love to see standard UIs on device categories – wouldn't it be great if every mobile phone had the same Bluetooth menu? On the top level menu!

Via the Simple Pairing feature introduced in the v2.1 + EDR specification all the tools are in place to make every product containing Bluetooth technology as simple to use as the Nintendo Wii. So, is it easy, yes, but now it is up to the manufacturers of new products to implement those features that make it even easier and achieve the vision I first articulated 10 years ago.



Erich Kamperschroer,
Chairman,
the DECT Forum

Many consumers, critics and even technology experts say that ease-of-use of modern technologies and computer related devices is a myth. True or not, the fact is that the complexity of products and applications has grown over the last decades with the fast rise of the Internet.

Compared to computers and computer related applications I assume that there is no doubt

that good old DECT telephones are easy to use. But with IP-based CAT-iq, the successor of DECT, there is also a challenge for CAT-iq developers and designers. New CAT-iq products combine HD voice and data applications, and will be connected to the home network. This means that CAT-iq devices will be much more complex than just normal telephones. On the other hand the consumer expects easy usability, as that is what he is used to from plain telephony. Therefore the CAT-iq industry needs to take care that the consumer experiences real usability with CAT-iq: self-installation, easy registering, and an intuitive user interface.

Wireless CAT-iq technology will play a major role in the deployment of home automation applications. This innovative application field will be controlled and coordinated by devices, which are more complex but similar to telephones. Ease of use is the key requirement to win the marketplace. A lot of time and effort will be wasted if the industry is not able to meet usability requirements, which are vital if the new products are to be accepted and adopted by the consumer. I am convinced that our industry will be able to meet these requirements and make ease of use a reality for the consumer.



Bob Heile
Chairman,
ZigBee Alliance

This clearly depends on the wireless technology. Keyless entry, basic mobile phones, remote controls, and cordless phones, to name just a few examples, have been around for a while and present no particular challenges for consumers to use other than perhaps for adequate coverage and paying the bill at the end of the month.

The picture changes rapidly the more the consumer is asked to get involved in configuration and set-up. Basically, if there is a choice to be made, you can be sure that the wrong one is likely to be selected. Of course this is true for any networking technology, not just wireless. No magic here. Operation that is intuitive and configuration that is plug-and-play will obviously yield the best result. Unfortunately, in the computer world, having to support a variety of platforms and security types often makes this goal difficult to achieve, but that should be our target nonetheless.

The ZigBee community had the benefit of seeing some of the issues Bluetooth and Wi-Fi faced early on and was able to learn from those experiences. As a result, ZigBee has always strived to provide a simple approach to both set-up and daily operations in the hope of providing an easy-to-use experience for consumers of all types.





Graham Martin,
Chairman,
EnOcean Alliance

Consumer acceptance of wireless technologies has become significantly more widespread over the past decade and much effort has been put into user friendliness and so-called "plug and play" solutions. Have we made it simple enough for all consumers to feel comfortable with and to use without any hesitation? Some applications certainly are close to reaching this goal - many are obviously still far away or still living in some sort of wireless research engineer dream world.

In the case of low power wireless building monitoring and control systems, the first line of "consumers" are very often electrical installers, system integrators and other building professionals. It is absolutely essential that the wireless systems are easy to understand and easy to install and commission. Nobody wants to have to go through complex training courses, to have to read complicated instruction manuals on site or go through the frustrations of time-consuming debugging of systems or calls to service centres. It has to be completely simple, true plug-and-play and easy for the building user thereafter to understand and modify the system as required. If we overwhelm these installers with systems such as multi-hop complicated mesh networking systems and wireless jargon such as coordinators, routers, end-nodes with multi-layer security, application profiles and addressing matrices, which they simply just don't begin to understand, then they will be happy to avoid wireless systems. EnOcean - which is helped by the fact that its energy harvesting nodes don't allow it to get too complex - has kept it simple and user friendly, allowing these installers and consumers to learn, understand and install the system immediately. This makes them feel comfortable and confident to use the same technology in their next job - EnOcean has been installed in over 100,000 building projects to date.

However, I still hear installers complaining that the receivers they have placed inside a metal box are not receiving the signals, or why can't the signal reach the receiver which is only 20m away through 3 concrete walls? I also see installers who don't yet understand why some low power wireless networks using 2.4GHz - which were originally working fine - suddenly break down once the computer guys come in and switch on their Wireless LANs in the building. Therefore, as well as continuing to work on keeping it simple we will still have to work to ensure that the consumers are aware of the wireless basics that most of us in the industry probably take for granted.



Koichi Tagawa,
Chairman,
NFC Forum

Many researchers agree that "perceived usefulness" and "perceived ease of use" are two of the most significant factors in determining whether people will accept and use any new technology. Since the perceived usefulness of wireless technology is essentially a given, it is likely that lower-than-expected user acceptance of some wireless technologies can be attributed to a perception that they are difficult to use.

From its inception, the NFC Forum has recognized this usability issue and has worked toward establishing NFC technology, among its many other uses, as a kind of universal set-up simplifier for other wireless technologies. NFC's "touch" paradigm is ideal for this purpose, because it requires no additional action on the user's part -- no codes to enter or menu choices to make -- just a simple touch. Information required for the connection setup is carried in NFC Data Exchange Format (NDEF) messages.

To that end, we created our Connection Handover specification, which our members officially adopted in November of 2008.

Connection Handover defines the structure and sequence of interactions that enable two NFC-enabled devices to establish a connection using other wireless communication technologies, such as Wi-Fi or Bluetooth. Connection Handover also covers static handover for applications using NFC Forum tags that can be read by NFC-enabled devices. This enables organizations to deploy applications that combine the simple, one-touch set-up of NFC with the high-speed communication of Bluetooth or Wi-Fi. The Bluetooth Special Interest Group has seen the value in this and, in 2007, incorporated NFC as part of its Bluetooth 2.1 specification for the simple pairing of two Bluetooth devices.

With Connection Handover, the process of connecting devices could not be simpler. Users establish point-to-point communications by briefly touching their NFC-enabled devices to either an NFC tag (static handover) or another NFC-enabled device; there is no need to search for and select from available RF hosts. Once the connection is established, NFC's job is done and the data transmission is handled by the higher-speed RF protocol. Thus, there is no need to keep touching the NFC device to the tag until the transmission is completed.

With this capability, the user of an NFC- and Bluetooth-enabled camera phone, for example, can upload a photo to an NFC- and Bluetooth-enabled printer simply by briefly touching the phone to the printer. The phone automatically detects what type of device the user is contacting, and the photo upload process starts automatically. Similarly, users of NFC-enabled Bluetooth mobile phones can quickly transfer even large data files to one another by touching their phones together. For maximum flexibility, the specification enables developers to choose the carrier for the information to be exchanged. If matching wireless capabilities are revealed during the negotiation process between two NFC-enabled devices, the connection can switch to the selected carrier.

Snippets

Bluetooth SIG supports lending program for small entrepreneurs

The Bluetooth Special Interest Group (SIG) has launched a global, microfinance charity initiative called Sharing4Caring that will help small entrepreneurs gain access to low-cost financing. Actively contributing to connecting people by lending seed money to small, third-world entrepreneurs will help to give a voice and a face to the world's poorest, says the SIG, and a

practical, viable pathway to improve their existence. The SIG is endeavouring to attract large numbers of people worldwide to lend a hand to such entrepreneurs by pledging SIG funds via its website to raise the microfinancing for this initiative. The group has appointed person-to-entrepreneur microlending specialist Kiva as its partner.

385 million ultra mobile devices to ship in 2014

ABI Research expects the Ultra Mobile Device (UMD) market - that is, the shipments of UMPCs (Ultra Mobile PCs), netbooks, MIDs (Mobile Internet Devices) and mobile consumer electronics devices combined - to achieve a 385 million unit size in 2014. ABI believes that the diversity of form factors and device types we see today will likely continue as vendors look to meet each audience's unique preferences.

