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NFC REVIEW – THE STATE OF THE NFC NATION

PLUS | THE WORLD'S LARGEST PUSH-TO-TALK SYSTEM
VIDEO: WEIGHTLESS SIG HERALDS FIRST PLENARY MEETING
VIDEO: FAREWELL TO MIKE FOLEY – SIG LUMINARIES SPEAK

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touching times...

NFC has been around us for many, years. Periodically we look at it, and regularly people postulate that 2008 or 2009 or 2010 or 2011 or, just maybe, 2012 is the year of NFC.

When NFC was taken into both the Bluetooth and Wi-Fi specs as a quick pairing mechanism - virtual touching, in fact - many thought that that was the accelerator to success. However, and somewhat surprisingly to me at least, that didn't light the blue touch paper.

Then there was/is contactless payment – another potential catapult to superstardom. But that application has been fraught with complications relating to banking systems, security etc. Some say, and they are probably right, that had the cellphone companies gotten behind NFC, then the widespread availability of a mobile platform to work with would have been the catalyst. But no, only Nokia put any serious effort into putting NFC Into handsets that you could actually buy, and look where that got them.... Ahem.

But, that could all be about to change. It hurts to admit that it might be as a result of one company, when that one company is Apple. However, the rumours are that the iPhone 5 will have NFC on board, and that that might just give NFC the same boost that Apple has given Bluetooth low energy by putting it into the iPhone 4S.

We thought we ought to look at NFC again, and so we've worked with the NFC Forum to provide Incisor readers with an update as to what is really happening with NFC.

And, staying with the 'touching times' theme..... In last month's issue I reported from the Bluetooth SIG's annual All Hands Meeting. I mentioned that one of the key talking points was the departure of Mike Foley, the SIG's exec director for the last 8 years. I promised a farewell video interview with Mike, and that movie is available to watch from this issue of Incisor – see page 6.

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

INCISOR.TV FOCUS THIS MONTH

Important developments for the Weightless white space standard at the SIG's first plenary meeting.
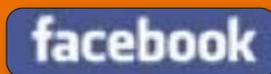
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Cambridge Consultants recognised for medical product design

Technology design and development firm Cambridge Consultants is a finalist in the 2012 Medical Design Excellence Awards (MDEA) for its collaboration with pharmaceutical company Novartis on the design of the Podhaler device. The MDEA awards programme recognises contributions and advances in the design of medical products.

The inhaler uses a dry powder form of antibiotic to treat Pseudomonas aeruginosa lung infections in cystic fibrosis (CF) patients. CF is a life-threatening genetic disease that affects the internal organs, especially the lungs and digestive system, by clogging them with thick mucus – making it hard to breathe and digest food. It affects 70,000 people worldwide, and 90% of deaths caused by the disease are due to a progressive decline in lung function – often made worse by chronic Pseudomonas aeruginosa infection.

Inhaled use of antibiotics is the traditional method of treating the infection, using a nebuliser to target the lungs where the drugs are needed. The inhaler in contention for the MDEA awards is a portable capsule based dry powder inhaler, which is mechanical and does not require a power source. Designed to have low airflow resistance to allow patients to generate high air flow rates, it does not need extensive cleaning and disinfection, unlike traditional nebulisers.

Matthew Allen, Programme Director, Medical Technology at Cambridge Consultants told Incisor, "We are honoured that our contributions to the Podhaler device have been recognised in the MDEA programme. To be named as a supplier to a finalist in what are regarded as the 'Oscars' of the medical world is a massive endorsement of the skills of our world-leading engineers."

## Smartphone consumers want smart portable and wireless accessories

As smartphone hardware becomes commoditized, consumers find more value in smart accessories that are wireless, portable and compatible, say researchers at Strategy Analytics. They also suggest that smart accessories can help to provide differentiation, and potentially extend the life-cycle of mobile devices. A recent Strategy Analytics report evaluated the results of focus group interviews with smartphone owners in the US and UK regarding consumer interest in 27 different smart accessories, across different categories, including music, expandability, fitness & lifestyle, docks, controls and alerts.

Strategy Analytics observes that smart accessories provide a great way for OEMs, operators and retailers to make additional gains in the market. Of all the accessories evaluated, participants were most intrigued by the Nokia Play 360, Jawbone Up and HTC Rhyme Dock.
The tests carried out found that in order to provide value, smart accessories should:

- Be designed with specific use cases in mind, providing an enhanced user experience
- Offer an experience as wireless and portable as a smartphone or tablet already provides. Consumers like the convenience of wireless accessories, without the need to plug in for power or use, making the accessory portable as well
- Work compatibly with multiple devices (not just smartphones) and across multiple operating systems, because consumers are wary of device obsolescence.

Taryn Tulay, analyst in the Strategy Analytics Wireless Device Lab told Incisor, "Consumers want smart accessories that connect using standard protocols such as Bluetooth, Wi-Fi, Micro-USB or 3.5mm jacks, and that will work with devices of multiple shapes and sizes.
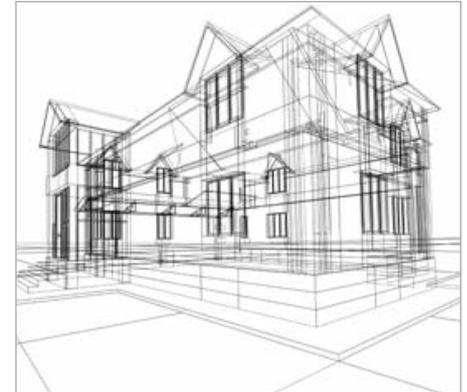
Additionally, compatibility with multiple devices beyond the smartphone and with multiple operating systems is essential."

Increasing competition between ZigBee and Bluetooth

ABI Research is predicting that the IEEE 802.15.4 IC market, often referred to as wireless sensor networks (WSN), will expand to over 850 million units per annum by 2016, experiencing a compound annual growth rate of over 60% from 2010 to 2016. While growth is led by advanced metering infrastructure (AMI) equipment, significant uptake is expected in home automation, home entertainment, medical, and others.

ZigBee is the most widely-used IEEE 802.15.4 technology, accounting for 40% of total shipments in 2012 and growing to over 50% by 2015. ABI's Peter Cooney told Incisor, "Many IC suppliers have seen the potential of ZigBee and other 802.15.4 technologies and are helping drive new application solutions including the latest ZigBee Light Link standard. No doubt these vendors see the potential of adding ZigBee to their arsenal of wireless connectivity technologies alongside Bluetooth, Wi-Fi, NFC, and others."

Cooney suggested that as ZigBee grows in its key markets and expands into new areas it will see increasing competition as other technologies also continue to develop. One technology that will compete with ZigBee, particularly in the home environment, he said, is Bluetooth. "ZigBee offers many advantages for smart home applications including large network sizes, low power consumption, and low cost solutions, however the ubiquity of Bluetooth in the smartphone and consumer desire to use this device as the home hub/controller will drive use of Bluetooth Smart and Smart Ready devices in the smart home environment, making it a strong competitor to ZigBee in this space."

news
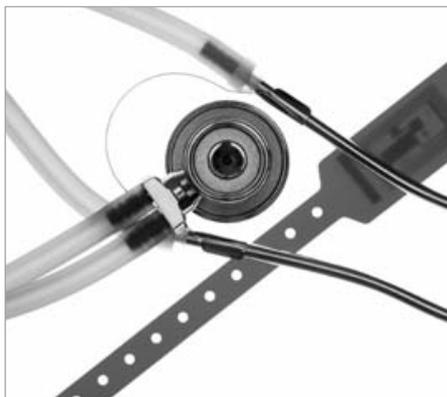
Consumers, not telehealth patients, to drive adoption of wireless in medical

IMS Research is suggesting that medical devices utilized by the consumer to self-monitor their health, rather than those used in managed telehealth systems, will provide the largest opportunity for wireless technologies such as Bluetooth low energy and ANT+ over the next five years. IMS forecasts that more than 50 million wireless health monitoring devices will ship for consumer monitoring applications during the next five years, with a smaller number being used in managed telehealth systems.

According to IMS Research's latest report, Wireless Opportunities in Health and Wellness Monitoring, medical devices bought by the consumer to self-monitor their health will account for more than 80 percent of all wireless-enabled consumer medical devices in 2016. The demand for self-monitoring one's health is growing much faster than that for telehealth implementation. Even without healthcare systems that are adapted for this, consumers want to be able to monitor and manage their own health at home. However, the proportion of wireless devices used in managed telehealth programs is forecast to increase from 5 percent in 2011, to 20 percent in 2016 as telehealth deployment grows.

Lisa Arrowsmith, a senior analyst at IMS Research told Incisor, "Due to the relatively slow deployment of managed telehealth systems, which is in part due to a reluctance from health providers to move past trials, issues with reimbursement, and stringent regulations related to the use and storage of medical data, medical devices used by the consumer to independently monitor their health will provide the biggest uptake of wireless technology in consumer health devices over the next five years."

Location-Based Advertising will account for 28.3 percent of mobile ad spend in 2016

According to a new research report from the analyst firm Berg Insight, the total value of the global real-time mobile location-based advertising and marketing (LBA) market will grow from € 192 million in 2011 at a compound annual growth rate (CAGR) of 91 percent to € 4.9 billion in 2016. This, says Berg, will then correspond to 28.3 percent of all mobile advertising and marketing. This means that location-based advertising and marketing will represent more than 4 percent of digital advertising, or 1 percent of the total global ad spend for all media.

