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BLUETOOTH IS SMART – BUT IS THE PASSION STILL THERE?

PLUS

CAMBRIDGE CONSULTANTS: KEEP IT PROFESSIONAL, BUT KEEP IT CHEAP!
BUILDING OWNERS, UTILITIES AND VENDORS MUST WORK TOGETHER
SMART GRID CASE STUDIES SHOW ROI

feels like this doesn't happen much these days

What am I talking about? Well, that would be the fact that this issue of Incisor has a bit of a Bluetooth flavour.

This is primarily because the Bluetooth SIG has filled its executive director vacancy, a seat that has been empty since Mike Foley departed in June. I took this as an opportunity to talk to Incisor readers about how things stand for us, where Bluetooth is concerned. Incisor has been part of the Bluetooth firmament since 1998, but things change, and the world moves on. Read my story "Bluetooth SIG has a new exec director" to read my ramblings on the current state of the Bluetooth market, and whether the SIG's current management line-up shares the passion that made Bluetooth the success that it is today.

Our smart grid/smart home special section last month was one of the best supported in recent times. It's clear to me that we need to allocate more space to covering this sector. If you feel there are particular aspects or topics we should cover, email me and we can follow up.

Finally, have a look at Cambridge Consultants' story this month. Tim Whittaker takes a look at the current state of the wireless AV market, and explains how highly-integrated silicon devices originally intended for consumer products are now finding their way into professional applications. Bluetooth, Wi-Fi and DECT all get a look in!

Vince Holton

Publisher & editor-in-chief, Incisor / IncisorTV

INCISOR.TV FOCUS THIS MONTH



Weightless is the world's first and only M2M standard for white space spectrum – but just what is Weightless?

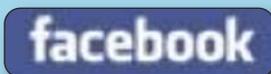
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Industry powerhouses set up Mobile Indoor Positioning Industry Alliance

Just at the point that we were about to publish, Incisor heard via Nokia that the In-Location Alliance had been launched by 22 companies across various industries, the stated aim being to drive innovation and market adoption of high accuracy indoor positioning and related services.

Accurate indoor positioning opens up plenty of possibilities for new mobile services. For a consumer this could mean, for example, receiving directions to the right products and personalized product promotions in nearby shops; using real-time navigation inside a building; finding the precise location of assets and people; and even increasing security in emergency situations. For facility owners and local service providers this could enable, for example, increased local customer identification; enhanced product placement; and better customer satisfaction by deploying resources when and where needed.

The Alliance told Incisor that it will focus on creating solutions offering high accuracy, low power consumption, mobility, implementability and usability.

Founding members include: Broadcom, CSR, Dialog Semiconductor, Eptisa, Geomobile, Genasys, Indra, Insiteo, Nokia, Nomadic Solutions, Nordic Semiconductor, Nordic Technology Group, NowOn, Primax Electronics, Qualcomm, RapidBlue Solutions, Samsung Electronics, Seolane Innovation, Sony Mobile Communications, TampoSeal AB, Team Action Zone and Visioglobe. That's a pretty potent group of companies.

Alliance members will apparently pilot the most promising services and use cases from

a business and solution point of view. The other important task for the Alliance is to ensure a multivendor environment by promoting open interfaces and a standard-based approach.

Alliance members are being encouraged to execute their own pilots and present their data to the Alliance. The primary solutions will be based on enhanced Bluetooth 4.0 low-energy technology and Wi-Fi standards using relevant existing or coming features of those technologies. These technologies are commonly used in mobile handsets and the Alliance said that these are a natural starting point for efforts.

Pre-commercial pilots and business model verifications will start in 2012, while 2013 is expected to bring mobile handset-based implementation enabling the first consumer applications in the indoor mobile environment.

Bluetooth Smart to drive cumulative Bluetooth shipments to 20 billion by 2017

ABI Research has been looking at the Bluetooth market again, and observes that in the first 10 years of its life (up to 2010) cumulative shipments of Bluetooth enabled devices reached 5 billion. Growth, it is widely acknowledged, has been largely driven by its use in mobile phones and accessories. This market is still growing overall but ABI suggests that it will start to plateau out over the next five years. So, will Bluetooth become obsolete before the end of its second decade?

The Bluetooth SIG has regularly introduced updates to the technology to increase its use cases and continue growth of the market, for example v2.1 with enhanced data rate was introduced in 2007 and v3.0 with "high

speed" was introduced in 2009. These have both helped to push the envelope for Bluetooth technology but it's v4.0 – low energy Bluetooth – (introduced in 2010) that is set to revolutionize the technology and drive expansion into new markets.

Peter Cooney ABI's practice director, semiconductors told Incisor, "The introduction of Bluetooth v4.0, with low energy as its pivotal enabler, will drive a second wave of Bluetooth enabled device shipment growth. The market is expected to achieve cumulative shipments over 20 billion by 2017."

There are essentially two separate implementations for Bluetooth v4.0; one is single-mode Bluetooth v4.0 or Bluetooth Smart and dual-mode Bluetooth v4.0 or Bluetooth Smart Ready. Bluetooth Smart Ready devices are already available - e.g. Apple iPhone 4S and Samsung Galaxy SIII. These are the hub devices that enable Bluetooth Smart devices such as sports and fitness sensors to communicate with the wider world.

The first markets to embrace Bluetooth Smart Ready are smartphones, media tablets and laptops, but growth in TVs, games consoles, and in-car infotainment systems will follow. Bluetooth Smart watches, heart rate monitors, and even shoes are already available; initial growth will be driven by sports and fitness devices with future growth markets including healthcare, PC peripherals, remote controls, and many more.

Cooney added, "IC vendors have been quick to embrace Bluetooth version 4.0 with many adding the technology to their product portfolios. Wireless connectivity combo ICs such as Broadcom's BCM4334, Texas Instrument's WiLink 8 or Marvell's Avastar 88W8797 are enabling OEM's to add version 4.0 to devices such as smartphones or laptops. The availability of Bluetooth Smart Ready hubs is encouraging equipment vendors to develop and bring to market compelling Bluetooth Smart node devices."



Keyless starter for motorcycles raises funds through START.ac

Last month, Incisor looked at the [Cookoo watch](#) project, a design for a Bluetooth-enabled connected watch that was funded by web-based crowdfunding site Kickstarter. The idea is catching on, and this month we've heard from two brothers - Jeff and Paul Schmelzel - who are also turning to the Internet to raise funds for their latest product development, BRAT, a Bluetooth pRoximity Activation sysTem. This is claimed to be the first keyless ignition system that uses your cellphone as the key. Imagine no more fumbling for your key or worrying about scratching your bike's paintwork (only bikers will understand this problem...).

Jeff Schmelzel explained, "BRAT will give users the ability to start their motorcycle without a key - it only requires their Bluetooth enabled cell phone to be with them." The rider's cell phone will be paired to the BRAT which, when in close proximity to the system, will allow the user to start their engines. The system will only check at initial start for the location of the cell phone, eliminating an unnecessary drain on the battery of both the motorcycle and cell phone. Since this system compliments the existing start system, the key system will always work in parallel. This means you get all the convenience of being keyless, yet the factory key still works for when your bike needs to be in the shop or for emergency situations.