Wireless Data Coordinator
– VERIZON WIRELESS

Chief Technology Office
– CONCRETE LOGIC

Distinguished Member of the
Technical Staff
– MOTOROLA

RF System Architect
– ARTIMI

Senior Engineer
– SAMSUNG ELECTRO-MECHANICS

Technical Director
– EUREX COMMUNICATIONS

Short Range W/less Lead Eng.
– FRACTUS

Senior Analyst
– STRATEGY ANALYTICS

Chief Application Engineer
– PHILIPS SEMICONDUCTOR

VP of Marketing & Business
Development
– ZIGBEE ALLIANCE

Design Engineer
– CSR

Business Dev. Manager
– TEXAS INSTRUMENTS

R & D Engineer
– HEWLETT PACKARD

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– MOTOROLA

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Systems Engineer
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Research Engineer
– LG INNOTEK

Software Engineer
– DELPHI DELCO ELECT.

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Fellow, Office of the Chief
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– AUTOMOTIVE – iSUPPLI

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Marketing, Low Power W/less
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Software Engineer
– SONY ERICSSON

Development Engineer
– PARROT

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– U.S. DEPARTMENT OF STATE

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Incisor interview:

Henri Seydoux
CEO, Parrot S.A.



Vince Holton meets with Henri Seydoux,
founder and CEO of Parrot S.A.

What the Bluetooth industry needs now

Well, we will come to that. Meanwhile, for those Incisor readers that don't know Parrot, and there are not likely to be many of you, the French company has been deeply involved in embedding Bluetooth in consumer electronics devices since the very early days of the short range wireless technology. The company was founded by Henri Seydoux, and he and I both struggled to think how many years it has been since Incisor first met with Parrot in a hotel meeting room in London – we decided it was way back in 2001. Parrot has gone on to launch a range of Bluetooth-enabled products across the automotive and general consumer electronics industries.

Time, then, that we met up again, and took the opportunity to compare notes on the state of the industry, likely directions and trends. And, it turned out, for Seydoux to make an impassioned plea to the industry to take one step that would make life easier for people on both sides of the fence – developers and CE companies, and also the vast consumer market that they serve and rely upon for their existence. But more of that later.

Seydoux started the conversation by re-stating his company's backbone philosophy, which is to re-develop classic products using today's technology. Seydoux explained: "We are not interested in competing in me-too markets, or trying to be the lowest cost variation of a product. I have always looked at product development from the perspective of 'what can be improved by going wireless?'"

Parrot's roots were in voice recognition – hence the name – and over the past eight years Bluetooth has since been combined with improvements in speech recognition.

Parrot's first success with Bluetooth was in the area of the car phone, and this has remained an important market for the company. According to Seydoux, Bluetooth gave Parrot the opportunity to re-invent the carphone, and to revitalise the whole carphone market.

Seydoux explained that from this platform, Parrot has looked at ways to use wireless to transform products. "As an example, I think that Bluetooth speaker systems can be very successful, and if they are going to be used in the home they have to be good speakers. Our [Zikmu](#) speakers, which were

designed by Philippe Starck, are a good example. If you look at the basic design it harks back to the speaker device attached to the phonograph in the original HMV logo! The speaker itself is the static element in the music ecosystem today. Everything else is mobile – the music, the MP3 player or iPod, the laptop as a music storage device, and of course the Internet provides endless music streaming opportunities. So, to maintain the mobility, the speaker needs to be wireless, and therefore Bluetooth was a fundamental element of the design concept for the Zikmu speaker. It's great to be able to



come into your home with your laptop or iPod, just press play, and enjoy your music. This is how it should be.”

Seydoux believes that the world is ready for, and now wants wireless. His aim, he says, is not to reinvent the wheel, but to make things easier. Fortunately, Bluetooth is now part of most cellphones. “Most of the technology that has been developed around cellphones is transferable. The TV, PC and cellphone are all content sources, but you are unlikely to turn them on to look at your digital photos, for example,” explained Seydoux. “The digital photo market is enormous – the cameraphone has revolutionised the market and we now all take hundreds or even thousands of digital photos. They are a record of your life, a digital diary, but sadly, the vast majority remain on the cellphone or perhaps get transferred to a PC and archived, but never viewed. I am sure that we all value these images and would like to do more with them.”

Parrot pioneered [wireless photo frames](#) to make it simpler to transfer these souvenirs of our lives from the cameraphone onto a device that will allow us all to view them at any time. Although this is still an emerging market, and not one that has yet generated huge income, it is one that Parrot is committed to, as Seydoux explained. “We will launch a radically different product into this sector during November. This product, which saw us once again collaborate with a world-renowned designer, will introduce new technology to the photo frame concept. This is in line with our philosophy – we don’t want to compete in the low-cost part of the market, we want to produce the best products.”

Seydoux added that following November’s photo frame launch, Parrot is working towards a major launch at CES, one which, according to Seydoux “will bring to market a product that couldn’t be more wireless!” For now, this will have to be a mystery and a teaser to encourage us to book our flights for Las Vegas.

Time for the industry to listen

But I mentioned at the outset that Seydoux took the occasion of our meeting to provide him with an opportunity to broadcast to the industry something that he feels very strongly about. Now is the time for the reveal.

So, what message does this industry guru wish to distribute? Seydoux explained: “I want to reach out via Incisor because you go everywhere and to all of the developers



and R&D labs in the industry. My message is - combine NFC and Bluetooth!”

Now, it is written in stone that for any technology to succeed in the consumer marketplace, ease of use is all important. It is also generally accepted that despite all good intentions and many years of work by men with beards and corduroy trousers, Wi-Fi and Bluetooth set-up is too hard for non-technical people and that circumstances – e.g. you are in a public place, a cafe, even at home/wherever - make it even harder. Seydoux explained that Parrot is aware that this is so across the range of products that it sells. “NFC is the obvious answer. Handsets need NFC. It is cheap to implement, but it is not being deployed. NFC could massively improve the ease of use situation for consumers using Bluetooth and other wireless technologies.”

Seydoux cited one example scenario – your car’s Bluetooth system. “It’s OK to set it up in your own car as you typically only do it once, but what happens when you are travelling and you hire a car? You’ll typically want to jump in the car and drive off – you don’t want to be spending time trying to pair your phone with the hire car. Bluetooth and NFC would allow you to touch your phone to a place on the dashboard, and this would be the way to simply connect your phone with the car’s audio system to enable handsfree – and therefore legal – calling in the car. Plus, and for many this is just as important, to allow you to listen to your own music in the hire car. One-touch simple pairing with NFC would have you paired in a moment.”

Another example is in the overall music sector. Sharing files is very popular, and more and more people are connecting their iPods and MP3 players to portable speaker systems, to their home stereo systems, their cars etc. “Look at just the file-sharing aspect for now – there are too many steps to go through and it is too difficult for many people to work out how to do this on an ad hoc basis. The music sharing application

on its own would be enough to justify the implementation of Bluetooth simple pairing by NFC – just imagine how easy it would be to share music in bars, while on an airplane, and of course between your portable media player and your home systems.”

It must be said that this is true for all use cases. Very often the theoretical convenience – the magic, in fact - of a wireless link is being squandered. NFC would solve it, says Seydoux, as there is no software to download, the wireless link works well and is robust and efficient. And it could all happen very quickly, as a clearly frustrated Seydoux observed: “One day, one of the phone companies will make the decision to do this. It could be as simple as Apple deciding to implement NFC. If Apple does, everyone will follow – Nokia, Samsung, LG etc. The reality is that there is no reason why they couldn’t all do it now.”

As Incisor readers will know, we have been following NFC for some time, and the problem – and it may not be seen as a problem by the NFC community - seems to be that NFC is being developed as a payment protocol, and a smart card/SIM replacement. This is of course a good use for NFC, but it is hard to deploy and is therefore taking a long time to become widely used.

Seydoux conceded that some positive steps are being taken. “Wi-Fi Protected Set-Up (WPS) is heading in the right direction. Although not as simple as a one-touch NFC pairing, there is no configuration or password needed, you just press buttons on both the phone and access point. Wi-Fi Direct now continues the process of making Wi-Fi easier to use. For Bluetooth, this type of simple connectivity is even more important than for Wi-Fi because Bluetooth’s applications are much broader and you want to connect many more different types of device.”