The report predicts a rapid uptake of location-targeting among mobile advertisers after having remained on an experimental stage for several years. Rickard Andersson, a telecom analyst at Berg Insight told Incisor, "The growing attach rates of location technologies in handsets and the increasing consumer acceptance of location-based services in general are the main game changers. Targeting by location in combination with other contextual and behavioural segmentation greatly enhances the relevance of mobile advertising." He added that SMS, mobile search and coupons have emerged as important high-volume LBA formats.

The LBA value chain is still forming and there are a large number of players involved in the ecosystem. Since the value chain is fragmented and the industry has not yet reached maturity, many different roles are involved. Major digital and telecom players such as Google, Apple and Nokia are competing to gain market share in the space alongside mobile operators, LBS players, location-aware apps and media, mobile coupon providers, mobile search companies and proximity marketing providers.

First DECT CAT-iq 2.0 VoIP base station certified

The DECT Forum tells us that the first VoIP base station - the IB 200 from Swissvoice – has passed the CAT-iq 2.0 certification program.

CAT-iq 2.0 is the DECT Forum-driven voice centric profile for next generation DECT technology. CAT-iq 2.0 enables HD voice, multiple lines, three party conferencing, call transfer and phonebook synchronization amongst a variety of new features.

CAT-iq 2.0 is the Forum's push into the home gateway, giving it native IP connectivity and making it a viable broadband wireless home networking technology. The CAT-iq certification program implies that interoperability between manufacturers of different handsets is guaranteed when used on CAT-iq 2.0 certified base stations or home gateways.

Daniel Hartnett, Chairman of the CAT-iq Working Group within the DECT Forum told Incisor, "Certifying the first CAT-iq 2.0 base station from Swissvoice is an important milestone for DECT Forum and the industry. Together with a growing number of certified handsets, the eco-system of products necessary to ensure a successful launch is in place and carriers and system vendors are now tailoring their offerings to take advantage of this dynamic."

"The whole fixed network industry is switching to HD voice and a new generation of telephony. Swissvoice is playing a pioneering role in this move by offering a fully interoperable solution, both for the handset and now for the base side", added Sébastien De La Bastie, Managing Director of Swissvoice.

The solution for texting drivers

We all do it from time to time – go on, you know you do – but accessing e-mails or SMS messages while driving is dangerous and many countries are taking legislative measures to ban the use of mobile phones in the car.

The in-car communications addicts at Parrot have introduced TextFriendly, which is an interactive service allowing drivers to listen to or compose e-mails and text messages completely by voice recognition when using a Parrot hands-free kit or system. The service uses advanced technology to convert text into voice and voice into text.

Users just need to activate an account at www.textfriendlyclient.com and save the number of the vocal server in their phonebook so that, once the synchronization is complete, the Parrot hands-free system dials it automatically. The user then needs to say the desired action (listen, compose or answer e-mails or text messages).

TextFriendly is compatible with Parrot CK, Parrot MKi and Parrot ASTEROID ranges of installed hands-free systems, as well as with the Parrot MINIKIT+ plug&play hands-free kit.
The service works with the Android, iOS, BlackBerry and Symbian operating systems, and with all brands of mobile phones. Parrot admits that some features may not be available depending on which

mobile phone is being used, and points out that SMS reading is handled by an independent separate software application that requires an installation on the Smartphone.

One other small, but important, point to mention, is that the TextFriendly service is a chargeable, subscription based app, though users do get a one month free trial.

Incisor.TV video interview
Farewell to Foley

In last month's issue we reported on the Bluetooth SIG's 2012 All Hands member meeting, which took place in Vancouver, Canada during April.

In our report we covered the fact that Mike Foley, the SIG's executive director for the last 8 years – two consecutive terms – was stepping down from his role.

Mike has remained with the SIG until his replacement has been found. While, as we go to press, we do not know who that replacement is yet, we do know that Mike's time at the SIG's Kirkland office near Seattle comes to an end as we head into June.

Last month we promised our readers an exclusive, farewell video interview with Mike. And now we are delivering on our promise.

This is far from the first time Mike has appeared in one of our movies. In fact, as our movie archive heads towards it's 200th listing, it is true to say that Mike has appeared in many of them, and has been the instigator behind many of the co-operative marketing and promotional programmes that Incisor has run alongside the Bluetooth SIG. Remember our BiteBack movies, when we interviewed consumers all over the world about how they use, and feel about Bluetooth? Incisor filmed these events with the SIG in London, Seattle, Soeul and Malmo, Sweden. Mike signed-off that project, as he did many of our other joint marketing projects around CES, All Hands Meetings, training movies for the SIG's technical staff – heck, we even made a movie about motor boats together, but that was very much a personal project!

Incisor.TV and Mike Foley travelled the world together with a joint goal of trailblazing and evangelising for Bluetooth.You can view many of the movies we made together by working your way through more than 100 uploads at the Incisor.TV video archive.

When it came to making this final interview, we agreed that this was not about saying 'Mike Foley is a great guy' (ok, that was part of it....), but also about celebrating the technology's achievements during Mike's time with the SIG. Facts such as the growth from 2,500 members when Mike took over in 2004, to more than 16,000 members today. And the growth in Bluetooth device shipments – more than 5 million Bluetooth devices now ship every day.
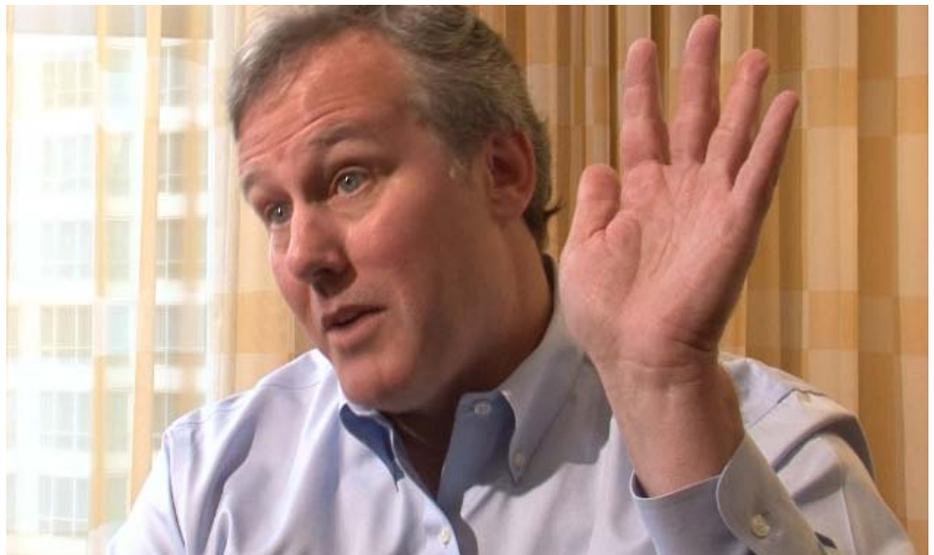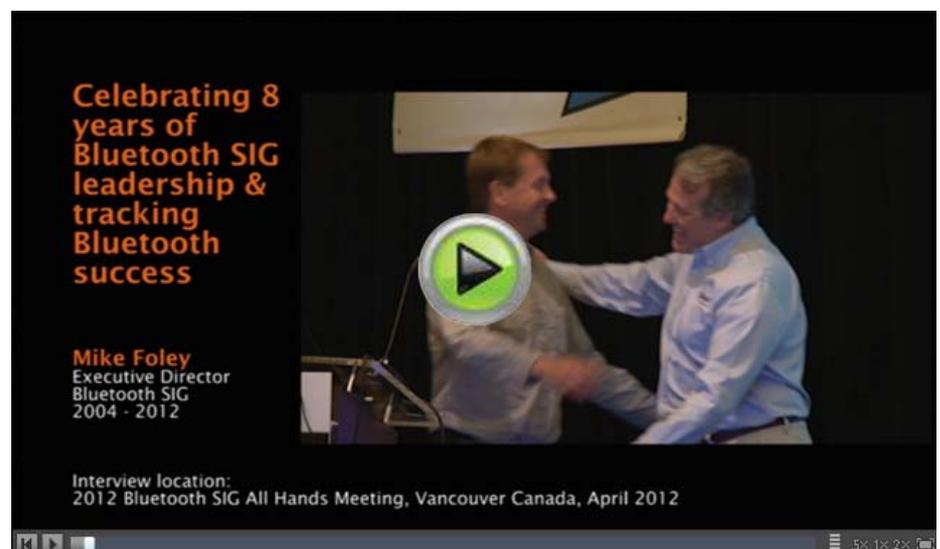
We also wanted to pull in some of the most important people who have worked with Mike during his time as figurehead for the SIG. It wasn't tough – they came willingly and no cajoling was necessary. Each remarked that one of the defining factors behind Bluetooth's success was the situation whereby competing companies pulled together to make Bluetooth a success. A lot of that has been about fostering an environment where people (mostly!) get on, and enjoy working together. Incisor.TV interviewed Őrjan Johansson, Ericsson's first SIG board of directors member, James Collier, co-founder and CTO of CSR, Anders Edlund, the SIG's first marketing director, David Bean, CEO of Frontline, a company that has worked on Bluetooth test systems and test equipment for 10+ years, and with two

guys that are widely credited with having underpinned Bluetooth's early success – Intel's Jim Kardach and Simon Ellis. Watch these guys talk about working with Mike, and Bluetooth's history, and you can't deny the genuine friendship that existed and exists today between these, the original architects of Bluetooth's roadmap to success.