With funding as the first major obstacle to getting the product officially off the ground and current economic conditions not making the job any easier, inventors like Jeff and Paul need to become more innovative in their fundraising tactics, and many have embraced sites like START.ac. In line with START.ac guidelines, project drivers have a set number of days to raise all the funds, or the project receives nothing. BRAT has successfully completed CrowdAudition and has entered the fundraising stage.



The slow road from classic Bluetooth to Bluetooth Smart in consumer medical devices

ABI isn't the only research company looking at the market for Bluetooth Smart (see prev. page). IMS Research projects that the transition from Classic Bluetooth to Bluetooth Smart in consumer medical devices will be slow, with 31 percent of all consumer medical devices containing Bluetooth sold in 2016 still using Classic Bluetooth (Version 2.1) as opposed to the latest low-energy variant, Bluetooth Smart (Version 4.0). According to IMS' recently published report *Wireless Opportunities in Health and Wellness Monitoring - 2012 Edition*, this transition will be slow because of high certification costs and strict regulations.

IMS analyst Phillip Maddocks suggested to Incisor, "High certification costs for consumer medical devices, coupled with long design cycles and strict regulation is going to mean companies currently using Classic Bluetooth will continue to do so, while slowly bringing Bluetooth Smart variants to the market over the next five years. As long as customers feel the battery life and reliability of devices using Classic Bluetooth devices are satisfactory, there is no great urgency to switch to Bluetooth low energy."

Another key factor is the uptake of Bluetooth low energy in connectable devices such as cellular handsets. As penetration of Bluetooth Smart Ready in these devices is still low, manufacturers of consumer medical devices are less inclined to support a small ecosystem of devices when they can support a much larger ecosystem of devices using Classic Bluetooth.



Italian airport installs Bluetooth passenger tracking system

SEA, operator of Italy's Milan Malpensa and Linate airports has gone live with what is claimed to be Italy's first Bluetooth queue measurement system, commissioning Amor Group's ChromaACDB (Airport Collaboration Database) to help manage queues and improve the airport experience for passengers. Milan Malpensa is Italy's second largest airport and rivals London Stansted for passenger numbers, handling 19m passengers a year.

ChromaACDB, a key component of Amor's Chroma Airport Suite, will provide automatic monitoring and measurement of journey and queuing times throughout the airport by tracking passengers' Bluetooth mobile phone signals utilising BLIP Systems' BlipTrack software.

Martin Bowman, Sector Director - Transport at Amor Group told Incisor, "Implementing BlipTrack as part of Chroma, our Next Generation Airport product suite, will have a number of benefits for passengers and SEA staff at Milan Malpensa. The system provides greater insight into the passenger journey allowing airport management to effectively resource the airport in line with demand, enabling more efficient operations at peak periods. As a result, SEA will be able to establish and monitor service levels in order to drive an increase in performance across the airport."

Giorgio Medici, Head of Customer Care at SEA added, "ChromaACDB and BlipTrack will give us a clear picture of passenger movements, allowing us to provide the best service we can and proactively manage service levels before any issues arise."

Bluetooth SIG has a new exec director

- But where does the SIG go from here, and is the Bluetooth passion still alive?

By Vince Holton

So, it's a couple of months since **Mike Foley**, the 8 year incumbent of the Bluetooth SIG's executive director position, stepped down. From what we've been able to glean, Foley was ready to stay in the job for another term, but the SIG board decided it was time for a new face.



Mark Powell,
Bluetooth SIG.

Foley has been replaced by Mark Powell, who most recently served as vice president of Kineto Wireless' client software business, a company he co-founded in 2001. In that position, Powell apparently oversaw Kineto's global business and alliance strategy

with handset and technology partners. He is described in the SIG's announcement as 'a wireless industry veteran with more than 25 years of experience in business development, marketing, manufacturing, and engineering roles'. Prior to joining Kineto, Powell worked for both Motorola and Nokia.

I've known each of the previous SIG exec directors well. I don't know Powell at all yet, but he deserves his chance to shine. Commenting on Powell's appointment, Chris Hansen, chairman of the Bluetooth SIG board, said, "Mark has the perfect mix of wireless industry technical expertise and entrepreneurial experience required by the Bluetooth SIG as we build on our success and forge into promising new areas."

Powell has taken over the exec director's blog, too, and in his first post he says that he "Looks forward to helping our members develop the technology and expand our markets, pushing aggressively into new areas, while growing strong market share in established segments. While doing this, one thing will be top of mind for me. A key mission for the SIG staff is to make Bluetooth SIG processes work better for our members. I have only been on board a few days, but in that time some immediate priorities have become very clear to me, so we will act quickly to provide better tools and more editorial support. I'll provide more detail on our plans shortly."



Quite what those immediate priorities that Powell has identified are, we don't know. Over the coming months we will find out if Powell is indeed a mover and a shifter. The big question for me is – will he have 'the passion'? Bluetooth probably always would have been a success, but it's chances of doing so were cemented by – and I'm not clever enough to know whether this was because of careful planning or by sheer good fortune – the fact that it's original protagonists, the people who really shaped Bluetooth's genesis, all shared a genuine enthusiasm and created a wave of energy that carried Bluetooth to market. Mike Foley may not have gotten on with everybody in the Bluetooth ecosystem, but in my view he was the last person in the SIG top management to demonstrate a genuine and single-minded determination to continue to hold Bluetooth's head high. You just knew that he cared. And, following shortly after Foley's departure, the SIG lost another of its key execs. Andy Glass has left his job as the SIG's Chief Technical Officer, and has moved back to his previous employer Microsoft. What to make of that, I'm not sure.

Keeping the momentum going

Inevitably, with its success, the Bluetooth SIG organisation has grown. Yes, it trumpets the fact that it has over 16,000 members, but let's not forget the vast bulk of that membership

are Adopter members – they pay nothing to the SIG, and cannot join working groups, committees or contribute to any of the various functions that drive Bluetooth development. As of the most recently published numbers, the SIG had 265 Associate members – i.e. the ones that have committed to being part of the programme.

With its success, the SIG organisation itself has grown. It now occupies a large building on the waterfront at Kirkland, just outside of Seattle. The SIG directly employs in the region of 50 people, and about 80% of these are in Kirkland. Very few of these staff members have been around since the heady days of the first 5 years. Inevitably, with the growth of any organisation, it reaches a stage where the make-up of the staff list evolves from consisting largely of evangelists, specialists, innovators and go-getters, to, well, regular company staff. People who are as concerned about the size of their office, their job title, their benefits, as they are about the *raison d'être* of their employer. Industry veterans will have watched these changes happen in many growing organisations, and lamented the loss of – let's use that word again – passion.