There was absolutely no doubt in my mind that this was a topic that Henri Seydoux felt very strongly about. We will let Parrot’s top man close this piece by re-stating his call to action to the WPAN industry: “It is completely obvious that Bluetooth + NFC should become a standardised solution. If Bluetooth and NFC are still looking for their killer app, then combining the two could make it happen for both of them. Bluetooth + NFC will remove the need for any complex pairing process and both technologies would sell more chips and consumers would come to love the technology. This could all happen if there wasn’t so much focus on using NFC for payment systems.”

www.parrot.com



Bluetooth dreams revisited

by Dean Anthony Gratton

We want to tell you a story ... it might be very familiar to some, whilst to others it may seem to be nothing more than tittle-tattle.

Bluetooth wireless technology has enjoyed a level of success, with over eleven years experience under its belt but, to date, it has struggled to capture mainstream consumerism. Furthermore, its success has pretty much been limited to enabling a variety of headsets, thus ensuring that vehicle drivers around the world have their two hands firmly on the steering wheel. Likewise, a number of vehicle manufacturers have integrated the technology into their mid- to high-end models with enormous success. This, in some respects, is a double edged sword for the technology, as Bluetooth has found itself somewhat 'un-coolly' pigeonholed into a niche market of clunky 'behind the ear' hands free gadgetry that many of us have found embarrassing to admit using. And yet, there is so much more to the technology than most consumers see.

Its capabilities, if sensibly marketed from day one, should have made it a wireless superstar instead of the one trick pony it's still commonly envisaged as. Many of us might think we know the score but, as a technology writer, the question is still so often asked "What is Bluetooth?" and "What will it do next?" So let's tackle those seemingly naïve, but nonetheless vital, consumer questions head on.

What is Bluetooth?

Indeed a contentious subject and feature, but let's not be inhibited in delving into some core facts and analogies about Bluetooth wireless technology. Whilst avoiding a regurgitation of what we already know about the technology and the manufacturers associated hype about it; namely that it wasn't ready when they first said it was, let's instead focus on the notion that Bluetooth needs to shake off its association with cumbersome user experiences and begin embracing a new



chapter. This is especially prevalent now, as Wi-Fi Direct is clipping at its heels! Incidentally, many seem to suggest that the Wi-Fi Alliance's announcement was a knee-jerk reaction, as Bluetooth was rallying advocates of the technology along to steer the direction of the future of the technology. This is an area of some contention that we'll discuss in greater depth later in the article.

In answering the question, 'What is Bluetooth' we have to first refer back to the original marketing touted by the Bluetooth Special Interest Group (SIG) and that is, 'Bluetooth wireless technology is (first and foremost) a cable replacement technology'. Seems straightforward, right? Bluetooth was conceived, as an alternative to cabled connectivity and was targeted to provide greater flexibility than that offered by Infrared. In other words, enabling a host of consumer electronic products that don't need a physical connection or aren't restricted to line-of-sight.

In short, Bluetooth wireless technology is simply a cable replacement technology.

Jack of all trades, master of none?

The Bluetooth SIG in its early days conceived numerous profiles and user scenarios, detailing how Bluetooth wireless technology could be utilised in the real world and how the technology could remedy everyday gripes when using a cable or Infrared. The process of creating new profiles is an ongoing activity within the Bluetooth SIG and, with a recent health device profile being introduced to the profile portfolio, some manufacturers are evidently vying for a new chapter in the technology's future. Yes, eHealth, along with Bluetooth low energy wireless should pave the way forward for new applications. In particular, a recent announcement (June 2009) from the [Continua Health Alliance](#) confirms that Bluetooth wireless technology will enable a new generation of health care products.

But many have accused Bluetooth of being 'jack of all trades and master of none'. Others have purported that it simply doesn't have the power to diversify any further. As we've already



hinted at, consumers seem to associate Bluetooth with headsets, and, oh yeah, you can also interoperate your phone within a vehicle that's Bluetooth-enabled! Bluetooth has numerous profiles, including: the Headset profile (of course); Dial-up Networking, Personal Area Networking; Basic Imaging/Printing and the Synchronisation Profile to name but a few (a full list can be found on the Bluetooth SIG's website: bluetooth.com).

The Killer Application that killed Bluetooth's 'cool'

So, with numerous applications available why has Bluetooth become pigeonholed into a niche? To be totally controversial here, you could say that what it does it does perhaps a little too well! It seems that its killer application quickly became so intrinsic to safe travel that it effectively 'killed' the technology's potential consumer association with other applications. It's not that its adopted value isn't important, but rather, it was perhaps the way its integration was shaped by the manufactures that made many of us associate Bluetooth with the ultimate in 'un-cool'. Couldn't they have been a little more imaginative? Where's Philippe Starck when you need him (Ed. – er, he's [here](#), Dean) ? But wait a moment! Are things taking a turn? Is Bluetooth finally exfoliating away its pockmarked public complexion and giving itself an airbrushed supermodelesque relaunch? The introduction of glamorous and enticing new headset designs by companies such as Motorola, Sony Ericsson and Jabra would suggest so. And now, with stereo Bluetooth strutting its stuff in the market place, Bluetooth is moving away from just a mono phone audio device and is finally seducing the public with its superior audio streaming, bringing wireless music to the masses in a totally cool way.

This success makes us wonder whether the dark clouds of the past have finally begun to clear for Bluetooth. Marketers

can finally hype to their hearts content about the new look designs in a way that won't have them blushing when they put their names to a campaign. Consumers will invest in the technology with a new found confidence that it won't make them look geeky and will even consider trying out new forms of Bluetooth applications. The one trick pony can now think about entering the wireless technology race with pride.

The high-speed accolade

But are we getting carried away with the gloss of it all? Perhaps the success of Bluetooth dominating the short-range arena really rests upon its conquering the high-speed accolade, which the Bluetooth SIG initially attempted with the Enhanced Data Rate (EDR) offering, but clearly still fell short of Wi-Fi's greater data throughput. All is not lost however, and it seems that Bluetooth is still very much in the running for long-term success, as CSR recently announced that it has partnered with Taiwan's leading wireless IC design houses, including Realtek, to deliver a family of Bluetooth V2.0 + High Speed (HS) and 802.11n module designs for the PC and netbook markets. The BlueCore based designs will support the latest Bluetooth SIG specifications to enable high data transfer speeds by integrating the 802.11 radio to cope with larger file sizes. Furthermore, the partnership will mean that the new technology will be able to shift seamlessly between one wireless technology and the other, thereby ensuring maximum speed and power efficiency whilst presenting a unified interface to the all-important user. This union will no doubt ensure that Bluetooth has a promising future with previously unimaginable opportunities for integration into applications.

The Wi-Fi Direct threat

Wi-Fi Direct has however been viewed by many as a threat. The Wi-Fi Alliance is

moving forward with the protocol that is set to challenge the Bluetooth market head on. Theoretically capable of transferring data at 250Mbps/sec, significantly better than Bluetooth, which has yet to extend up its 11Mbps/sec range, Wi-Fi Direct should have Bluetooth trembling at its knees and yet the King seems to be standing firm and resolute, eager to prove that alliance is always better than war and focussing on the fact that Wi-Fi's trade off for its purported increased throughput will be a much larger power draw, making it less attractive to today's environmentally aware consumers.

Dreams revisited

We mustn't forget that when we first heard about Bluetooth we were all blown away. It was only the premature hype of the industry marketers, coupled with poor early design integration that publically shattered the consumer dream. But it seems that finally now, in light of the new design focus adopted by manufacturers, the public embracing of stereo Bluetooth as a chic and effective way of listening to audio and the increasing reality that Bluetooth High Speed will make it and make it big, the time may well have come for Bluetooth to dream again.

About the Author

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

You can contact Dean at incisor@deangratton.com and follow him on Twitter @grattonboy, but you can read more about his work at www.deangratton.com.