So, this movie is a little, just a little, bit sentimental. However, it also underlines how hard it will be to fill Mike's shoes. The Bluetooth SIG board of directors surely must recognise that, and it will be fascinating to see how things pan (sorry....) out.

Meanwhile, watch the movie, and let's all wish Mike Foley well in his next venture.

Celebrating 8 years of Bluetooth SIG leadership & tracking Bluetooth success

Mike Foley
Executive Director
Bluetooth SIG
2004 - 2012

Interview location:
2012 Bluetooth SIG All Hands Meeting, Vancouver Canada, April 2012

![Cambridge Consultants logo]

The world's largest push-to-talk system

By Richard Traherne, Head of Wireless, Cambridge Consultants

Richard Traherne, Cambridge Consultants.

> " at the push of a button, a user can communicate with someone on the other side of the planet, with a maximum connection delay of less than a second "

With one of the largest independent wireless development teams, Cambridge Consultants has a pedigree of creating 'world firsts' in wireless communications. In this edition of Incisor, we look at the latest milestone in the development of a global system to help soldiers communicate at the touch of a button – even in the world's most remote combat zones.

A remarkable achievement has been accomplished in the world of wireless. It represents a key step in the development of the world's largest push-to-talk (PTT) radio system – the US Department of Defense (DoD) Distributed Tactical Communications System (DTCS).

DTCS is a 'netted' group call system that allows listeners in designated 'user nets' to communicate together, as well as making other contextual information about the users available across the network. Based on the Iridium satellite network, DTCS is a 'one-to-many' communication system that provides what is known as over-the-horizon, beyond-line-of-sight and on-the-move tactical networks. Lightweight handheld PTT radios provide soldiers in remote combat zones or disaster areas with the ability to exchange mission-critical data with command centres across the globe, at the touch of a button.

In itself, the group call functionality is not too dissimilar to that of some existing cellular and private radio PTT solutions. However, what sets DTCS apart is the global nature of the system – that, at the push of a button, a user can communicate with someone on the other side of the planet, with a maximum connection delay of less than a second! In addition, DTCS provides a range of advanced features not seen in commercial systems, which relate to the military application.

In this way, DTCS enables soldiers in isolated areas to communicate without the need for ground infrastructure – in locations where they can't pick up terrestrial communications, or even a geostationary satellite signal unless they move to higher ground. Whereas PTT

functionality has limited appeal in mainstream markets such as cellular, it is the system of choice for many military and professional users who need to be able to communicate in short bursts without onerous call set-up delay. The outstanding scalability and mobility of DTCS provides tactical and operational benefits that have the potential to completely transform the way these types of user communities operate.

A recent milestone was the highly successful conclusion to testing of the latest phase of DTCS capability. Testing was undertaken across multiple sites around the world that verified that the DTCS system design is meeting the rigorous performance targets that have been set. The programme, sponsored by the DoD, has involved a wide range of organisations spread across the globe, including Iridium, Boeing and Cambridge Consultants.

Cambridge Consultants has led or contributed to key aspects of the overall system design, as well as developing a variety of the system components. Using its unique knowledge of the Iridium system, as well as commercial PTT services, Cambridge Consultants has developed the radio transceivers used in the DTCS handheld radios, as well as gateway infrastructure to support the DTCS service. Both of these elements are critical to the

success of the system, with the gateway element ultimately targeting a 'five nines' (99.999%) availability rating, to ensure soldiers have service when they need it most.

In addition, the system design has needed to deal with the significant challenge of providing an ad-hoc PTT service that operates over a satellite network. Whilst the use of a satellite constellation enables global reach, it introduces an inevitable network latency that opposes the desire for rapid set-up time. Therefore, the technology developed by Cambridge Consultants includes advanced software radio functionality that provides multiple receiver capability and network protocol techniques for rapid synchronisation to Iridium satellites to enhance PTT connection speed and call quality. In addition, new encrypted bearer channels support encrypted communication within groups.

Having passed this successful milestone, the DTCS programme is now set for even bigger and better things. Already, new capabilities are on the drawing board that have the potential to enhance existing capabilities and provide new services. With a global infrastructure, it is true to say that the world really is your oyster.

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Koichi Tagawa, NFC Forum.

NFC: Cultivating a Global Market

By Koichi Tagawa, NFC Forum chairman

It's a feeling every gardener knows. You invest considerable effort cultivating the soil, applying the right nutrients, planting seeds, watering, and weeding – and then, seemingly all at once, a barren plot of earth begins to erupt with healthy green sprouts.

It's a feeling we in the NFC ecosystem are experiencing a lot lately. The momentum behind NFC is growing steadily, and the supporting data provides compelling proof:

A sharp increase in the availability and sale of NFC-enabled smartphones

Analyst firm Berg Insight recently reported that global sales of NFC-enabled handsets increased tenfold in 2011 to 30 million units. The same report states that NFC handset shipments are growing at a compound annual rate of 87.8% and forecasts that shipments will reach 700 million units in 2016. The proliferation of NFC-enabled devices is a robust catalyst for market expansion. Additionally, according to a recent report from ABI Research, smart tags and marketing posters will be the areas of largest growth outside of mobile payment systems. The report says that this area of the NFC market could be as large as $298 million by 2016.

Strong growth in other NFC-enabled devices

NFC technology is reaching more than phones. It is also being built into a broad range of devices coming to market, including tablet computers, e-readers, gaming controllers, smart utility meters, reader/writer devices, trackpads, and taxi payment devices. This growth confirms not only growing interest in NFC, but also the healthy diversity of both consumer and business applications for the technology. Deloitte predicts there will be 300 million NFC-enabled devices (including smartphones) sold in 2013.

More commercial rollouts by major players

In the past year alone, several joint ventures formed by leading device manufacturers, financial services providers, mobile carriers, retailers, and others have launched commercial NFC solutions throughout the world. These initiatives are enabling hundreds of thousands of consumers to take advantage of NFC's power and ease of use. For example, just a few months after launching a limited rollout of its NFC fare payment service, the third-largest public transit system in the United States expanded the service and is now processing more than 10,000 NFC transactions per month.

Growing NFC Forum membership

The NFC Forum continues to add new members across all segments of the ecosystem – from global giants to startup solution developers. Over the past 15 months, membership has grown by 30 percent. Barclaycard joined as a Sponsor member (our highest level), while Google, Dentsu, and Sequent Software joined as Principal members. CSR and Intel upgraded their membership to the Principal and Sponsor levels, respectively, and dozens of other organizations signed up as Associate, Implementer, and Non-Profit members. Total membership in the NFC Forum now exceeds 170 organizations around the world.

Cultivating global adoption

For those of us who have been actively advancing the commercial adoption of NFC technology for more than half a decade, these measures of progress are more than just welcome news; they are the outcome of a concerted effort across several key fronts, including

specification development, compliance, market education, and global partnerships.

Specification development

In the past nine months, the NFC Forum published its 16th and 17th specifications: the Simple NDEF Exchange Protocol (SNEP), an application-level protocol suitable for sending or receiving messages between two NFC-enabled devices; and the NFC Controller Interface (NCI) candidate specification (final release will occur this summer, pending feedback from NFC Forum members and other standards organizations). Both specifications are regarded as essential to enabling the broadest range of potential NFC applications. Specifications work continues, with emphasis on completing the RF Analog Specification, and extension of Peer-to-Peer Mode and Connection Handover.

In addition, potential new technical work streams include:
- An introduction of ISO/IEC 15693 VCD mode technology into NFC Forum specifications
- Integration of Active Communication Mode as defined by ISO/IEC 18092
- Hashing Algorithms for Signature RTD
- Evaluation of wireless charging.

NFC Forum N-Mark

The NFC Forum has created the N-Mark as the global symbol and trademark representing the NFC brand for education and awareness-building, as a touchpoint for NFC tags and NFC-enabled devices, and as an indicator of NFC functionality in software. A consumer-facing symbol, the N-Mark is free to use and available for download from the NFC Forum website.

Compliance and certification

Because global interoperability is vital to the widespread adoption of NFC technology, it is key to the mission of the NFC Forum. The Forum has worked assiduously to advance the global interoperability of NFC solutions by supporting programs that promote compliance with NFC Forum specifications. At the top of the list is the NFC Forum Certification Program, which provides device manufacturers with a means of establishing that their products conform to the NFC Forum's published specifications. Sony Corporation recently became the first company to have a device -- the Sony RC-S380 reader/writer -- certified through the Program, earning the right to display the NFC Forum Certification Mark. Other device makers are expected to follow suit.

In addition, the NFC Forum hosts several plugfest events per year around the world. Designed to promote the interoperability of NFC Forum implementations by providing Forum members an opportunity to verify the level of interaction of their own implementation with other NFC Forum implementations, plugfests offer members a safe environment in which to demonstrate how their devices will work in a real-world setting. The Forum has increased the frequency of these events, as they have proven to be very popular, often attracting dozens of device manufacturers.

Partnerships and liaisons

NFC is a horizontal technology that spans continents, industries, markets, and applications. To further its adoption, the NFC Forum has reached out to form alliances and work on joint projects with other industry and technology standards organizations whose activities and interests complement our work. To date, our alliance partners include: the American Public Transit Association (APTA), the Asia Pacific Smart Card Association (APSCA), Continua Health Alliance, EMVCo, ETSI, GlobalPlatform, GSMA, Mobey Forum, the National Retail Federation (NRF), the Open Mobile Alliance (OMA), and the Smart Card Alliance. Recent collaborative efforts include our member demonstrations at NRF's Annual Convention and Expo, and a partnership with the Smart Card Alliance to develop and produce the NFC Solutions Summit, held in May in Burlingame, CA. Both of these events attracted hundreds of attendees who were interested in learning more about NFC.