Does the SIG have sufficient passion to continue to forge ahead? I don't know. With the Bluetooth Smart programme, Bluetooth enters its next big phase of activity. Low energy wireless connectivity is, in my



opinion, going to be a VERY BIG THING in the next ten years. With its massive installed base, and almost 100% presence in smartphones and mobile computing devices, Bluetooth has a very good chance of carving out a big chunk of this market for itself. But there is competition. And that competition includes technologies that are either newer, better (for some purposes) or championed by more aggressive protagonists.

The reality is that the battle is there to be lost for Bluetooth and the Bluetooth SIG.

Tell them what you are going to tell them. Tell them. Tell them what you told them.

The line above is supposed to be a maxim for marketeers, and one thing that will help the Bluetooth cause is effective marketing. And that's an area that doesn't inspire me with confidence. Of the 45-50 staff working for the SIG, approximately 12 work in marketing and web related roles. At the SIG Kirkland office alone, the team consists of a Chief Marketing Officer, a Global Marketing Director, two marketing managers, a marketing coordinator, a web and communications manager, a senior visual designer, and an online programs manager. And then the SIG's APAC staff includes a marketing manager and three technical marketing managers.

And yet, for all of these marketing people, am I the only one that doesn't see any significant SIG marketing? There's little PR, and the SIG's window to the world, the bluetooth.com web site is, well, uninspiring.

The SIG is unlikely to agree with these observations. Fair enough – everyone's a critic. But is it (the SIG) doing enough to secure success in the low energy market? That's another question. And, whether Incisor's involvement has made any difference at all to the Bluetooth evangelisation process, it seems that in future, our readers will not be seeing much co-operation between ourselves and the SIG.

We worked alongside the SIG from 1998 through until 2012, generating Bluetooth-related content every month, and generally sharing the passion. So much so that we have had to fend off comments that we were Bluetooth-biased! We never were, but at one time we were a purely Bluetooth magazine. That changed way back in 2003.

But we have co-operated closely with the Bluetooth SIG for many years. Incisor readers and Bluetooth SIG members who couldn't physically attend have been able to participate 'virtually' at Bluetooth events such as [Best of CES](#) and the annual [All Hands Meeting](#) as a result of our video reports. We've created a lot of web video with, and for, the Bluetooth SIG. Indeed, 26 of the 61 videos on the Bluetooth SIG's own YouTube channel were created by Incisor.TV. Strangely, none of the SIG's YouTube videos get high viewing numbers. The large majority are in the

low 100s. For whatever reason, we do better at the Incisor.TV site. Our most watched Bluetooth video is '[10 years of Bluetooth & Best Bluetooth of CES 2008](#)', which has been viewed 26,910 times to date. In total, we've achieved more than 210,000 viewings for Bluetooth SIG-supported videos at the Incisor.TV web site, and Bluetooth and Bluetooth SIG messages have been promoted in Incisor every month since 1998.

But you needed to have enjoyed this stuff when it was happening. With the departure of our long-term SIG contacts, so disappears our place in the Bluetooth-o-sphere, it seems. I've been told recently not to expect the SIG to be sponsoring any more content with Incisor. So, I apologise in advance to Incisor long-termers for the lack of future coverage of Bluetooth SIG activities. If you want to know what happens at CES and the AHM, then you are going to have to be there.

Adapt or die

There – that's another cliché for those that count such things. It's sad, though. The Bluetooth story was a blast. And we still have good and dear friends inside the SIG, so we've no desire to burn bridges.

But we do have to move on. It is absolutely true that a media organisation such as ours thrives when engaged with emerging and expanding areas of technology. At that stage in development, organisations want to make noise about what they are doing. Bluetooth is very much not at that stage. We receive barely any press releases about Bluetooth activity these days, companies in the Bluetooth sector have no need to promote messages to the media, and so there's not much to write about. Bluetooth is a mature technology, supplier relationships are in place, and the jungle drums are silent. In fact, the only organisations that seem to keep up the pace of communicating with the press are the market research companies, which constantly push releases at us promoting their latest reports. We, in turn, are expected to help them earn money by quoting from these reports, but woe betides us if we ask them to share the cost of publishing their messages.

With the maturation of the Bluetooth market, Incisor has had to shift focus, which is why you see expanding coverage in Incisor of technologies such as energy harvesting wireless technology, smart grid, smart home, M2M and the Internet of things.

Will Mark Powell, though, be the man to lead the Bluetooth forward into a new age of dynamism, inspiration, innovation and success? Will the SIG management understand that part of the reason Bluetooth succeeded was the great community spirit that was generated, and that it is a good idea to nurture this phenomenon? Will Incisor once more be packed with Bluetooth-related content? Only time will tell.

We wish Mark well in the job.

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Neul whitespace launch event

Bluetooth SIG All Hands, Mike Foley keynote

**Bluetooth SIG AHM,
Bluetooth Ecosystem teams**

Bluetooth SIG AHM, Board of Directors panel

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Bluetooth SIG – Best of CES 2009

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WiMedia special - UWB - a high performance solution / part 1

WiMedia special - UWB - a high performance solution / part 2



*Tim Whittaker,
Cambridge
Consultants.*

Keep it professional – but keep it cheap!

By Tim Whittaker – System Architect,
Cambridge Consultants

With one of the largest independent wireless development teams in the world, Cambridge Consultants is a key developer of state-of-the-art products, providing our clients with valuable design services and business insight. In this edition of Incisor, we look at the challenge of combining low cost and high specification in audio and video devices.

Today, full-spec – what we used to call broadcast quality – audio, video and display equipment proliferates in professional webcast, lecture and conference facilities. There is immense pressure on equipment prices, but a continuing expectation of quality equivalent to the TV and public displays that we see around us every day. Recent price examples include 2k (cinema resolution) TV cameras and vision mixer systems, or high-quality 32-channel audio mixers available for just \$2,000-\$3,000 each, where only a few years ago prices were reckoned in the tens of thousands, at least.

Equipment makers need to achieve corresponding reductions in their production costs to maintain margins. The major challenge in achieving these ‘near consumer’ prices is that the professional market does not have the volumes to command the lowest prices in standard components, or to access custom silicon. At the same time, wireless connectivity has become the norm, with high-quality content-gathering becoming possible from almost anywhere on the planet.

Repurposing

Highly-integrated silicon devices are made in large volumes for consumer equipment including mobile phones, media players and personal computing. Because of the large order book, the cost per chip is low, allowing low prices even when bought in thousands instead of millions. The trick to achieve the desired cost base is to reuse for professional applications the very high levels of functionality included in these chips – which sometimes requires a certain amount of creativity and lateral thinking.



An example is the use of a \$2 cordless telephone chip as the basis for a radio microphone design. Originally intended for wideband audio telephony and digital answering machines, the chip’s internal resources include high-spec A-D conversion and DSP, as well as the radio system itself. Complex radio functionality, including security and automatic spectrum management, is built into the standard, and so it comes effectively free for this application area.