Snippets

Small car boom hits short-term automotive electronics demand

The Strategy Analytics Automotive Electronics service report, "Automotive System Demand Forecast 2007 to 2016: Small Car Strength Hits Short-Term Electronics Demand," highlights the impact that the surge in small car market during 2009 has had on the demand for

automotive electronics. Government incentive programs around the world have fueled a one-time boom in the sales of smaller, lower-cost vehicles, as the incentives on offer have typically been for a fixed amount, regardless of purchase price. "While some negative effect on profits will

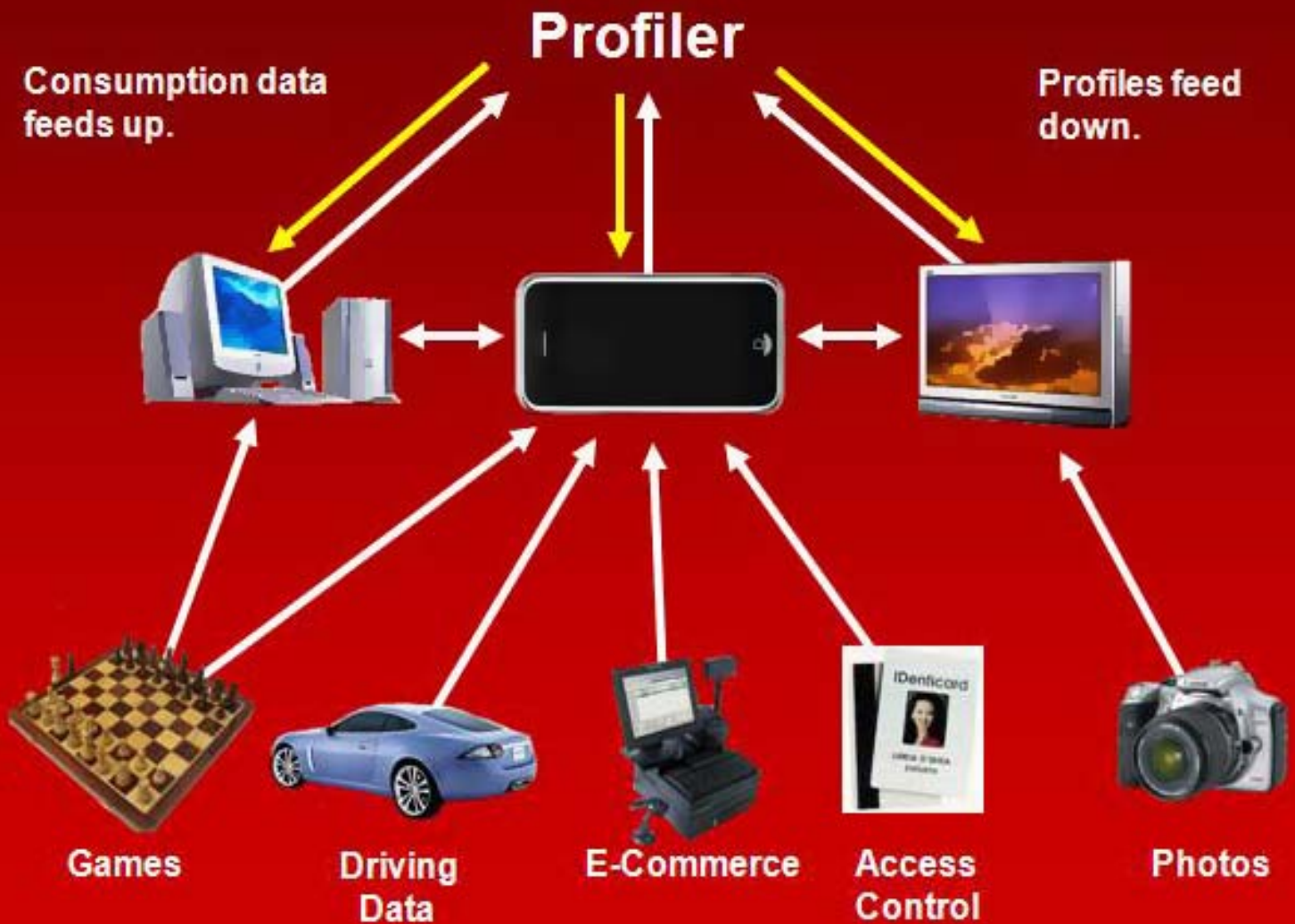
be felt by car makers in light of the lower margin on smaller cars, it is the electronic Tier Ones and semiconductor suppliers that are feeling the full impact of this temporary slowdown in electronics demand," commented Chris Webber, VP Global Automotive Practice.

The three screens platform: Part 4: Connecting the smartphone to the television

By Stephen Wood,
Technology Strategist

This article is the fourth in a six part series discussing the convergence of the Smart Phone, Personal Computer, and Television. Each article will discuss an event or technical capability which is forecast to emerge in the near future. These forecasts were developed for Incisor using new techniques in market analysis that provide a context against which Incisor readers can evaluate the value of innovations entering the market.





Personalization System.

The first article in this series described how the industry is in the process of forming a new Three Screens platform. This platform will blend the functionality of the smart phone, the television and the PC into a common system. New capabilities will be added to all three of these devices to enable new applications which require the cooperation of two or more devices.

In the next article, the concept of docking between the PC and the smart phone was discussed. In the broadest terms, docking enables the devices involved to share information with little or no user involvement and to combine their respective capabilities on the fly to help compensate for weaknesses which are present in a single device. However, the docking function is not limited to the interaction between the smart phone and the PC. It has substantially more functional range than that.

The docking function usually connects a mobile platform such as the smart phone with a stationary or nomadic platform. Usually, the stationary platform has more capable hardware, more extensive memory as well as faster and less costly connectivity. The mobile platform usually has ubiquity as its primary resource. When they dock, the capabilities of each

device are combined to create a more capable whole.

The desktop PC, television and notebook computer are obvious partners and the source of the "three screens" name, but the point of sale terminal at a retail cash register, a car entertainment system, an electronic door lock, or a video kiosk in an airport could also be a potential partner with which smart phones might dock. The docking protocols would be designed to minimize the amount of keystrokes required for the consumer to benefit from allowing the devices to interact.

In this article, the focus will be on the interaction between the smart phone and the television or set top box. Since the set top box frequently provides the intelligence for the television and makes a system that is not readily separated, the two devices working together will be referred to simply as television for the remainder of this article.

Before one can begin to draw a picture of how the television and the smart phone work together, it is first necessary to know how the television will evolve independent of the smart phone. Several of the features that will be built primarily to satisfy the needs of the television

consumer will bleed over into the smart phone and into the PC as well. With the emergence of the three screens platform, it is no longer possible to consider the television, PC and smart phone as separate markets any more than it is possible to think of the radio, display and memory components as wholly independent within a smart phone context.

The first major change that will come to television is personalization of content and advertising. Personalization is becoming necessary due to the explosion in available content. In the 60s, a television was likely to receive just a few stations. In the 80s, that number went up to several dozen with the introduction of cable. With satellite and fiber, the number of total channels available is rapidly scaling into the hundreds. If one adds into this the possibility of content that is not channelized such as YouTube, Channel surfing is no longer a viable way for viewers to find interesting programs to watch on an hourly basis. It is necessary to build the television (and the whole three screens platform) in a way that automates the process of content search.

To circumvent this problem, the television will begin watching what you watch. It will build consumption profiles to



estimate your preferences and make recommendations about what you may wish to watch in the future. This is a feature which has already been deployed by Tivo. Taken a step further, the television may go so far as to create a personalized logical channel for every individual in the home. This personalized channel would be in addition to the normal broadcast programming.

By using the consumption profile built for television along with the storage capability and intelligence of the evolving television, advertisers can deliver targeted advertising. These ads can be downloaded in advance to your television and played for the proper individual whenever they happen to be available. In this way, the value of advertising increases dramatically.

The key to personalization is in collecting as much consumption information from as many sources as possible in order to build accurate profiles. Ideally, one wishes to collect consumption information from the smart phone as well as from the television. The smart phone has music, text and camera data today and will have e-commerce, access control, location, video telephony and other data in the future. By connecting the television and the smart phone periodically, it is possible to share this data.

The second major evolutionary trend in television is multiple plane content. Rather than having just a single video stream as has been true historically, a fat pipe enables combinations of video and data. Imagine if ESPN were to broadcast the Tour de France with multiple camera options selectable by the user along with an e-commerce application which allowed you to buy jerseys and finally, an applet which displayed the riders' personal statistics and a graphic of their location on the course. Obviously, this type of sophisticated interaction needs an input method that does not disrupt the 10 ft interaction paradigm of the television, but which allows more flexibility than a remote control can offer. Based upon the trajectory of the television's intended evolution, there is an opportunity for the smart phone to play a role as the television's I/O device.