Through these and other efforts, we have created the optimum growing environment for a remarkably broad array of both familiar and innovative NFC solutions.

Growing a field of dreams

NFC has proven to be a remarkably versatile technology for both business and consumer applications. This is the result of three factors: its ability to operate in three distinct modes (read/write, peer-to-peer, and card emulation); its intuitive ease of use; and its focus on global interoperability. While high-profile mobile payment solutions have garnered the most media attention, the use cases for NFC technology go far beyond the pay-with-a-touch-of-your-phone paradigm.

Many of the most innovative NFC applications take advantage of inexpensive NFC tags, which can be embedded in virtually any material – from transit advertising posters to retail shelf tags to prescription medicine jars. The tags become activated when brought in contact with an NFC-enabled device. For example, a consumer can tap an N-Mark

on a poster advertising a new movie and instantly view the film trailer or get a discounted ticket offer. It's simpler to use than QR or bar codes, and it supports unlimited informational and promotional opportunities across every vertical industry.

Other applications benefit from NFC in peer-to-peer mode, in which two NFC-enabled devices communicate with each other. For example, social media and music-sharing applications enable people with NFC-enabled devices to exchange contact information and songs simply by touching the devices together.

Other non-payment NFC applications that have been, or soon will be, commercially deployed include:
- A sleep monitoring solution that tracks and reports a user's sleep activity to help diagnose and treat sleep disorders;
- One-touch setup of Wi-Fi and Bluetooth. NFC is able to replace the pairing of Bluetooth-enabled devices, or the configuration of a Wi-Fi network through PINs and keys, by simply touching the two devices to be paired or connected to the network, or by touching the device to a tag;
- A solution that lets patients check in for their doctor appointments with a touch of their NFC-enabled phones;
- New mobile games that unlock new levels or enable play by touching phones;
- An NFC-enabled utility meter that provides information and services to users and remote workers via their smartphones;
- NFC tags that monitor and track temperature-sensitive shipments in transit; and
- Remote workforce audit and control solutions that use NFC tags to record mobile workers' hours and provide service instructions.

These and many other NFC-enabled solutions are making life easier and more convenient for consumers while enabling businesses to deliver greater value to their valued customers.

Planning for tomorrow's harvest

As more commercial NFC solutions come to market, the work of the NFC Forum is evolving to meet changing needs. In addition to the technical developments mentioned above, our plans include work in the following areas:

More application documents

In December of 2011, we published our first application document in partnership with the Bluetooth Special Interest Group (SIG), the trade association responsible for the development, promotion and protection of the Bluetooth

specification. It provides developers with examples of how to implement Bluetooth Secure Simple Pairing (SSP) using NFC to take maximum advantage of both technologies when they are present in the same device. Additional application documents are under way and will be published soon.

More vertical industry support

The maturity of NFC technology is leading the NFC Forum to increase its focus on furthering NFC adoption in key vertical markets through resource-sharing, education, and alliance-building.

More market education and support

The NFC Forum Ecosystem Committee is busy trying to meet market demand for NFC education by hosting our

Solutions Showcase, and partnering on events such as the NFC Forum & WIMA Global Competition, 2012. The Competition was created to recognize the development and deployment of innovative and exemplary NFC solutions around the world. This year's competition attracted three times as many entries as the previous contest in 2010, showcasing the tremendous growth and interest in NFC implementations. Winners were announced in April at WIMA in Monaco.

Growing with experience

As these developments attest, the state of NFC is strong and vibrant. As more solutions find their way into the hands of more consumers, we expect this growth, not only to accelerate, but also to proliferate in new and exciting ways.

Koichi Tagawa is the General Manager of Global Standards and Industry Relations Department at Sony that is in charge of technology standards and technology industry relations of the FeliCa Business. Since 2002, he has supported the popularization of NFC and FeliCa from the standardization point of view. He actively contributed to the establishment of the NFC Forum, holding the position of Vice-Chairman from the start of the Forum in 2004 until becoming Chairman in September 2008. He continues to contribute to the enhancement of the NFC ecosystem throughout the contactless application industry.

Incisor interview

Is nfc coming of age?

Vince Holton talks to Debbie Arnold,
director, NFC Forum

Debbie Arnold, NFC Forum.

All indications are that NFC is finally coming of age. In the April issue of Incisor we quoted research from Berg Insight that reported that global sales of handsets featuring Near Field Communication (NFC) increased ten-fold in 2011 to 30 million units. NFC technology for short range wireless point-to-point communication reached a breakthrough in 2011 when several leading handset vendors released more than 40 NFC-enabled handsets.

In the same issue, Dean Gratton's NFC feature postulated that the technology was about to be given its biggest boost so far, as a result of its likely inclusion in the spec of the much awaited iPhone 5. Seeing the way that the iPhone 4S has boosted Bluetooth low energy's (Bluetooth Smart) prospects, few doubt that Apple will be cementing NFC's future.

I thought it was time for an update from the NFC Forum, which manages NFC's interests in the same way that the Bluetooth SIG and Wi-Fi Alliance do for their respective technologies. I spoke to

Debbie Arnold, director of the NFC Forum.

VH: For our readers who aren't familiar with the story, could you give us a brief overview of the NFC story to date?

DA: Since the founding of the NFC Forum in 2004, the concept of NFC as an open, standards-based, global-interoperable technology has taken root and flourished. Much of this progress is due to the work of the NFC Forum, which has become the global hub for the developing NFC ecosystem. We have published 17 specifications to date, providing NFC solutions developers with a solid framework upon which to build the broadest array of solutions for consumers and businesses. In the past year alone, we have seen a sharp uptick in shipments of NFC-enabled handsets and the number and scale of commercial rollouts is steadily growing. Other devices such as laptops and tablets are also becoming available.

Additionally, according to a recent report from ABI Research, smart tags and

marketing posters will be the areas of largest growth outside of mobile payment systems. The report says that this area of the NFC market could be as large as $298 million by 2016

VH: Can you clarify for us what you see as NFC's role in life? Is it about contactless technology? Payment systems? Device pairing? Or all of these – and perhaps more?

DA: All of the above and more. NFC devices are unique in that they can change their mode of operation to be in reader/writer mode, peer-to-peer mode, or card emulation mode. The different operating modes are based on the ISO/IEC 18092 NFC IP-1 and ISO/IEC 14443 contactless smart card standards. In reader/writer mode, the NFC device is capable of reading NFC Forum-mandated tag types, such as in the scenario of reading an NFC Smart Poster tag. The reader/writer mode on the RF interface is compliant to the ISO 14443 and FeliCa schemes. In Peer-to-Peer mode, two

Snippets

NFC devices can exchange data. For example, you can share Bluetooth or Wi-Fi link set up parameters or you can exchange data such as virtual business cards or digital photos by just bringing two NFC-enabled devices close to one another. Peer-to-Peer mode is standardized on the ISO/IEC 18092 standard. In Card Emulation mode, the NFC device appears to an external reader much the same as a traditional contactless smart card. This enables contactless payments and ticketing by NFC devices without changing the existing infrastructure. Adding NFC to the readers sets up two-way communications to enable the exchange of coupons, receipts, loyalty points, etc. This ability to function in three modes – combined with NFC's intuitive ease of use – make it well suited to a very broad range of applications and use cases.

VH: What do you see as the backbone of the NFC Forum's function?

DA: The NFC Forum was formed to advance the use of NFC technology by developing specifications, ensuring interoperability among devices and services, and educating the market. Everything flows from the specifications, which define a modular architecture and interoperability parameters for NFC devices and protocols. The more our specifications are used in product development, the easier it will be to achieve global interoperability and motivate consumer adoption.

VH: NFC is increasingly being enabled in handsets. Has this been a specific goal that the NFC Forum and its members have been targeting?

DA: Many NFC solutions work with NFC phones, so yes, the NFC Forum's specifications work has focused on standard interfaces for phones, but also for other devices, such as tablet and laptop computers and Consumer Electronics such as audio equipment, cameras, printers, and appliances. We are also seeing NFC technology being built into devices such as utility meters.

VH: Do you see NFC as being essential to the success of the mobile wallet?

DA: Many of the major organizations developing and delivering mobile wallet solutions around the world have based their offerings on NFC technology. Many of them are also members of the NFC Forum. We have also established liaison partnerships with the industry associations driving the mobile wallet.

VH: There have been some recent concerns regarding the security of

contactless bank cards, which are, of course, NFC enabled (see fraud story in issue 168/April Incisor). Is this a storm in a teacup, or do measures need to be taken to improve security of contactless cards to avoid stalling roll out of contactless card payment systems?

DA: This issue is related to how card issuers store data on contactless cards and how retailers verify payment transactions. The security concerns are unrelated to NFC technology.

VH: It genuinely feels that NFC could be about to reach the top of the climb to widespread adoption and start the heady ride down the slope to large scale success. Is 2012 the year of NFC, or is this still a bit soon?