A wireless internet radio design would normally need a media processor to implement the required internet protocols (RTP, UDP, IP to say nothing of the control

and configuration of the content itself) and also for the various codecs (MP3, AAC etc) that decode the bit-stream into usable audio. These processors can be quite expensive. Here the inventive step was to realise that all these elements are present in a Bluetooth chip intended for stereo headphones – just forget about the Bluetooth bit! The electronics cost for this design, including a low-cost Wi-Fi chip (designed for smartphones), is under \$15.

Improvements

What if the technical performance of the consumer device is not up to the professional specification?





Cambridge Consultants Blogs

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Patrick Porlage
Marketing
Communications
Director
Cambridge Consultants.

For example, DECT cordless telephony is a good technical solution for a lot of audio and communications needs, but – crucially – it was designed to be low cost when the digital part dominated the silicon costs. To achieve this, the DECT chip design compromises on ability to cope with strong multipath effects – as commonly experienced in sports stadia and big performance spaces. Now, today this is unfortunate, because DECT – with its licence-free spectrum in almost every country – could be the answer to event planners' prayers if it could function in environments like these.

The solution is to import a technique from mobile telephony – channel equalisation – without adding significant cost to a DECT system. This takes a lot of work, because it involves extracting raw signals and using non-standard operating modes of the chip, but the dividends are fantastic with massively improved performance at modest increase in the bill of materials.

That same DECT platform was originally intended for telephony – just 3kHz of audio bandwidth. Even for communications, professional users require 6kHz or, preferably, 12 to minimise user fatigue over long periods. 12kHz is a minimum for programme audio. Here it is possible to access the substantial amounts of work done in audio coding, to compress high-

quality sound into modest bit rates. Today's audio codecs also manage to do this without adding significantly to the delay – another concern with live sound. The additional cost for the electronics is again minimal, because of the capabilities of the 'consumer' IC.

Cambridge Consultants has a long track record in ground-breaking system architectures that repurpose high-volume, low-cost silicon devices, intended for consumer applications, into specialist and professional applications. These bring significant reductions in end-product cost whilst maintaining – or even improving – product benefits.

www.cambridgeconsultants.com/markets/wireless-communication/

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Our corporate blog covers new product development, open innovation, accelerating start up companies and other topics that involve using innovation to achieve market leadership, along with technology stories that we hope you will find interesting/

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Wireless Medical Blog

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



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Global Tech Tour for Bluetooth Smart and ANT 'appcessory' developers

Nordic Semiconductor is launching its nRF51 Series of System-on-Chips (SoCs) with a Global Tech Tour in which a team of the company's wireless application technicians will travel around the world to teach embedded systems developers how to develop their first/next generation Bluetooth Smart or ANT+ ULP wireless smartphone application accessory or 'appcessory'. And in just one day.

Each seminar will include a detailed technical walk-through starting from a ULP wireless sensor within an appcessory, through how it wirelessly connects to a smartphone and ending with how this all interfaces to a developer's app running on the smartphone's operating system. The agenda will include an overview of ULP wireless, Nordic's latest nRF51 Series SoCs, Bluetooth low energy (including Bluetooth Smart) qualification, and a full afternoon of software development application examples taken from Nordic's

brand new nRF51 SDK (Software Development Kit) which each participant will be able to take home free-of-charge.

John Leonard, Tactical Marketing Manager at Nordic told Incisor, "Each of these Global Tech Tour seminars is designed to be far more than a set of presentations given in PowerPoint format. They will be a genuine and unique opportunity for smartphone app developers to kickstart their next Bluetooth Smart or ANT+ application accessory within a single day with the help of some of the world's most experienced and knowledgeable ULP wireless application engineers and system software architects. In fact I would not be surprised if a sizeable number of participants went



away with the knowledge they need to start building their first or next generation smartphone accessory immediately."

The Global Tech Tour will kick off in the U.S. on September 17, then moving on to Asia Pacific. A final European leg of the tour will then begin in Amsterdam in the Netherlands during October and the tour will end in Copenhagen, Denmark.

A big deal?

Nordic must be pretty serious about the nRF51 Series, based on the evidence above. Vince Holton decided to put a few questions to Thomas Embla Bonnerud, Nordic Semiconductor's Director of Product Management.

VH: When I asked Nordic whether you were launching a multi-protocol, software controlled radio at your conference in San Diego last November, you all smiled enigmatically and said nothing. I take it that Nordic is very publicly and openly promoting this concept now?

TEB: "That's right – Nordic's newly launched nRF51 series hardware architecture features native multi-protocol support for 2.4GHz RF proprietary, Bluetooth low energy, and ANT wireless technology. It is capable of running any of these protocols, or a combination of these protocols non-concurrently. We promote

this actively to customers and of course they love this flexibility.

"Naturally there is a lot more to multi-protocol operation than simply having an IC architecture that supports it. To do multi-protocol demands integrating the various protocols which is basically a software job. Nordic has now taken the first steps towards this and has already released solutions for non-concurrent 2.4GHz proprietary and Bluetooth low energy in the form of its brand new nRF51822 IC.

"Beyond that all I can say is that we plan to take more advantage of the nRF51 series multi-protocol-ready architecture to release further complete advanced multi-protocol solutions over the next year."

VH: The nRF51 Series was launched onto the market at the end of June. It is a fairly

radical concept – what has the response been like so far?

TEB: "So far the response has been overwhelming. Of course customers are excited to finally see a Cortex M-based solution in the ultra low power (ULP) wireless category. But most excited response to our new software architecture has come from the embedded software engineers.

"The proof of the pudding is – of course – design wins and we already have several customers in a variety of different segments that have selected nRF51 series ICs for their new product development. It's also fair to say that several of these customers had real and more mature alternatives from our competitors but they still selected our solution. I think that speaks for itself."



VH: The architecture of these SoCs separates the protocol stack from the application code. Have code developers bought into this concept?

TEB: "As mentioned above, we've seen enormous excitement over the new software architecture. Several code developers are already working on applications and so far they are extremely satisfied with the solutions. Those who I have spoken to that have not got their hands on it yet have said that they really look forward to trying it out. I think it is important to remember that the architecture is not novel as such – this is a well proven concept dating back to the UNIX kernel in the 70s. What Nordic Semiconductor has done is essentially bring it to a ULP wireless IC domain and that's a world first."

"Once code developers see how this works the majority simply agree that of course this is the way it should be done."

"I would not be surprised if there was some pretty hectic meeting activity in our competitors' software groups after we first revealed our new solution in July."

VH: Are you still on target for general availability of both the Bluetooth low energy and ANT versions during September?

TEB: "Yes, at this stage we see no reason why the nRF51422 ANT SoCs and the nRF51822 multi-protocol Bluetooth low energy / 2.4GHz proprietary SoCs won't be generally available at that time. It will take Nordic until Q4 this year to ramp up to full production volume though."

VH: It would seem reasonable to assume that you are seeing most interest from Bluetooth developers, but how are things going in the ANT+ market?

TEB: "Yes, there are a lot of interested Bluetooth low energy developers out there, but many people forget how established the ANT+ community is. The ANT Alliance now numbers over 400 companies and in excess of 25 million ANT chips have been shipped, so there's a large ecosystem across the globe. Nordic has been working with ANT since 2005 and the companies are committed to rapidly expanding the number of ANT-powered wireless devices in use."