Consider the possibility that the smart phone acts as a subordinate screen to the television. Rather than working independently, they work collectively to provide a combined television experience. The following are a few examples of how the interaction might manifest itself.

Imagine the smart phone acting as something like a picture in picture

function. If you are watching television with the family and want to know what's on next, it isn't necessary to occupy the main screen to pull up the electronic program guide (EPG). Instead, it is possible to pull the EPG up on the smart phone's screen. Instead of selecting a new program for every time slot as if the selector were still a mechanical switch, programming for the next few hours could be selected in advance.

The smart phone could also be used to combine picture in picture with e-commerce functions. Imagine an example involving the Shopping Channel. The video broadcast appears on the main screen in the same way that viewers experience it today. On the smart phone, an e-commerce applet is running which is intimately connected to the broadcast. Items which are being shown on the main screen can be purchased on the smart phone.

While it would be possible to pay for the purchase by credit card as one does today, it would also be possible for the network operators to act as a financial intermediary and to simplify the transaction. The smart phone identifies the user who is authorizing the transaction to the network operator. The network operator acts to authorize the transaction and bill it to the customer on their television bill. In this way, the network operator would position themselves to collect a revenue stream for purchases made in the same way that a credit card company does.

Now, consider the effect of all of these changes on the network operator. Notice that a cable operator standing by themselves or a wireless carrier working alone cannot create these systems. Without some form of relationship between operators, the television doesn't talk to the smart phone. The synergies of the connection cannot be exploited. However, a quad play provider has both a mobile wireless network as well as a television network under their control. By working with device manufacturers, they are in a position to connect these two devices into a common system.

What is occurring in the market is the blending of devices, networks and applications in a convergence. The implication for network operators is that the operators who have ownership of the larger number of devices have a significant advantage over time. They are able to create more interesting user experiences. They are able to understand more about their customers' consumption habits and they are able to translate that knowledge into higher revenues and multiple revenue streams. This would seem to suggest a trend

toward quad play providers and relationships between network operators that create the effect of quad play providers.

Additional information about the three screens platform and other upcoming market events can be found at www.mappingthewhitespaces.com.

Stephen Wood has spent the last eight years developing a series of behavioural models which explain the behaviour of high tech markets and which provide insights about upcoming events. These models provide the basis for the projections described in this series.

Additionally, Stephen has spent the last twenty years doing market analysis and product management in PAN, WAN and LAN technologies. Most recently, he held the role of President for the WiMedia Alliance in UWB personal area networking. Stephen's website at www.mappingthewhitespaces.com discusses his models and forecast.

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Unlike Bluetooth, UWB is rad

By Gary Anderson, Founder and Chairman,
Uraxs Communications, Inc.

Well it could be, if it were not dead. I guess you have to die first to really be cool, like an artist's newfound fame post mortem. That's right, I said it and I'll say it again. UWB is rad (radical for those from the old school). There, sue me. And while you're at it, Bluetooth is not cool. Bluetooth is like a lot of things, but being rad like UWB is not one of them. And while I'm at it, UWB lives. Now, hold on before you call your lawyer, I was just trying to make a point. That said, it's only fair that I should support my argument. I'll try as I have in the past, and will continue to do so until people get it.

Bluetooth sounds like something invented in Kentucky. Even W-USB sounds cooler than Bluetooth; to me Bluetooth has always reminded me of some mystery flavour of ice cream. Eat it too fast and you get a brain cramp. Maybe if Bluetooth could be friendlier? Friendliness, or ease of use as it's known in this ballpark, is a must-have quality if a tech truly aspires to be cool.

It's not that Bluetooth isn't cool at all, or sometimes cool, or never could be. Bluetooth could be cool, fairly cool. If only it did what we'd been promised it would. But, even then, it couldn't do enough to be rad. It's not the dongles or goofy headsets, they'd be more acceptable as cool if they did really cool stuff like universally sync up and perform on a consistent basis, for starters. If any communication technology is ever going to be successful and ubiquitous, it must deliver on its promises. We have quite a few very successful approaches these days that have brought us this far.

Maybe we need to be more careful about wanting to be too cool, maybe we shouldn't expect too much. UWB's coolness is evident by the fact that everyone on the block fought over who would emerge the coolest by developing the most popular and delicious recipe of UWB. I remember when I was a kid in the schoolyard and the young "men" would jockey around vying for attention, only to prove who the biggest idiot was. No, being uber kewl means having depth of character, which in and of itself takes time to establish. Yet giving up will never get us there: quitting is definitely, very un-cool.



There's life, Jim

Many of the high profile companies in the UWB space lately were frustrated or lost a fortune, or both. But that doesn't mean that they all went under or ran away. Some are actually finding success and others, mainly the bigger players, pulled back to do in-house skunk works operations. I've heard many rumours over the past few months, and some of them were actually true! I've heard that several companies are still involved in development, including many from the veterans' camp like me. We have some products on the market, including various types of communication devices, location, and imaging solutions. Many of the top universities around the world still have very active UWB R&D programs. I also heard that even the US Defense Advanced Research Projects Agency

(DARPA) is still pursuing UWB, and with a friend like DARPA, UWB is rad.

Or how about the work being done with UWB signals (3.1-10.6 GHz with no need for notches, masks, or excessive power limits, including 60 GHz) sent over long-haul single modal fiber (Corning is best to date) with quantum photonics and cryptography? Could it be possible that one day soon we'll see an end-to-end UWB solution regardless of distance or device? Certainly, if I can help it, we will.

It helps to have a vision

You know what would be way-cool, rad even? If I could dance down the street (with my →

Samsung, Fossil, and Oakley's), rocking to my favourite tunes (in one ear), while I'm at work riding an international Wave via a public hot-spot (on the train going to a meeting?). Meanwhile, I'm sharing waveform test results, text, voice and video, with a colleague and his Motorola, Omega, and Ray Ban's via the iPod in sync with the Linux desktop connected to the OC 192 (in a client's office 12K miles away - he works for me). All the while having access to any resource (peripheral or database), either within 10 meters or connected to the LAN or remote LAN (your home, office system, cloud, or web). As well as the ability to initiate and receive new connections (calls from .r), via voice commands, speech to text, translation to any language, and all in real time. I think this is possible and I think UWB combined with other technologies, or not, is a good candidate technology solution.

How is all this possible? Well, I'm not here to tutor you in UWB, you'll have to RTFM. I think the quickest way is to take it one application at a time and build from there. That's what I've been doing with my MRCD's and URTFM's (UWB communication modules) and I plan to release them like cockroaches in Florida, when they're ready. Sooner rather than later UWB will hatch and those willing to toe the line now will see a huge ROI, and maybe even be considered cool (or rad) someday.

Nail your colours to the wall

To be candid, I was asked to try to communicate the future and current state of UWB development and how it relates to Bluetooth, Wi-Fi, and communication in general. About 6 years ago, a well-known industry insider asked me a question. He said, "Assuming UWB is dead, what do you want to be? An UWB guy? or a radio guy?" Well, there was a lot of white space and I never really answered that question. I guess you could say I got the jitters and dithered my way out of it. Partly because I was scared of the possibility that UWB may be dead and partly because he wanted to hear something that interfered with something in my physical layer - that I was just a staunch radio guy. I guess I am at the core, but an UWB radio guy, and that makes all the difference.

Marconi was one of the first few to play with UWB (I heard he ran out of matches and needed a spark to light his cigar?). He settled on perfecting channelized communication because that was easier, quicker, and suited the needs at the time, similar to how the MBOA approached things. However successful Marconi's approach was, in the long run it was just a temporary fix. Spectrum management relies on compatibility, not on coexistence. As Marconi illustrated, we can simply settle and choose to coexist in cages and live right next to one another, like in prison,

as long as the walls and boundaries are well defined. However, the walls themselves take up a lot of space, especially when building a very large structure. They soon become restrictive to growth and redefinition of space without major renovation. Everyone knows that free-range chickens are the best, moving around the yard in a kind of random direct-sequence ad-hoc mesh network, yet never really interfering with one another. It's as if each one has their own agenda yet gains strength by being part of the peer group. They coexist because they are compatible- they're friendly, they detect yet never interfere with one another. In his day, Marconi really was quite a terror and many deemed him to be un-cool, and even a danger. But, now that he's passed, we know better. Now people think he's cool (or was).