DA: We have seen interest growing every year since our founding in 2004. The past year has been particularly active for NFC. We now have a full suite of specifications for developers to build to, more NFC handsets are reaching the market, and we've seen several major announcements from industry-leading companies and joint ventures. The NFC Forum Ecosystem Committee is busy trying to meet market demand for NFC education, by hosting our Solutions Showcase, and partnering on events such as NFC Solutions, co-hosted by the Smart Card Alliance. These trends suggest that the market is coalescing quickly.

VH: And, finally, how will consumers use NFC in the next 3-5 years?

DA: While much of the early momentum behind NFC adoption will likely come from mobile payment solutions, it is expanding rapidly into other use cases. Customers will quickly embrace NFC's touch paradigm and solutions developers are already launching a remarkably diverse range of innovative NFC solutions for both business and consumer use. So, I would expect consumers to be using NFC in all aspects of their lives, from healthcare and social networking to gaming and hospitality.

Debbie Arnold has been involved in NFC since 2002 and was a founding member of the NFC Forum while at Visa. She has supported the marketing and strategic planning efforts of the Forum since 2006 and is now director of the organization. Previously Ms. Arnold was vice president for global consumer strategies at Visa International. While at Visa, she headed the global smart card migration effort and developed a new payment product, Visa Horizon, for emerging markets. Prior to joining Visa, she worked in various capacities in the telecomm-unications and financial services industries.

www.nfc-forum.org

Intelligent vehicles to return revenues of over $14bn

Intelligent vehicles, through embedded connectivity, will be directly responsible for creating revenues of $14.4 billion by 2016, as existing telematics players extend to new geographical markets and expand their service models in the next five years, according to Juniper Research. New Telematics units that can be installed once the vehicle is on the road from players like OnStar will give the market a second wind, finds the report. Meanwhile the range of subscription services on offer is becoming more comprehensive says Juniper.

Ruckus and Time Warner Cable enable wireless broadband services for mobile broadband subscribers

Ruckus Wireless has been selected by Time Warner Cable to supply Smart Wi-Fi equipment to extend Time Warner's broadband services to an increasingly mobile subscriber base. With thousands of miles of cable plant already in the ground and no appetite for spending billions to build mobile networks from scratch, cable operators are using Wi-Fi to cost-effectively extend wireless services to subscribers on top of their existing infrastructure.

## Annual Smart Grid spending to reach $65 billion by 2017

Annual global spending on smart grid technologies, including smart meter implementations, as well as upgrades to transmission and distribution infrastructure, is expected to reach $65 billion by 2017, according to ABI Research.

Transmission and distribution (T&D) investments are expected to account for the lion's share of smart grid investments up until 2017. On a cumulative basis, a total of almost $278 billion will have been invested globally in T&D infrastructure by this time, compared to $48 billion for the purchase of smart meters, thus illustrating a smart grid opportunity that goes way beyond advanced metering infrastructure.

Nokia and Carl Zeiss extend partnership

Good news for those of us that have appreciated the quality of cameras that Nokia has put into its phones – we've used plenty of Nokia camera phone pics in Incisor! - Nokia and Carl Zeiss are extending the partnership between the two companies, which has resulted in some great smartphones such as the Nokia N8 and the Nokia 808 PureView. This move won't provide the paddle that Nokia needs to extricate itself from that unpleasant sounding creek we all know and love, but it's good to have something to feel pleased about on the Finnish company's behalf.

nfc news
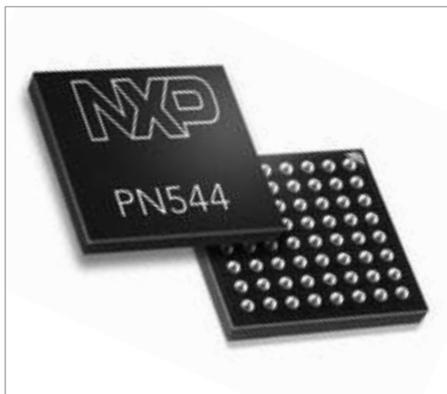
NXP holds 74% share of contactless ticket market

NXP has claimed the top spot in the contactless ticketing market in ABI Research's new market analysis. Shipments of the MIFARE range (Classic, Plus, Ultralight, and DESFire) remain strong, says ABI, despite some security concerns around the Classic product. Overall, MIFARE has withstood scrutiny and demonstrates that the highest level of security is not an overriding factor in adoption with the focus on cost effectiveness, convenience, and reliability. The lack of alternative solutions has helped MIFARE cement a strong market presence early on and the depth and breadth of the current product range gives the brand continued success.

Historically, the market has been dominated by proprietary systems such as MIFARE and Calypso, although moves are underway that could potentially open up the market. Open loop payments using the EMV platform are a hot topic and there has already been a large scale implementation throughout transport for London's network in preparation for the 2012 Olympics.

The convergence between open-loop payments and contactless ticketing would allow seamless transaction completion between multiple, international networks and also provide a launch pad for other platforms such as NFC.

ABI research analyst Phil Sealy told Incisor, "The integration of NFC will present new opportunities to transit authorities. By partnering with local businesses, transit operators are able to offer value added services, providing partnering businesses the opportunity to offer consumers vouchers or marketing via NFC handsets. This will generate new revenue streams for transit operators."

Open standards are coming to market with the OSPT having already published the specifications for CIPURSE, a microcontroller-based solution. Pilots are expected to begin in 2012, with other specifications supporting a memory-based and a RFID disposable solution to follow.

... highlights good2gether and Think&Go NFC

NXP has also been showcasing good2gether and Think&Go NFC, two applications that are making use of the company's NFC tag ICs and NFC mobile solutions.

good2gether connects businesses that do good deeds, to consumers who care, using NFC-enabled DoGood Badges. The badge is added to a window, door, or other consumer-accessible location. The consumer taps the badge with their NFC smart phone and learns of the causes the business supports, 'do good' special offers, and more. Greg McHale, founder and CEO, good2gether told Incisor, "Doing good matters to everyone. 91% of consumers want to know what causes are supported by a business and 87% would switch brands based on the association with a good cause. Our DoGood solution combined with NXP NFC technology will enable consumers to better understand how their favorite merchants and brands are doing good, enabling them to make informed socially-positive purchase decisions and make a difference in their community."

Think & Go NFC solutions, meanwhile, bring NFC into retail shopping by combining e-commerce information access with the physical shop environment that shoppers frequent. By tapping an NFC phone on a Think&Go tag powered by NXP, shoppers can access real time product information displayed on the phone and filtered according to their preferences with clothing sizes, food allergies, nutritional information and related promotions. Think&Go NFC is currently installed at retail chains, including Group Casino and Leclerc Nice St Isidore, and brands such as Danone and Bledina.

Wi-Fi and Bluetooth coexistence

By Julia Dixon, technical writer, Connectivity Products Business Unit, Laird Technologies

Julia Dixon, Laird.

The 2.4 GHz band, or the 2.4 GHz portion of the radio frequency spectrum, is the home of two popular wireless technologies, Bluetooth and Wi-Fi. Bluetooth, which is used for very short-range communications, is compliant with the IEEE 802.15 standard. Wi-Fi, which is used for wireless local area network connections, is compliant with various IEEE 802.11 standards such as 802.11a, 802.11b, 802.11g, and 802.11n. 802.11b, 802.11g, and 802.11n operate in the 2.4 GHz band; 802.11a operates in the 5 GHz band, where 802.11n also can operate.

Bluetooth and Wi-Fi transmit in different ways using differing protocols. When Wi-Fi operates in the 2.4 GHz band, Wi-Fi transmissions can interfere with Bluetooth transmissions, and Bluetooth transmissions can interfere with Wi-Fi transmissions. Because Bluetooth and Wi-Fi radios often operate in the same physical area and many times in the same device, interference between Bluetooth and Wi-Fi can impact the performance and reliability of both wireless interfaces.

Several methods of mitigating the interference between Wi-Fi and Bluetooth have been developed. While all are effective, all but one reduce performance.

Spread Spectrum

Wi-Fi and Bluetooth both work on spread spectrum signal structuring by spreading a narrowband signal across a portion of the radio frequency spectrum. This spreading results in a broader, or wideband, signal, yielding two benefits. First, a wideband signal is much stronger than a narrowband signal against both intentional blocking (jamming) and unintentional blocking (noise or other interferences). Second, this wideband signal can sometimes be picked up as a part of the noise floor (static interference), leaving it undetected.

Frequency Hopping Spread Spectrum (FHSS) and Direct Sequence Spread
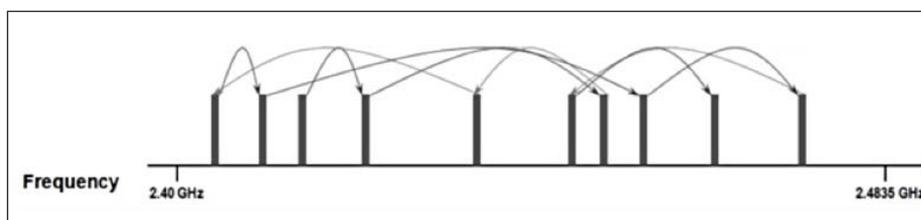

Figure 1: With Frequency Hopping Spread Spectrum, the signal is transmitted on different frequencies and intervals, spreading the signal across a relatively wide operating band.

Spectrum (DSSS) are the most common techniques used for spread spectrum signals.

Bluetooth uses FHSS, which allows the narrowband signal to "hop" across a certain frequency band. A Bluetooth narrowband is 1 MHz wide, and the signal transmits on any one of 79 1-MHz frequencies, taking full use of the 2.4 GHz band. Bluetooth changes channels 1,600 times per second in FHSS. Both the Bluetooth transmitter and receiver sync into the same hopping pattern while they are paired. This way, the receiver knows the frequency of the next transmission it will receive.