"One of the key things ANT developers have been demanding is an ANT SoC. Until now they've had to work with two-chip solutions and, although these solutions do have some advantages in particular applications, an SoC brings a whole set of new benefits to a developer such as lower power consumption, lower

latency and less PCB real estate requirement. And then there's also the huge advantage of being able to develop the application in an ARM Cortex development environment without any fear of accidentally compromising the ANT protocol stack."

VH: Is the investment in an ANT SoC justifiable from a business perspective?

TEB: "Of course, developing an SoC is an expensive business and has to be justified by potential shipment volumes. It might have been difficult to make the justification for ANT alone, but Nordic didn't have to make that decision because the nRF51 Series SoCs all use a common silicon architecture no matter what protocol is used. And as Nordic is a growing company that's already shipped over half-a-billion chips, the decision to invest in such an SoC, while still requiring careful due diligence, is likely to prove a good business move."

VH: Judging by the time and resource being allocated to make this Global Tech Tour happen, Nordic must be very committed to making the nRF51 Series a success?

TEB: "You could say that! The nRF51 Series represents a huge investment for a company of Nordic's size so naturally we'll do everything we can to make sure the products are successful. We have had some experience of a successful big product family launch with our nRF24L Series and then again with our µBlue™ Bluetooth low energy solutions, but the nRF51 Series is bigger still."

"Actually, while the Global Tech Tour is a big commitment, it is only a relatively small part of everything we're doing as a company to make the nRF51 Series a success. Behind the scenes, engineers

and support staff are gearing up to help customers with their designs and ensure they get the hardware and support they need. And marketing and sales staff are out in the market promoting the advantages of the products to existing and potential customers. Finally, of course, talking to prestigious publications like yours will help too!" ;)

VH: (embarrassed grin) At the time of announcement, you said that you would continue to introduce additional ICs and protocol stacks for the nRF51 Series. What is coming next, and when will we see it?

TEB: "In general we do not comment on specifics for future products, but I can say we're working very hard internally with other products in the nRF51 Series that are on schedule for introduction over the next 12 months. These products will include products more tailored for proprietary 2.4GHz RF applications (nRF515xx family) as well as extensions of the Bluetooth low energy and ANT SoC families (nRF518xx and nRF514xx families)."



Thomas Embla Bonnerud,
Nordic Semiconductor.

smart grid / smart home news



Green buildings top \$4 Billion in VC Invested

According to Lux Research, venture capitalists have pumped in more than \$4 billion in the race to build greener buildings. As the first wave of investments reach exits, they are now looking at new innovative technologies to further develop this space.

Of the 332 venture investment rounds in technology and materials developers for green buildings since 2000, 152 were series A investments and 83 were series B. Last year, however, nearly 50% of the funding, totaling \$445 million, were 15 late-stage investments, signaling the maturation of the first wave of green buildings start-ups. Meanwhile, new opportunities are emerging in integrated design, on-site generation, energy services, the advanced building envelope, and low-carbon cement and concrete.

Ryan Castilloux, Lux Research analyst told Incisor, "Early VC investors are looking for exits for the first wave of successful green buildings startups and the seeds of the next crop are being sown in on-site generation and sustainable materials."

To understand investment activity in the green buildings space, Lux tracked 332 venture transactions amounting to \$4.06 billion in 160 companies since 2000. Lux' findings included:

- Integrated design is the future. Driven by the European Union's aggressive energy efficiency targets, as well as similar long-term targets in the U.S. and elsewhere, "integrated design" will become critical. Startups in this area - including Project Frog and Blu Homes - have received \$84 million in VC funding since 2008.
- M&A will surge. Since 2010, 11 of the 16 VC-backed companies that have exited have been acquired. In the first half of 2012, there have been four acquisitions. Other mature startups that are ripe



acquisition targets include Digital Lumens, Redwood Systems, Adura Technologies, Metrolight, EnOcean, Serious Energy, Control4 and Aspen Aerogels.

Anyone needing more detail should get hold of Lux' report 'Building a green 21st century: tracking venture investments in green buildings to uncover new opportunities'.

Itron expands ZigBee Smart Energy-Certified range

Itron has expanded its ZigBee Smart Energy-certified product portfolio across the company's energy product line. ZigBee Smart Energy is a global, standards-based wireless mesh networking technology that is used to connect different devices.

Itron's newly certified products include the EM425 meter, an IEC-certified electric smart meter for the UK market, and the M2 Gateway, an Itron communications module that enables third party meters to communicate on Itron's RF mesh network.

Itron told Incisor that it has been certifying ZigBee Smart Energy products since the specification's inception in May 2008., and that it's ZigBee adoption extends domestically to ANSI-certified meters and internationally to IEC certified meters. It also includes integrated products and communications modules, incorporating ZigBee into third party products. Itron's mission statement is apparently to use ZigBee to enable a highly reliable, low cost and low power standard for managing delivery of electricity and gas.

Itron also integrates ZigBee products with other communications technologies, including Wi-Fi, cellular and RF mesh, suggesting that this gives utilities the flexibility to integrate assets with the communications network of their choice.



Philip Mezey, Itron president and COO of Energy told Incisor, "Itron is committed to bringing best of breed technologies together to enable broad participation in the smart grid throughout the world. We believe that adopting international standards, such as ZigBee Smart Energy, and certifying product implementations of those standards is necessary to achieve true interoperability, which is key to the success of the smart grid."

Consortium for Smart Energy Profile 2 emerges

Have you heard of the Consortium for Smart Energy Profile 2? No, nor us. Apparently, Smart Energy Profile 2 is the forthcoming standard for applications that enable home energy management via wired and wireless devices that support Internet Protocol (IP).

The consortium, which has as its founder members the ZigBee Alliance, the Wi-Fi Alliance and the HomePlug Alliance was created in Oct. 2011 to with an intended mission of providing the smart grid ecosystem -including utilities, product vendors and consumers - confidence in application and device interoperability and to accelerate the availability of products and services. The Consortium has apparently been developing common testing documents and processes for certifying SEP 2 interoperability. Products to be certified are expected to include thermostats, appliances, electric meters, gateways, electric vehicles and other devices in the smart grid.

While we hadn't heard of this body before now, it has apparently been getting on with stuff. The Consortium has completed its formal incorporation and achieved its first interoperability Plugfest.

So many wireless industry SIGs, Alliances, Forums and consortiums. If you want to learn more about this particular one, then there is a web site - <http://www.csep.org/> - albeit one that contains very little information.

smart grid / smart home news



Z-Wave certified smart home and business door lock for the European market

Home protection manufacturer Vision Security has developed a Z-Wave network-enabled door lock for the smart home and business. The ZM1702 security solution is based on the Z-Wave wireless standard and offers a range of intelligent functions. For example, owners can open and lock the door wirelessly from an Alarm Panel, PC, Tablet or Smart Phone. The lock features a keypad control panel for which specific access codes can be programmed, including remotely.