Bluetooth needs UWB to be cool. UWB is rad, and very much not-dead.

So there you have it, the challenge AND the opportunity.

Oh, and before I go, I wonder if there is any truth to the rumour that a UWB Global Adoption Conference is happening in Geneva next spring? If true, it could be the type of event that actually moves the industry forward.

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Wi-Fi Direct – a flash in the WPAN?

By Vince Holton



Stand back, everybody, the apple cart is in the process of being overturned again. In a move that some observers have suggested threatens Bluetooth's hold on the WPAN market, the Wi-Fi Alliance tells us it is developing a new version of its spec that will allow Wi-Fi devices to connect in a simpler way. The new specification, which the Wi-Fi Alliance says is 'nearing completion' (gestation period akin to '11n, guys?), will enable Wi-Fi devices to connect to one another without joining a traditional home, office, or hotspot network.

The Wi-Fi Alliance expects to begin certification for this new specification in mid-2010, well, I guess we will see, and products which achieve the certification will be designated Wi-Fi certified Wi-Fi Direct. The specification, previously code-named "Wi-Fi peer-to-peer," can apparently be implemented in any Wi-Fi device, including mobile phones, cameras, printers, notebook computers, plus human interface devices such as keyboards and headphones. Devices that have been certified to the new specification will also be able to create connections with Wi-Fi certified legacy

devices already in use. Devices will be able to make a one-to-one connection, or a group of several devices can connect simultaneously.

The spec is apparently aimed at consumer electronics and enterprise applications, provides management features for enterprise environments and includes WPA2 security. Devices that support the specification will be able to discover one another and advertise available services, and some commentators suggest that you will be able to do away with the need to use Wi-Fi routers in some places. Wi-Fi Direct devices will support typical Wi-Fi ranges and the same data rates as can be achieved with an infrastructure connection, according to the Wi-Fi Alliance, which plans to publish its peer-to-peer specification upon completion. Only Wi-Fi Alliance member companies will be able to certify devices to the new specification.

A view from the bridge

As I said at the top, some industry watchers say Wi-Fi Direct could pose a threat to the future of Bluetooth, and the Bluetooth SIG

has taken a fairly robust position. Exec director Mike Foley's full, official statement can be seen at the end of this story. It is lengthy, so needed a whole page. I suggest you skip forward and read that as it is kinda significant, and then come back here. Please.

I will continue, assuming that you have Others industry observers have been a little more forthright in their comments. It's appropriate to share some of their views with Incisor's readers.



Stephen Wood, up until recently the president of the WiMedia Alliance, and a technology strategist at Intel until his recent move into self-employment,

commented: "It is a normal behavior for companies/technologies to try to consume adjacent applications to expand their business. That's excellent for the stockholders of the company trying to expand, but it is not necessarily beneficial to the consumer. On the positive side, the competition will force Bluetooth to come to grips with their ease of use issues in order to compete. On the negative side, the Wi-Fi introduction will create greater customer confusion, interoperability issues, operational complexity and will accelerate spectrum congestion due to additional protocol overhead." Wood continued, "If this move were to be done for the benefit of consumers, one would see efforts to blend the Wi-Fi and Bluetooth organizations to harmonize and simplify the collected offering. If it is done to increase revenue for the Wi-Fi silicon manufacturers, I would expect to see competing claims of superiority and efforts to displace existing Bluetooth sockets by the Wi-Fi manufacturers. Regardless of who wins this contest, let's hope that the consumers get a device that is easy to use. It's a goal that both groups have found challenging to meet so far."



Technology strategist #2, Nick Hunn, a stalwart of the SRW industry, had plenty to say (who said 'nothing new there?').

"There's a lot of hot air been expelled over Wi-Fi Direct and its perceived threat to Bluetooth. A lot of it comes from →

PC industry pundits, who don't understand that their technology is sinking as it hits the iceberg of mobile telephony. Much of the debate is academic. Both are underlying wireless transports that just perform the mechanics of shifting data. Wi-Fi Direct and Bluetooth 3.0 both use the same underlying 802.11 standard, so there's likely to be no difference in throughput between them. Bluetooth 3.0 has some nice features, such as allowing concurrent ad-hoc connections and hotspot access, concurrent 802.11 and Bluetooth audio performance and ad-hoc security managed by the Bluetooth link itself. All of these are useful tools that help to provide an easier user experience. It may also have the edge in power consumption, as it only uses the inherently power hungry 802.11 technology when it is needed."

Hunn continued: "We won't know how these features compare until the first Wi-Fi Direct products appear. That may take a little longer than the press release implies, as I suspect there will be several vested interests trying to slide their IP into the spec, which will inevitably slow things down. Unless, of course, the Wi-Fi Alliance allows its members to launch pre- pre- Wi-Fi Direct products. At the end of the day, the current debate misses the point, which is that users just want to share data. They want a user interface that says "Send to a Friend". They don't care whether it's Bluetooth, Wi-Fi, 3G, LTE or (dare I say) UWB. As long as it's included in their monthly call plan, it's easy and it works."



Wi-Fi Direct means that Wi-Fi is invading territory that once was to be UWB's ballpark. Gary Anderson, CEO of Ultra-wideband company Uraxs, put it even more bluntly: "In the long run it will prove to be of no real threat, just a waste of time and resources. Wi-Fi is not meant to be a peer to peer technology because instead of economy of scale you get diminishing returns. I think Wi-Fi-Direct will prove to be a security, interference, and power management nightmare, if it ever materializes at all."

If there is a bush in the vicinity, Anderson is certainly not beating around it.



Meanwhile, Fiona Thomson, research director at IMS Research saw it like this: "I think Wi-Fi Direct is a neat idea but maybe a bit late in coming? Outside of the typical handset/headset use-

case I think transferring (small) files using Bluetooth is probably what Bluetooth is most commonly used for already - albeit a bit slow and probably used more by younger generations to transfer pictures, ring tones etc. Bluetooth high-speed should help with the speed issue and ensure it remains competitive/ahead of Wi-Fi Direct."

Thomson felt that there was an undercurrent behind the Wi-Fi Alliance's announcement. "Slightly controversially, it feels like the Wi-Fi guys are starting to do what the Bluetooth guys have been doing for a while - tweaking a technology to applications which it's not really been designed for." Thomson's final comment could bring a little comfort to the Bluetooth community. "My colleague Filomena Berardi has been following this more recently for her report 'Peer-to-Peer Wireless - Which High Speed Technology?'. I asked her thoughts and she said that while the new spec is adequate for data transfers, she's not sure the approach really fits the streaming (audio and video) application well. In addition, during the research many interviewees argued that the 802.11 infrastructure works very well for the purposes of LAN but for PAN applications, other technologies such as Bluetooth work better."

The sharks are circling

Whatever the technical merits and usability prospects are for Wi-Fi Direct, here at Incisor we believe that there is perhaps something more sinister going on. Of all of the wireless sectors that Incisor has followed, Wi-Fi is populated by the most aggressive and predatory gunslingers.

Even based on our limited technical understanding, it is quite clear that Wi-Fi Direct will not be the simple to use panacea that the Wi-Fi Alliance would like us to believe. But, there are a lot of powerful companies in the Wi-Fi sector that will doubtless throw all of their weight behind the trade and consumer PR campaign that we can expect to see rolled out over the coming months, and they will say that it is. There seems little question that the goal is to make Wi-Fi the predominant short-range wireless technology and no prisoners will be taken along the way.

Unconvinced? Well, look at what happened to Ultra-wideband. This (UWB)

is an extremely clever solution, and for moving large amounts of data about in WPAN applications, while using very small amounts of battery power to do so, it is unrivalled. Neither Bluetooth nor Wi-Fi comes close. This is why UWB was the partner of choice for the Bluetooth SIG to align with as its High Speed Bluetooth solution. It was publicly announced as such. But what happened? What happened is that the Wi-Fi proponents systematically stamped out UWB, using the financial clout of big-time Wi-Fi companies and the influence of their execs on various wireless technology alliances/SIGs and forums. Some will protest this was not the case, but many more quietly acknowledge that this was what happened.