Wi-Fi uses DSSS, which spreads a narrowband signal across a given spectrum by dividing the signal and combining it with a "chipping code" sequence. A chipping code spreads multiple copies of the first signal across an even wider section of the band, forming a channel that is 22 MHz

wide in 802.11b/g. The 2.4 GHz band is 83 MHz wide, allowing DSSS to make 3 non-overlapping 22 MHz wide channels across the entire spectrum. When a receiver gets a wideband signal, it can decode the original narrowband signal by using the chipping code like a transmitting tool.

Mutual Interference

FHSS and DSSS cannot decode one another; each hears the other transmission as nothing but interference. About 28% of the time, Wi-Fi and Bluetooth located near one another will experience interference, as Bluetooth hops to a frequency already occupied by Wi-Fi:

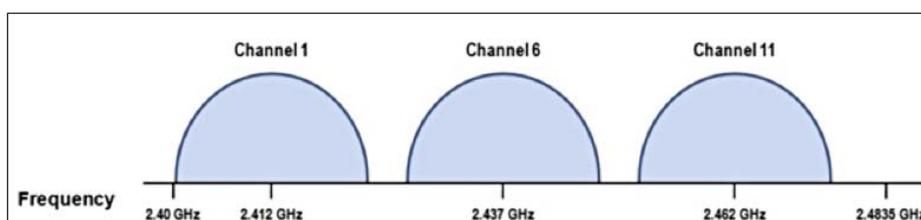| 22 MHz wide Wi-Fi channel / 79 available Bluetooth frequencies	= collisions approximately 28% of the time

Figure 2: With Direct Sequence Spread Spectrum, the signal is copied and transmitted on a continual basis across a range of frequencies referred to as a channel.

Some interference is strong enough to inhibit the Bluetooth or Wi-Fi receiver from decoding the transmission, forcing it to be resent. If this happens, performance is compromised and the device may even lose all connectivity.

Interference Solutions

A quick solution to mutual interference is to isolate the radios from one another through the method of time, space, or frequency.

Time Division Multiplexing (TDM) is an increasingly popular method to solve interference, as more and more radios place Bluetooth and Wi-Fi on the same chip. TDM makes Wi-Fi and Bluetooth take turns transmitting. The radio asserts an output wire when transmitting to indicate to the rest of the device that it should wait to transmit. Additionally, a printed circuit board between separate Wi-Fi and Bluetooth chips can link them together, accomplishing the same task.

Spatial isolation calls for collocated Bluetooth and Wi-Fi radios and antennas to be spaced as far apart from one another as possible, and to use insulation between the two. The downside to this is that it cannot be used where Wi-Fi and Bluetooth are integrated onto the same chip.

Adaptive Frequency Hopping (AFH) is built into almost all Bluetooth devices made after
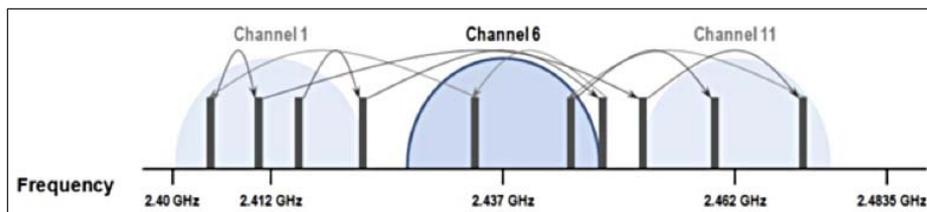

Figure 3: FHSS and DSSS transmissions will collide when the FHSS transmitted hops to a portion of the operating band already occupied by the DSSS transmitter.

2003. The radio scans the operating band for any interference, and then adapts its own frequency hopping patterns to avoid those channels. As interference it finds is DSSS (Wi-Fi), interference between the two is significantly decreased.

TDM, spatial isolation, and AFH take their toll in varying degrees on performance. The only method to eliminate interference and maintain the same level of performance is

to move Wi-Fi from the 2.4 GHz band to the 5 GHz band. With Bluetooth and Wi-Fi operating on different frequency bands, there is no chance for mutual interference, and Wi-Fi network capacity is increased sevenfold over comparable use on the 2.4 GHz band. It's a win-win for both performance and coexistence.
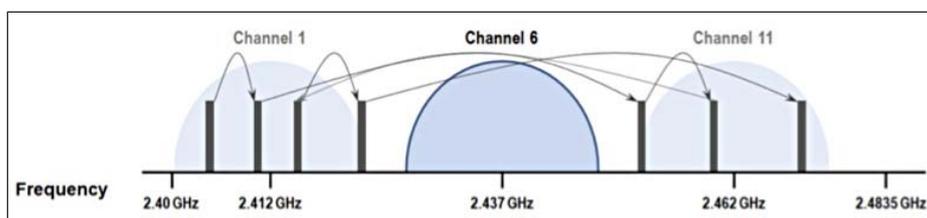
http://summitdata.com/.

Figure 4: With AFH, FHSS devices avoid DSSS channels to allow for improved performance for both Bluetooth and Wi-Fi devices.

Snippets

Diehl Controls joins the Z-Wave Alliance

Diehl Controls, which is a provider of control units for home appliances and photovoltaic inverters, has joined the Z-Wave Alliance, the consortium of

manufacturers in the home automation sector. Dieter Neugebauer, spokesman for the Divisional Board at Diehl Controls commented, "Our Smart Home systems provide an integrated solution for the energy market. The Diehl Smart Home System is an intelligent base offering

great potential in terms of new business fields for our customers. Our partnership with Z-Wave therefore represents the next step towards intelligent and, above all, energy-efficient homes for everybody."

90 million homes to use home automation by 2017

According to ABI Research, over the next five years the managed home automation market installations will grow at a CAGR of 60% between 2012 and 2017,

outstripping the 31% growth across the total market comprising luxury, mainstream, and DIY home automation deployments. The evolution of the home automation market into the mainstream requires a raft of new partnerships. No company is able to provide all the parts,

so telecom, cable, security, and utility providers are all looking to smart devices vendors, managed software providers, local installation specialists, and others to support the broad rollout of home automation services.

Nearly half of iPhone users likely to buy Apple "iTV" in year one

As speculation surrounding the possible launch of an "iTV" from Apple continues to mount, new research from the Strategy

Analytics Connected Home Devices (CHD) advisory service shows that nearly half of existing iPhone users would be very or somewhat likely to buy an Apple iTV soon after its launch. Apple, traditionally reliant on high device margins, would be

challenged to find the right price/demand balance for an iTV. While 35 percent of surveyed US consumers indicate willingness to pay $1000 or more for an Apple-branded TV, only 14 percent would be willing to pay any more than $1600.

high speed wireless news
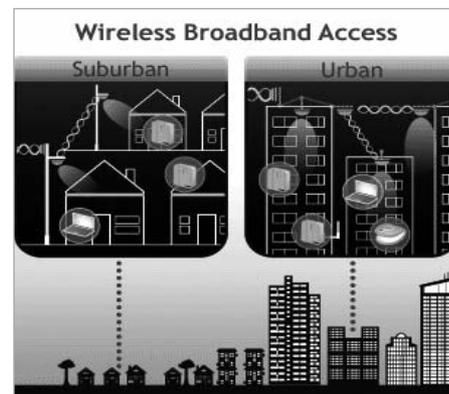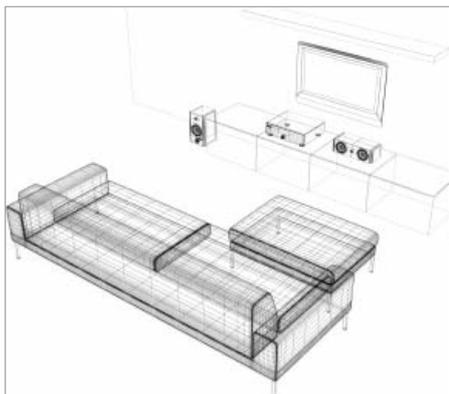
Wi-Fi to own home networking equipment and network-enabled media device market?

As the number of connected media devices grows, home networking will continue to gain importance in consumers' expanding digital lifestyle, ABI Research tells Incisor. The company's researchers suggest that by 2014, shipments of core home networking equipment (home gateways/routers, adapters, bridges, NICs, embedded LAN, NAS) and networked-enabled media devices (CE devices with network connectivity, excluding computers and mobile devices) will exceed one billion units

Senior analyst Michael Inouye commented, "On the CE side, TVs, Blu-ray players, and set-top boxes are expected to lead in shipments. As pay-TV operators continue to push new services and features, such as multi-screen initiatives and whole home DVRs, connectivity will increasingly come to the forefront of the digital living room."

Inouye suggested that while Wi-Fi is expected to remain the most common technology used to connect these media devices (in most cases greater than 60%), other wired networking technologies (through adapters) such as MoCA, G.hn, power line communication, and HomePNA, are expected to start gaining additional traction. A critical missing component has been consumer mindshare, but this is anticipated to grow as more pay-TV/broadband operators use these devices to extend services throughout the home.

"The market vision is to enable a seamless networking environment that will rely on a number of technologies," added Inouye. "A consumer, for instance, might start a file transfer to a media tablet using 60GHz wireless technology, then switch to a 5GHz technology as the device moves about the home, and then again, unbeknownst to the consumer, switch to MoCA to finish the download as the tablet is docked. Even with working groups such as P1905.1 building toward a connected networking environment, this future will still need the support of all companies throughout the value chain, considering the large number of consumers who in past primary studies have shown a general lack of awareness about the networking technologies currently in their homes."