In addition to increased security, Vision suggests that the door lock offers owners convenient setting options. These include the possibility of setting temporary access codes for a specific time of day, day of the week or for a limited period of time – even remotely via the Internet. For example, if workmen have been scheduled to come in the afternoon (while the resident is still absent), they are able to enter the house using a code that has been specially programmed for them. This means the house owner does not have to wait at home for the workmen to arrive. The home owner can then change the code again once the workers have left the house and the house remains secure.

Owners can configure up to 15 access codes to suit requirements in different cases. In addition every successful or unsuccessful attempt to open the door is registered and displayed by PC software. This clearly documents when, for example, a burglar attempted to gain access.

Home and business owners don't need to make any special modifications to their doors in order to install the Vision Security door lock. The lock fits into conventional



doors with a thickness of 38 millimetres or more, and can be installed in left or right opening doors. The lock is available with an external lever or knob and it is fitted with a cylinder lock that is locked from the outside with keys. From the inside it is locked with a rotary knob.

TRaC adds ZigBee Light Link profile to Tracer test harness

Global testing and compliance consultancy TRaC Global has announced the addition of a new ZigBee technology profile to its Tracer test harness tool suite.

Tracer, which is a complete protocol designed to assist manufacturers in the development of products prior to official certification, now offers pre-certification testing for ZigBee Light Link (ZLL) devices in addition to ZigBee Smart Energy (ZSE) products, the first profile to be launched earlier this year.

The ZigBee Light Link standard is claimed by the ZigBee Alliance to be the lighting industry's only global open standard offering wireless control for LED lighting solutions. TRaC is an official ZigBee Alliance Recognised Test House and last month became the first test house validated by the ZigBee Alliance to conduct ZigBee Light Link testing for the ZigBee Certified product program.

TRaC identified that manufacturers couldn't simply purchase an off-the-shelf test tool which met ZigBee's standards and in response developed a custom test harness to address this need. Paul Russell, director at TRaC, told Incisor, "We have played an instrumental part in bringing the ZigBee Light Link standard to market, so it's great to have developed a test harness which helps manufacturers



get their products on the shelves as quickly and easily as possible."

TRaC's Tracer is a complete protocol toolkit that can emulate devices, verify functionality and provide an instant pass or fail verdict. The Tracer ZSE and ZLL variants allow manufacturers to perform pre-testing of their designs at all stages of development prior to the official certification test.

Russell added: "In these tough economic times repeated testing can be both expensive and time consuming – so bringing a product to market that helps companies iron out technical issues before running official tests is a significant step in the right direction."

smart grid / smart home news



ZigBee Alliance investigates specific Japanese market needs

The ZigBee Alliance has announced an initiative examining approaches for using the 920 MHz frequency band in Japan for home energy management. This initiative will evaluate use of the forthcoming ZigBee Internet Protocol (IP) specification and the IEEE 802.15.4g standard to help Japan create smart homes that improve energy management and efficiency.

Last December, Japan's Ministry of Internal Affairs and Communications (MIC) designated the 920 MHz band for active low-power radio systems. In February, the IP-based ECHONETLite standard was endorsed as the Japanese Smart House Standard by the Ministry of Economy, Trade and Industry (METI). The ECHONET consortium is developing ECHONETLite to define the application for electric appliances and electronic equipment to connect to a home energy management system, but it will not define the underlying communication layers, allowing the use of any appropriate communication standard. The Japanese product manufacturers are currently examining open communication standards for future products using ECHONETLite.

The Alliance will apparently examine operating the ECHONETLite application on the ZigBee IP stack using the 920MHz option of 802.15.4g. It will also examine providing ZigBee Smart Energy version 2 for Japan on the same ZigBee networking stack configuration. Once that process is complete, the Alliance will evaluate creating a testing program and possibly offering certification for these devices.

Bob Heile, chairman of the ZigBee Alliance told Incisor, "The Japanese members of the ZigBee Alliance Special Interest Group-Japan, including NEC Engineering, OKI and Renesas Electronics, will be leading the



Alliance's effort to examine these new requirements for Japan. This initiative allows our members to better understand how they might help Japan as it copes with its new energy challenges."

Landis+Gyr smart meter hits 10 million unit milestone

Landis+Gyr, which develops metering and smart grid technology, launched the E-350 FOCUS AX, a solid-state electric meter with integrated service switch, back in 2007, and tells Incisor that production eclipsed the 10 million mark in July of this year. Landis + Gyr claims that the AX is the primary residential meter being deployed at the largest advanced metering projects in the country, and cites utilities such as PG&E, Pepco Holdings (PHI), United Illuminating, Oncor, AEP Texas, CoServ Electric, Woodruff Electric Cooperative amongst its customers.

Steven Schamber, Vice President and General Manager of Energy Measurement Products at Landis+Gyr told Incisor, "The FOCUS AX was designed with the future requirements of advanced metering in mind. Its success hinges both on its industry leading features and applications, as well as a build quality that gives it outstanding reliability."

With an optional service switch integrated into the meter base, Schamber suggested that utilities can take advantage of the 200-Amp relay to manage service remotely using a metering communications system. A single circuit board design, mounted at the front of the meter, allows room for modular advanced metering communications devices to be integrated, including the Landis+Gyr Gridstream platform, and provides the utility with interval data that is being used for load and outage management as well as grid automation.



Schamber added, "We expect applications for this technology to grow as more utilities pursue smart grid initiatives."

TI claims 50 percent cost and size reduction narrowband transceiver

Texas Instruments (TI) has introduced a new member of its sub-1 GHz radio frequency (RF) family for low-power wireless security, smart grid, industrial, healthcare, and home and building automation applications. The company claims that the new CC1125 sub-1 GHz RF transceiver is the industry's first single-chip solution for wireless social alarms and ultra narrowband applications, targeting ETSI EN 300 220 category 1 (ETSI Cat.1) compliance for the European 869 MHz band. To address the ETSI Cat. 1 standard, one of the world's strictest RF regulations, TI suggests that the CC1125 delivers a 50 percent reduction in system cost and size over discrete designs enabling smaller and more affordable end products. Additionally, the CC1125 can be used in sub-1 GHz applications worldwide that require long RF range and robustness, such as long-range wireless meter reading.

Erling Simensen, product marketing manager, wireless connectivity, TI told Incisor, "The new CC1125 transceiver reaffirms our commitment to offer wireless connectivity for any application from the most cost-sensitive to high-performance applications. Overall, we see an increased interest in ultra narrowband RF ICs like the CC1125 for sub-1 GHz applications that deliver rock-solid wireless connectivity for a variety of applications. With the CC1125 transceiver, manufacturers can now offer ETSI Cat. 1 performance in more affordable and smaller social alarms for Europe's growing elderly population."

The CC1125 and the sub-1 GHz RF performance line family and the new CC1125DK development kit are available now.