But it doesn't stop there. It seems that the Wi-Fi companies are not satisfied with wiping out UWB, they want all of the available SRW business that there is. Wi-Fi, they say, can do any job that needs to be done by a short-range, WPAN technology. Are they (the Wi-Fi companies) looking to take on Bluetooth? Is it possible that Bluetooth could be threatened by Wi-Fi? Rather than being a partner to provide a high-speed data channel for Bluetooth in the Alternative MAC/PHY scenario, is Wi-Fi actually a viper in the nest? For what it is worth, I believe that Bluetooth is the technology for the WPAN, and 3 billion installed Bluetooth devices and the presence of the tech in the vast majority of handsets will mean that that continues to be the case.

Many will argue that Wi-Fi Direct's attempt on global SRW domination is built upon foundations of sand, and with plenty of justification. But this is to ignore the fact that exactly the same was true when Wi-Fi set out to displace Ultra-wideband.

So, there would seem to be interesting times ahead of us. As we said in the crummy pun headline, is Wi-Fi Direct a flash in the WPAN? We don't yet know. But we expect the push to establish Wi-Fi Direct to be relentless. And, with the Wi-Fi community's willingness to pre-release equipment to 'draft' specifications, how long will it be before we start seeing Wi-Fi Certified Wi-Fi Direct (Draft) products on retail shelves, confusing the heck out of consumers?

One thing is for sure ... We doubt this is the last time Incisor will be writing about Wi-Fi Direct.



Bluetooth SIG: official response to Wi-Fi Direct



The announcement of Wi-Fi Direct, from the Wi-Fi Alliance, has resulted in confusion in the wireless industry. Not too long ago, it was well understood that Wi-Fi was the best technology for wireless LAN (i.e. connecting a personal device to the Internet) and Bluetooth wireless technology was best suited for wireless PAN (i.e. connecting personal devices to each other). However, once 802.11 and Bluetooth radios both started appearing in a single device, such as a mobile phone or personal computer, the question quickly arose regarding how the 802.11 radio could be leveraged to enhance PAN scenarios. The answer to this question was the Bluetooth v3.0 + HS specification adopted this past April by the Bluetooth SIG. This specification defines how an 802.11 radio can be utilized in conjunction with a Bluetooth radio. The combination of the two radios results in a complete, power efficient system that utilizes the best features of each technology to deliver the personal area networking scenarios.

The Bluetooth v3.0 + HS specification does not utilize Wi-Fi. It utilizes 802.11 which is a specification published by the IEEE. Utilizing existing Bluetooth features, such as easy pairing and profiles, enables complete solutions that are useful and make sense for consumers familiar with the technology they have used over the years in the more than three billion Bluetooth products already in the market.

A Wi-Fi Direct connection is simply that: a network connection between two devices. Consider plugging a PC and printer into a switch using Ethernet cables and trying to print a picture. (Recall the original name of Wi-Fi was wireless Ethernet.) While the two devices will have network connectivity, and assuming there is IP infrastructure in place (DHCP, DNS, etc.) or they auto IP the same way, they will have the potential to communicate utilizing the IP protocol. Now all one has to do is install an IP port for the printer and install the driver. In the home environment, that isn't too bad because the consumer probably has the printer's driver and setting up the port once isn't overly burdensome. However, in the home the consumer most likely has an access point and would rather make the printer available to all PCs in the

house so one would most likely connect to the network via the access point instead of Wi-Fi Direct. When mobile, a driver most likely isn't available and even if it was, installing it to print once is overly burdensome for the consumer. Once the printer is installed on the PC and the driver loaded, the picture can then be printed. Similar ease-of-use limitations occur when any popular scenario is explored.

Conversely, two products implementing Bluetooth technology leverage standardized profiles. For the example above, one typically right clicks on the picture to be printed and selects "print" or "send to." The printer is then discovered and the picture prints without requiring additional drivers or software. Simple. Easy. Effective.

Clearly, there are multiple solutions available for IP service discovery. Any of these could be utilized to simplify the IP-based printing scenario described above. Unfortunately, having multiple service discovery solutions overly complicates the scenario for the consumer. It is highly unlikely that manufacturers will converge on one solution. Instead, the consumer will have to understand which solution their products implement and only purchase compatible ones. Thus the Wi-Fi Direct distinction will mean very little to the consumer. Instead, they will have to understand whether they have a UPnP, Bonjour, DLNA, SLP or fill-in-the-blank product. With a Bluetooth solution, the consumer simply needs to know they have Bluetooth enabled products.



Snippets

2009 Inaugural mHealth Summit

The 2009 mHealth (Mobile Health) Summit, organized by the Foundation for the National Institutes of Health (FNIH), took place in Washington D.C at the end of October. It brought together more than 800 public and private sector science, medical, policy and mobile technology experts to develop a new roadmap related to the integration of science and wireless solutions to improve public health delivery, particularly to underserved populations, in the U.S. and around the world.

Low energy wireless

ADT Security Services joins the Z-Wave Alliance

ADT Security Services. ADT, a unit of Tyco International and the largest provider of electronic security services throughout North America, has joined the Z-Wave Alliance. ADT's total security solutions based on Z-Wave technology include intrusion, fire protection, video systems and access control etc.

"We're thrilled to have the world's number one electronic security services provider, ADT, join the Z-Wave Alliance," said Raoul Wijgergangs, chairman of the Z-Wave Alliance. Besides ADT, other companies providing access control solutions in the Z-Wave ecosystem include Schlage, Black & Decker and Wayne-Dalton.

Texas Instruments, C.G. and Quanta Microsystems deliver complete RF4CE solution

Texas Instruments C.G. Development and Quanta Microsystems have announced a complete RF4CE development platform for advanced RF remote control applications. This development platform is based on TI's CC2530 IEEE 802.15.4 chipset, along with TI's ultra-low power MSP430 MCUs and related software stacks supporting ZigBee PRO and ZigBee RF4CE.

"With TI's latest RF4CE golden unit platform, we are pleased to deliver such a solid foundation for developing products matching customers' future requirements. Developers' ideas for user interface can be easily implemented with choices from TI's MSP430 product portfolio, which seamlessly connect with the CC2530 and communicate information to other systems through an RF4CE interface," said Desmond Chan, Asia marketing manager for Low-Power RF, Texas Instruments Hong Kong.

wi-fi / wlan news



Nokia losing share in Wi-Fi handset market

According to In-Stat, Nokia, the leading market share vendor for dual-mode Wi-Fi handsets, has seen its market lead slip significantly over the past year, reports In-Stat. In 2Q08, Nokia had over 50% market share. This has dropped well over 10 share points as of 2Q09. Over that same time period, Apple has significantly increased market share, as did RIM.

Wi-Fi handset shipments have increased significantly over the past several years. From 2007 to 2008, shipments increased by over 50%. This growth is a result from increased phone functionality, falling price points, and carrier promotion.

"While the enterprise was the original smartphone/Wi-Fi handset market, Apple's iPhone has propelled consumer adoption," says Victoria Fodale, In-Stat analyst. "Wi-Fi's popularity as a compatible cellular technology is tied to its ability to improve the user experience and also help maintain the quality of the cellular network."

Recent research by In-Stat found the following:

- Wi-Fi/cellular handsets are driving hotspot usage. For example, AT&T recently announced that sixty percent of all AT&T Wi-Fi connections in the third quarter of 2009 were made from smart phones and other integrated devices.
- The potential for voice over Wi-Fi is gaining popularity, as cellular/Wi-Fi phones become more pervasive and consumer familiarity with VoIP increases.
- The Wi-Fi attach rate (percent of handsets with embedded Wi-Fi) will more than double over the next two years.
- There were 121 models of cellular/Wi-Fi handsets introduced in the first half of 2009, almost as many as were introduced in all of 2008.



If you want more detail, In-Stat's report "Wi-Fi in Mobile Phones: Dual Mode Becomes the In Thing", covers the worldwide market for Wi-Fi-enabled cellular handsets.