Enabling Wi-Fi in VoLTE deployment plans

Kineto Wireless and Taqua, a supplier of convergence switching and small cell deployment solutions, are jointly promoting a solution that enables mobile operators to include Wi-Fi as part of their Voice over LTE (VoLTE) deployment strategy.

Using Taqua's IMS core network solution suite, mobile operators can enable smartphones equipped with Kinetin's Smart Wi-Fi client to receive IMS-based voice and messaging services over existing Wi-Fi networks, such as at homes and offices. The two companies are pushing operators to embrace Wi-Fi as a part of their VoLTE deployment plans, adding network coverage and capacity in the locations subscribers spend most their time.

Eric Pratt, CEO of Taqua told Incisor, "Mobile operators are quickly moving to all-IP access networks and are keen to bring their valuable voice and messaging services to these networks. With the combined solution from Taqua and Kineto, operators can rapidly introduce IMS-based voice and messaging services over Wi-Fi, turning any access point in the home or office into a virtual LTE small cell."

At the heart of Taqua's convergence core is Taqua's TCS6100 Small Cell Convergence Server (TCS6100), a SIP-based mobile convergence application server that integrates with existing mobile core elements, including the HLR, SMSC, SCP, and MSC. The TCS6100 extends macro network features and functions to small cell-served subscribers. The TCS6100 delivers voice, messaging, and data convergence while providing supplementary, regulatory, and emergency services.

Wi-Fi certified Passpoint automates Wi-Fi Hotspot Connections

Wi-Fi company Ruckus Wireless is promoting the benefits of the new Wi-Fi Alliance Certified Passpoint, telling Incisor that it helps operators deliver a better user experience while offloading data to Wi-Fi networks. Ruckus is claiming that Passpoint makes connecting to Wi-Fi hotspots as easy, seamless and secure as today's cellular experience.

The new technology is based on a framework of features and specifications, defined within the Wi-Fi Alliance. The technology will be released during June 2012 as the Wi-Fi Certified Passpoint certification program from the Wi-Fi Alliance.

Historically, to connect to a hotspot, users have had to perform the task of manually selecting from a number of Wi-Fi networks that may or may not be able to provide them service and perform the tedious process of logging in with their user credentials.

Using Passpoint-certified devices, this process will be completely automated. Passpoint-certified mobile devices automatically select a Wi-Fi hotspot based on information advertised by Passpoint-certified Wi-Fi access points. While roaming, mobile devices can identify hotspots supporting roaming with the user's home service providers. If it is, the device automatically connects to the hotspot, securing the link with Wi-Fi security.

NEW INCISOR.TV VIDEO FEATURES THIS MONTH

Incisor.TV continues to work with forward-leaning companies in the wireless industry to create interesting and highly-informative web video features. These are published to a global audience of wireless gurus, influencers and amplifiers via Incisor magazine, at the www.incisor.tv web hub and by our partner companies.

The full listing of Incisor.TV movies can be accessed at any time at the Incisor.TV video archive.

Video marketing campaigns increase click-through rates by 750%, and 68% of people who watch online videos will in turn pass links for these videos on to their friends, turning them into viral traffic machines.

Shouldn't your company be using highly targeted web video features to promote its messages? Contact incisor@incisor.tv, or Vince Holton – vholton@incisor.tv to discuss.

After 12 years at the Bluetooth SIG, executive director Mike Foley steps down from his leading role. Incisor.TV talks to Mike about the challenges of taking Bluetooth to 16,000+ members and 2 billion device shipments per year. What was the secret, and what could have been done better? Includes contributions from Őrjan Johansson, James Collier, Anders Edlund, David Bean, Jim Kardach and Simon Ellis.

Developments in the world of white space networks continue, with the Weightless SIG, the body behind the Weightless machine-to-machine communications standard for white space spectrum, announcing the successful completion of its first plenary session at The Technology Partnership (TTP) in Melbourn near Cambridge, UK during May. Incisor.TV's camera crew was on hand to record proceedings.

Managing Bluetooth and Wi-Fi coexistence throws up many challenges. Frontline's Sean Clinchy demonstrates how to avoid conflict and restore good behaviour in the short range wireless world.

White space M2M standard makes 'huge progress' in first plenary session

Developments in the world of white space networks continue, with the Weightless SIG, the body behind the Weightless machine-to-machine communications standard for white space spectrum, announcing the successful completion of its first plenary session at The Technology Partnership (TTP) in Melbourn near Cambridge, UK during May. Incisor.TV's camera crew was on hand to record proceedings, and you can click on the movie screen below to get a video overview of the event.

The main purpose of this event was to discuss the ongoing evolution of the Weightless M2M communications standard for white space radios. The event was split into two days featuring a variety of sub-group plenary discussions and tutorials.

William Webb, CEO of the Weightless SIG commented, "We're now seeing the future unfolding in front of us. Weightless is the ideal standard for M2M communications, making use of the newly available white space spectrum, and it's wonderful to see the movers and shakers of the wireless industry meeting to establish a standard for the common good, as well as for the networking necessary to put together the complex value-chains in this space.

 "While regulatory, security, testing and MAC/PHY subgroups might seem a little dry to your everyday consumer, remember that the endpoint is a world where everything, from bins to parking spaces, lights to shopping trolleys, are connected into an intelligent municipal whole. This technology will be the engine of the smart city, the smart grid, future healthcare systems and much more.

"We're comfortable on schedule at this stage to deliver a finished standard early in 2013. Our members will soon be testing

Weightless CEO William Webb hosted the SIG's first plenary meeting.

various aspects of Weightless in real-world deployments on the Cambridge network."

Over the two days of the plenary meeting, and based on discussions between its

members, the Weightless sub-groups completed the work necessary to enable the SIG to issue a new version of the Weightless specification – version 0.7. Amongst may enhancements, this includes what is effectively a whole new chapter on security.

The Incisor.TV video on this page is the third in a series that is being produced on the Weightless SIG's behalf by Incisor.TV and includes a listing of current Weightless SIG members. Any company wanting to join the Weightless SIG can sign up to receive a copy of the specification and become part of the community that shapes the standard at this link http://www.weightless.org/account/register.

To see all of the video content outlining Weightless' proposition that has been produced to date, and to see the forthcoming movies, go to Weightless SIG video archive.

NEW MEMBER REGISTRATION
http://www.weightless.org/account/register

WEIGHTLESS SIG VIDEO ARCHIVE
http://www.weightless.org/media/video-archive

Snippets

Tablets account for 40% of all mobile broadband plans

An analysis of tablet tariffs from the Strategy Analytics Mobile Broadband Price

Benchmarking Service reveals a steady growth in tablet tariffs, with an average of six tablet types available from each operator. Mobile operators are now promoting tablet sales as well as phones and other devices.

The launch of the new, third generation Apple iPad has been quickly adopted, as well as the Samsung Galaxy Tablet, which has returned to the roster of devices after lengthy legal challenges.

white space/4G/m2m news

70% of operators believe now is the right time for LTE (4G)

Global momentum behind 4G/LTE is set to accelerate with the majority of operators planning to launch LTE services this year or next, say researchers at Informa Telecoms & Media. Almost 60% of operators told the company that they will launch 4G services this year (33.7%) or next (24.9%), while the vast majority – 70.5% - believe there is a viable business case to launch 4G today.

The survey shows that the main reasons operators are launching LTE is to create new revenue streams (34.7%); to increase capacity to offer mobile broadband services (23.3%); and to build brand value through technology leadership (31.3%).

Although LTE is still a new technology, the world's largest LTE operators - Verizon Wireless (US), NTT DoCoMo (Japan), and AT&T (US) - are demonstrating that with the right business model there is a strong appetite among end-users for enhanced access of the internet from mobile devices.

"Because LTE technology, at the moment at least, is an extension of the mobile broadband experience, initial evidence suggests that mobile users aren't prepared to pay a significant premium for LTE access," Paul Lambert a senior analyst at Informa told Incisor.

"Most of the operators that have been successful in signing up LTE subscribers have decided not to charge a premium for 4G access, but instead are bundling it into existing data plans. When operators have done this, and effectively communicated the benefits 4G offers, market reaction has been very positive. This indicates that 4G should, in the first instance at least, be seen as a way to

improve the overall mobile broadband experience rather than as a way to generate "new revenues"," he added.

The main benefits end-users are seeing with LTE are increased download and upload speeds and faster response times, in particular for data-intensive services such as video. The lack of LTE smartphone choice compared with 3G is one reason why LTE has yet to become truly mass-market, with smartphones comprising only 18% of LTE devices available, according to Informa's data. However, as more smartphones come to market, LTE uptake will accelerate considerably.

LTE rollouts to date highlight the problem of spectrum fragmentation between regions and within regions between countries. While the majority of LTE rollouts are in the 2600MHz band, North America and Asia Pacific are deploying LTE in their own bands, Europe is focused on 800MHz and 2600 MHz, with 1800MHz roll-outs to follow. While the vast majority of LTE rollouts to date have been FDD-based, LTE rollouts using TDD spectrum have taken place in countries including Poland and Saudi Arabia.