Smart grid case studies show ROI, other benefits

By Chris King, eMeter

What kind of return are utilities getting on their smart grid investments? A recent [National Electrical Manufacturers Association report](#) on the return on investment for the smart grid discussed a variety of consumer and utility company benefits, and highlighted some major projects, including these:

Bonneville Power Administration (BPA).

This Pacific Northwest utility implemented an [Energy Smart Utility Efficiency \(ESUE\)](#) program focused on distribution efficiency and [conservation voltage reduction](#). (CVR means slightly reducing the voltage supplied to all electricity customers in an area. This can often save energy with only imperceptible changes to performance).

Implementing effective voltage optimization relies on all the capabilities of the smart grid. Simply lowering voltage at the substation may cause unacceptably low voltages to be supplied to equipment at the end of the distribution line. That's why CVR systems need smart meters — they measure not only electricity usage, but also system voltages on the customer's premises.

This benefits utilities by getting more mileage out of their existing smart meter investment, as well as enhancing efficiency across the entire power distribution system. It can also help utilities recover their costs by ramping down generators and/or power purchases.

In addition, CVR benefits consumers because it helps reduce the need to build new power plants in the future — saving ratepayer money and reducing greenhouse gas emissions. An across-the-board voltage reduction of only 3% would yield energy savings equivalent to over twice the energy provided by all existing U.S. solar power installations. (Not that those installations are not also good!)

BPA has not announced its ROI, but a payback of 2-3 years for CVR is not unusual.

Virginia Dominion Power. This utility intends to install \$600 million worth of equipment to create a smart grid. First Dominion installed 30,000 smart meters, and then invested \$1.5 million in [synchrophasors](#) — devices installed at substations which monitor grid conditions. This real-time data helps utilities transmit more electricity across a high-voltage grid.

The operational efficiencies derived from a smarter power distribution and transmission system, coupled with [Dominion's EDGE](#)



A smart grid ensures that renewable energy sources can be better integrated into the grid thanks to bidirectional flow of energy (orange line) and a bidirectional flow of communication data (blue line).

[conservation voltage reduction program](#), are yielding real savings. This smart grid implementation is expected to save more than \$1 billion over the project's life of 15-20 years, against Dominion's \$600 million investment: a 67% ROI. Plus this program will yield environmental and societal benefits, such as avoiding the construction of two power plants, and delaying the construction of two more.

Commonwealth Edison. Over the next 10 years, ComEd of Chicago expects smart meter and smart grid operating efficiencies to reduce customer energy bills by \$44 million per year. Here are the key benefits:

- Reducing outage frequency by 20%. Having 700,000 fewer annual outages. This is expected to save \$100 million.
- Reducing annual average outage duration by 15%.
- Increasing the total number of customers who exceed ComEd's service reliability targets by 75%.
- Reducing the number of annual estimated electric bills by 90%.
- Reducing consumption on inactive meters by 90%. "Inactive" meters are not assigned to a customer account. This happens when someone moves into a vacant premise and starts using power without notifying the utility. This cost is borne by all customers.
- Reducing electricity theft by 50%.
- Reducing bad debt expenses by \$30 million due to the availability of more detailed and more frequent consumption data.

Austin Energy. The Pecan Street

demonstration project hosted by Austin Energy and the University of Texas fully integrates renewable generation through solar panels. It also features a communication system as well as consumer controls to implement advanced electricity and water conservation. Benefits include fuel savings, decreased line losses, and less need for transmission and distribution lines.

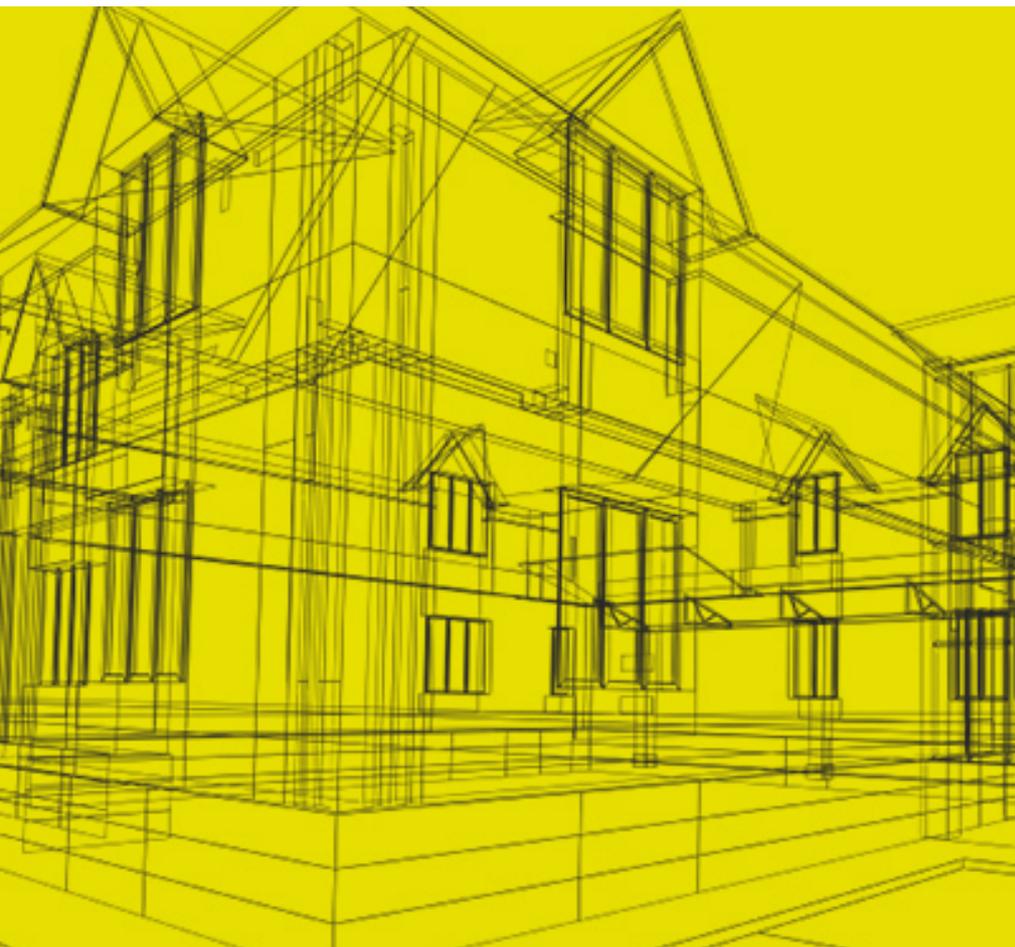
This project also lays the groundwork for the changing relationship between the consumer and the utility. In the future, the consumer will be a fully integrated partner — with renewable generation devices on site, and participating in demand response programs.

On the policy front, the NEMA report notes that regulators and legislators can play a key role in overcoming obstacles to smart grid success. Potential solutions may include:

- Financing mechanisms such as low-interest government-backed loans.
- Accounting mechanisms, such as decreasing the service life of smart grid equipment that utilities purchase, compared to legacy predecessors, to allow for faster depreciation. For example, smart meters often can be depreciated in seven years; compared to 30 years for electromechanical meters.
- Changing accounting rules to avoid stranded assets in utility operations.
- Approving rate strategies such as voluntary time-of-use pricing which take advantage of emerging technologies.