Wi-Fi still rules in consumer electronics network

As the number of connected consumer electronics devices continues to grow, getting the network to the device has become a challenge. Home network technologies such as coax and powerline are making inroads, but a report from ABI Research indicates that wireless connections will remain the dominant technology.

Connected consumer electronics devices are an important part of the emerging and quickly growing home media network. Consumers are becoming more comfortable with the idea of delivering audio and video content throughout the home, on a variety of devices. These devices include HDTVs, video game consoles, networked music receivers, and more. However, as these components are frequently scattered around the home, away from the router, wired connections are often not practical. As a result, ABI predicts that Wi-Fi connections in consumer electronics devices will rise from 113 million in 2008 to more than 285 million by 2012, predicts ABI.

"While many consumer electronics devices initially adopted Ethernet connections due to cost and potential wireless connectivity issues, Wi-Fi has become the dominant LAN connection type in several device categories," says digital home practice director Jason Blackwell.

As bandwidth-intensive applications such as video streaming have become more commonplace, Wi-Fi has evolved with higher speed technologies such as 802.11n. ABI forecasts that Ethernet will remain a strong second place technology, as it is often integrated in the silicon and does not add a significant amount to the bill of materials costs.



Ruckus, AeroScout deliver Smart Wireless LAN asset location services

Ruckus Wireless has entered into a partnership with AeroScout, which builds Wi-Fi-based real-time location solutions (RTLS). The two companies are developing systems for customers looking to deploy an AeroScout solution in a Ruckus Wireless installations, where beamforming technology enables Wi-Fi connectivity over extended ranges. These locations include enterprise sites as well as hospitals and manufacturing facilities where Wi-Fi networks provide many services. These now include the real-time tracking of the location, status and condition of assets and people.

"Despite being a relatively young company, Ruckus Wireless is growing at a tremendous rate with the enterprise wireless LAN (WLAN) market representing nearly half of our revenue," said Bart Burstein, VP of Product Management for Ruckus Wireless. "More and more we're working with customers who want and need a reliable Smart Location Solution to track expensive assets and manage valuable resources and thanks to the extensive compatibility and interoperability testing between Ruckus and AeroScout, we are able to deliver just that."

Ruckus Wireless now integrates an RTLS solution into its ZoneDirector Smart WLAN controller, interoperating with the AeroScout Engine, which enables real-time location determination. AeroScout uses a tag beaconing method that reduces network traffic and conserves tag battery life. A joint Ruckus and AeroScout solution can apparently track and manage tens of thousands of tagged assets with negligible impact on the wireless network. The solution enables communication without the tag needing to go through a complete 802.11 association with an access point, helping an AeroScout tag battery last up to eight years.

low energy wireless news



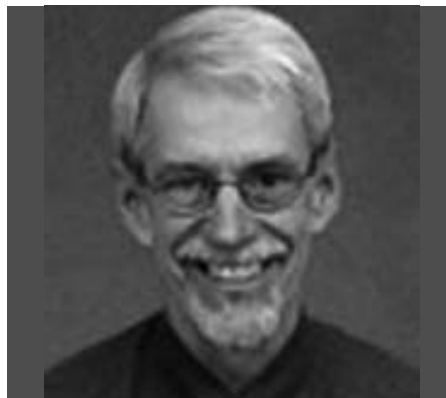
ZigBee, Continua to define standards for personal health solutions

Healthcare is certainly a big deal topic for the low energy wireless industry today. A while back, both the Bluetooth SIG and the ZigBee Alliance told us they were working with the Continua Health Alliance. Now the ZigBee Alliance has announced a liaison agreement to expand the relationship with Continua and to collaborate further on defining interoperable communication standards for personal health solutions on low-power local area networks (LAN). These solutions will allow individuals to be checked remotely by families and healthcare providers with an array of medical and activity devices that increase individual independence, improve safety and personalize health and wellness management.

The goal is apparently to expand the ZigBee Health Care public application profile to define and certify capabilities specific to personal health solutions. ZigBee Health Care was selected in June by Continua for use in professional settings, homes, recreation centers and large campuses and will be included in an upcoming version of Continua Health Alliance's Design Guidelines for interoperable personal health solutions.

"The urgency inherent in patient monitoring calls for a very robust, multi-path wireless technology that doesn't bottleneck important data," said Rick Crossen, Continua Health Alliance president and chairman of the board of directors.

"Continua is a great partner to work with on utilizing ZigBee Health Care for telehealth solutions," said Bob Heile, chairman of the ZigBee Alliance. "Continua's members represent a knowledgeable community of technology, medical device and health care industry leaders who can help us deliver independence, safety and improved health to patients everywhere, every day."



\$500M in grants for ZigBee companies

A number of companies developing ZigBee technology have been selected to receive funding for their Smart Grid efforts as part of the United States American Reinvestment and Recovery Act. The companies concerned received a total of \$478,823,415, representing a total investment of more than \$1.2 billion in smart grid programs with ZigBee Smart Energy as the standard for home area networks.

Individual ZigBee Alliance members received between \$4 million and \$200 million dollars for their Smart Grid projects. Members earning grants include: CenterPoint Energy, Baltimore Gas and Electric, Reliant Energy Retail Services, San Diego Gas and Electric, Honeywell International and Whirlpool. Grants were awarded for a variety of ZigBee Smart Energy products and services, including large smart meter programs covering 4.7 million meters, installation of a variety of devices such as programmable communicating thermostats, in-home displays and load controllers, plus expediting the development of smart appliances.

The ZigBee Smart Energy profile was selected by the U.S. Department of Energy and the National Institute of Standards and Technology (NIST) as an initial interoperable standard for HAN devices for the Smart Grid.

"ZigBee Alliance members have been taking an active role in developing the Smart Grid for years and these grants are recognition for our members' leadership on this important initiative," said Bob Heile, chairman of the ZigBee Alliance. "With ZigBee Smart Energy's position in the marketplace and its role as an initial interoperable standard by NIST for the critical home area network piece of the Smart Grid, we expect that those utilities and product manufacturers sitting on the sidelines will adopt ZigBee."

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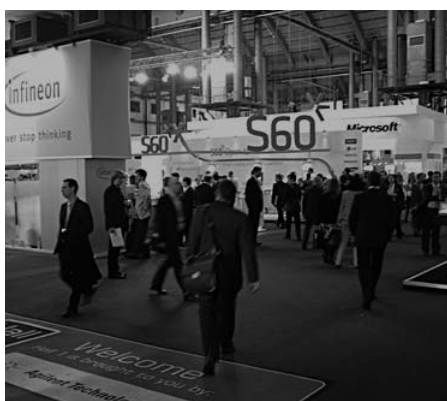
[Anders Edlund of the Bluetooth SIG - Bluetooth and UWB combined](#)

[Robin Heydon, CSR - Bluetooth & UWB - The semiconductor company perspective](#)

[Motorola's Steve Deutscher examines High Speed Bluetooth mobile concepts](#)

[Motorola video - Jordan's morning](#)

events



| DATE | EVENT | LOCATION | NOTES | LINK |
|------------------|--|--|---|---|
| Nov 17 - 18 2009 | Bluetooth Evolution & Wireless Co-existence Conference | Hilton London Paddington Hotel, London | Third annual Bluetooth & Wireless Evolution Conference & Expo | http://www.imsconferences.com/ |
| Nov 19 2009 | 2nd International Bluetooth low energy conference | Presidential Plaza Hotel, Beijing, China | - | www.bluetooth.org |
| 2010 | | | | |
| Jan 7 - 10 2010 | 2010 International Consumer Electronics Show (CES) | Las Vegas, Nevada, USA | - | www.cesweb.org |
| Feb 15 - 18 2010 | Mobile World Congress 2010 | Barcelona, Spain | - | http://www.mobileworldcongress.com/index.htm |
| Mar 22 - 25 2010 | International CTIA Wireless 2010 | Las Vegas, Nevada, USA | - | http://www.ctia.org/conventions_events/wireless/ |
| April 1 2010 | Connected Home | Houten, The Netherlands | - | http://www.connectedhomeevent.eu/uk_index.html |

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