Cinterion leads M2M module market on volume but Sierra Wireless tops revenue

ABI Research's market share rankings of M2M cellular embedded module vendors for 2011 evaluates vendors' market share performance for both total unit shipment volume of M2M cellular modules, as well as for total M2M revenue, including modules, terminals, software, and services.

The main companies active in the cellular M2M module market include: Cinterion,

Huawei, iWOW, Neoway, Novatel Wireless, Quectel, Sagemcom, Sierra Wireless, SIMcom Wireless Solutions, Telit Communications, u-blox, and ZTE.

The rankings of the top three vendors by module unit shipment volume in 2011 are, in order, Cinterion, Telit, and Sierra Wireless. For rankings by M2M revenue, Sierra Wireless is first, Cinterion second, and Telit third.

Cinterion has been the unit shipment volume market share leader since ABI Research started tracking cellular M2M module sales in 2003. With the acquisition of Cinterion by Gemalto in 2010, the company is hoping to leverage Gemalto's resources and complementary offerings (i.e. SIMs) to build a more comprehensive and differentiated offer in the market.

Sierra Wireless was one of the first vendors to push beyond modules to the supply of a software platform – its AirVantage hybrid connected device platform/application enablement platform (CDP/AEP). Moving away from a pure module strategy has benefited Sierra Wireless financially in the face of increasing price pressure, as is the company's strong focus on higher-value automotive module products.

Sam Lucero, practice director, M2M connectivity, told Incisor, "The biggest change from 2010 to 2011 was the rise of Telit from third place to second place in the unit shipment volume analysis. Likewise, Telit Communications displaced SIMcom Wireless Solutions at third place in the M2M revenue rankings."

white space/4G/m2m news

Dramatic growth in M2M software platform market

The cellular M2M market will rise from about 110 million cumulative connections globally in 2011 to roughly 453 million cumulative connections by 2017, says ABI Research. Nevertheless, a key challenge for the industry remains the complexity of developing, deploying, and managing M2M applications over the cellular network. Practice director Sam Lucero told Incisor, "This is a challenge both for mobile network operators (MNOs) that are trying to offer profitable services tailored to the M2M market, as well as for application developers and service providers that are trying to reduce costs, speed time to market, and simplify robust application deployments."

Two key M2M software platform markets have emerged to address these challenges: connected device platforms (CDPs) and application enablement platforms (AEPs). CDPs enable the cost-effective deployment and management of M2M connections over cellular networks. AEPs enable quicker and less expensive application development as well as granular remote device management.

Several large MNOs have self-built their own CDPs, including AT&T, Vodafone, and Telefonica, among others. However, merchant market CDPs, such as those offered by Jasper Wireless, Ericsson, NEC, NSN, and others will increasingly become the primary option for MNOs newly entering the market, as well as a second and complementary option for MNOs that already have self-built CDPs deployed. "Core CDP functionality is going to become an increasingly commoditized aspect of the network, better left to third parties that can amortize development costs across multiple MNO customers," said Lucero.

The more nascent, and smaller, AEP market will grow quickly, says ABI, as application developers seek to offload core functionality, such as data normalization, data modelling,

and providing a rules engine, onto third-party platforms, rather than developing the application on a completely customized basis. Leading "pure-play" AEP vendors include Axeda and ILS Technology. According to Lucero, "The AEP market is set to grow from about $168.9 million in 2011 to nearly $1.72 billion in 2017."

PureWave selects TI wireless infrastructure SoCs for LTE small cell base stations

Texas Instruments (TI) and PureWave Networks have announced their collaboration on PureWave's newly announced PureWave Constellation, a family of LTE small cell base stations, designed to handle up to 1Gbps of data traffic. With TI's KeyStone-based wireless infrastructure System-on-Chips (SoCs), including production quality 3GPP compliant LTE PHY software, PureWave Networks told Incisor it can more easily design high performance small cell outdoor base stations, at a lower cost, lower power, and in less time than with competing solutions.

The KeyStone devices are powered by production quality 3GPP compliant LTE PHY software, based on TI's wireless application specific libraries. They also include a full portfolio of complementary analog products such as data converters, RF products, clocks, amplifiers, SWIFT DC/DC high-density converters and other power management products, which complete the solution for small cell developers.

Sandeep Kumar, business manager, wireless base station infrastructure at Texas Instruments told Incisor, "PureWave is certainly generating buzz in this fast growing market and, by incorporating silicon and production-grade software from TI and its partners, we look forward to seeing their small cell base stations deployed in the field quickly."

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low energy wireless news

Silicon Labs acquires Ember for 'Internet of things'

Well, we didn't see this coming... Silicon Labs, which specialises in high-performance, analog-intensive, mixed-signal ICs, has signed a definitive agreement to acquire Boston-based ZigBee company Ember Corporation for an initial consideration of $72 million, subject to an adjustment for certain working capital amounts and potential earn-out consideration. Ember is a late-stage private company offering market-leading silicon, software and development tools for 2.4 GHz wireless mesh networking solutions being deployed in smart energy, connected home, security, lighting, and many other monitoring and control applications.

Incisor had recently been talking to Ember about the company becoming an evangelist for ZigBee within these pages, as we're struggling to find any ZigBee company that wants to 'lean forward' for the technology. This discussion, presumably, just hit a road block.

Silicon Labs says that this is a 'strategic acquisition (that) brings the technology and software expertise required to enable the low-power mesh sensor networks being deployed today in a wide range of residential, commercial and industrial applications', observing that the demand for low-power, small-footprint wireless technology is accelerating as more and more IP-enabled end points are being connected to the "Internet of Things." Expected to be the first 10 billion unit per year market, the Internet of Things is being realized to enable more convenient, energy-efficient and safer home and work environments.

The combination of the companies' products will bring together microcontroller (MCU), power and isolation technology, sensors, and both sub-GHz and 2.4 GHz wireless radios into a comprehensive portfolio of highly integrated networking solutions for embedded systems.

Commenting on the acquisition, Tyson Tuttle, president and CEO of Silicon Laboratories said, "Silicon Labs has consistently demonstrated a successful track record of integrating high-performance, low-power RF and mixed-signal ICs in CMOS and ramping them into high-volume markets. This acquisition of a high-caliber team with proven wireless mesh networking know-how accelerates our ability to offer complete system solutions to our customers."

Ember is expected to contribute approximately $10-$12 million in revenue in the second half of 2012 and to be accretive on a non-GAAP basis in 2013. The boards of each company have approved the acquisition, which awaits the satisfaction of regulatory requirements and other customary closing conditions. In conjunction with this all-cash acquisition, Silicon Labs' board of directors has authorized management to pursue a $200 million credit facility that could be used for stock repurchases and for other general corporate purposes.

Haier remote control uses Nordic ULP wireless for Smart TV and PC connectivity

Chinese company Qingdao Haier Intelligent Electronics is using Nordic Semiconductor's wireless technology in its QWERTY keypad-equipped RF/Infrared (IR) remote control.

The remote is designed for use by CE manufacturers of emerging 'connected' products such as Smart TVs. The remote control is equipped with a 48-button QWERTY keypad on one side, and on the other, a conventional 55-button remote control interface. Both sides of the unit are backlit, and a built-in accelerometer detects which side the user is about to access. The product can also be used to control a PC and the QWERTY keypad includes a trackball that can be used to control the cursor on a PC.

In operation, the remote handset uses a Nordic nRF24LE1 System-on-Chip (SoC) 2.4GHz ULP transceiver running Haier's own RF protocol software. This is something of a half-way house, rather than fully embedded solution, as an nRF24LU1+ System-on-Chip (SoC) 2.4GHz ULP transceiver and USB 2.0 compliant device controller, incorporated into a compact USB dongle, plugs into the host device (the product to be controlled) to form the other node of the wireless link. The Nordic RF technology enables a bi-directional communication link with sufficient bandwidth for rapid screen refresh and navigation.

The nRF24LE1 chip boasts a 2Mbps on-air data rate combined with ultra low power (ULP) operation and power management.

Lily Huang, Haier's Marketing Manager told Incisor, "The general trend for consumer electronics is for them to become 'smart' and customized. Our company wants to tap into this market trend when developing new products. For remote control applications such as web browsing on smart TVs, this means upgrading from IR to RF. We also needed to ensure that the RF connectivity co-existed well with Wi-Fi - which is fast becoming a standard fitment in modern media appliances. Nordic's chips are the perfect choice because they have high interference immunity."

events

DATE	EVENT	LOCATION	NOTES	LINK
June 3 - 9 2012	Bluetooth SIG UnPlugFest 42	Shanghai Marriott Hotel City Centre, Shanghai, China	-	www.bluetooth.org
June 12 - 14 2012	Wi-Fi Alliance member meeting	Toronto, Ontario, Canada	-	http://www.wi-fi.org/events_ overview.php?id=351
June 27 - 28 2012	European ZigBee Developers Conference	Munich, Germany		http://www.zigbee-devcon-europe.de/
October 9 - 11 2012	Smart Homes 2012	Rai Convention Centre, Amsterdam, The Netherlands	-	http://www.smarthomes-europe.com/
Nov 13 - 16 2012	electronica	Messe Munchen, Munich, Germany	-	http://www.electronica.de/
Jan 8 - 11 2013	2013 International CES	Las Vegas, Nevada, USA	-	www.cesweb.org
March 5 - 9 2013	CeBIT	Messegelande, Hanover, Germany	-	http://www.tradefairs.com
April 9 - 11 2013	Bluetooth SIG All Hands Meeting	Shanghai, China	-	http://www.bluetooth.org/Events/

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