More info: www.emeter.com

Building owners, utilities and vendors must work together to reap economic gains



A new report from IDC Energy Insights highlights the significant market opportunity for building owners, utilities and vendors as they develop Smart Buildings that effectively communicate and interact with the Smart Grid. The report 'Methods and Practices: Smart Buildings and the Smart Grid – Strategy for an Integrated Future' also outlines the "next practices" necessary to make the vision of interoperability a reality. By understanding how different technologies and frameworks can support more coordinated and collaborative development of Smart Buildings and the Smart Grid, IDC Energy Insights suggests that building owners, utilities and vendors can generate economic gains, achieve business goals and establish grid stability.

Building management decision makers, technology vendors, and electric utilities, says IDC, all have a stake in developing interoperability between Smart Buildings and the Smart Grid, yet few have taken advantage of the market opportunity to accelerate and expand the deployment of interconnected Smart Buildings. The industry can learn from early adopters of

both Smart Building and Smart Grid technologies to develop a framework of "next practices" that can foster collaboration between stakeholders and promote integration. This future model is important because it represents significant economic benefits for building owners, market growth for vendors, and new stability and reliability resources for electric utilities.

Despite the significant market opportunity, IDC forecasts that in the near term (1–3 years), Smart Buildings and the Smart Grid will continue to develop independently. However, the two will yield to interdependence through the impact of technology infrastructure development and maturity, regulations, customer segmentation insights, and distributed energy resource availability.

The report also found that vendors and utilities must find common ground in the process of adopting technologies and business practices. Utilities in particular need to more effectively engage commercial customers for participation in Smart Grid initiatives. In turn, vendors need to better support customer needs and improve investment economics by identifying ways to coordinate with electric utilities. This evolution in both business practices and technology infrastructure is necessary to realize the benefits associated with Smart Buildings and the Smart Grid. As such, a transformation in customer engagement models as well as in technology utilization and deployment will be required.

In addition, IDC Energy Insights found that while long term integration will be measurable, broad coordination between Smart Buildings and the Smart Grid will remain elusive over the next five years. Technology infrastructure maturity and Smart Building market development will be a matter of individual utility and state and local regulatory efforts.

Marcus Torchia, Research Manager at IDC Energy Insights told Incisor, "There has been a lot of talk about the opportunity for connected, responsive Smart Buildings that are interoperable with the Smart Grid. The reality, however, is that the development of Smart Buildings and the Smart Grid is taking place almost entirely independently of each other. Vendors, building owners and utilities are missing a major market opportunity in both the short and long term if they don't consider adopting business practices to accelerate and expand the deployment of interconnected Smart Buildings."

Telehealth user engagement drives demand for managed services

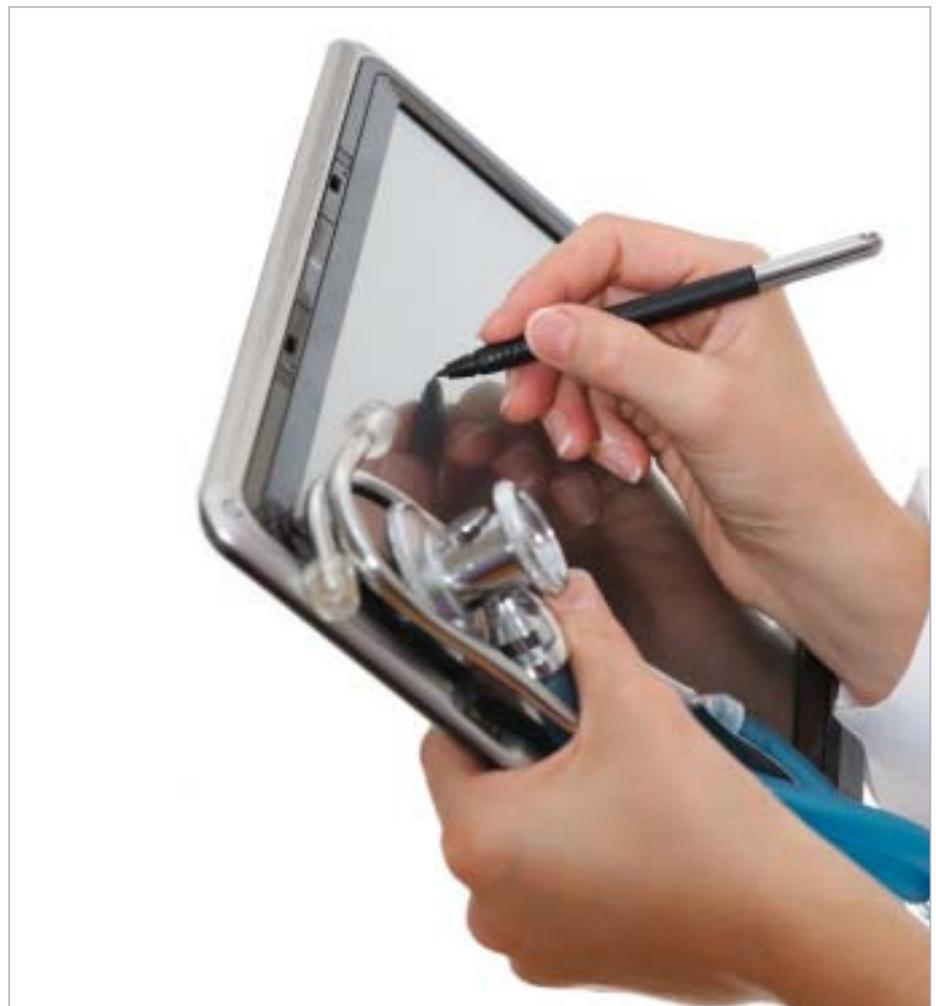
- clever, connected devices are not enough

The lack of consistently demonstrable positive outcomes, both clinical and economic, has traditionally served as a central barrier to telehealth adoption. Doubts as to whether telehealth works in delivering positive, significant returns on investment hinder reimbursement. However, new research shows that clinical and economic results can be delivered by engaging all users within a telehealth ecosystem. This is leading to a growing demand for fully managed telehealth service models, according to InMedica, in its report, *The World Market for Telehealth – An Analysis of Demand Dynamics – 2012 Edition*.

Theo Ahadome, senior analyst at InMedica commented, “The issue of whether telehealth works to drive clinical and economic results has become a ‘yes’ or ‘no’ question for healthcare providers. In fact, the real answer is ‘it depends.’ It depends on how the telehealth system, and services are set up and the how the behaviour of patient and other stakeholders can be changed in this system.” Healthcare providers and payers are beginning to realize this and seek to work effectively with the right suppliers and partners to deliver a total solution that works.

According to InMedica, clinical results in telehealth are driven by achieving effective engagement of all users – patients, patients’ friends and family, clinicians, nurses and care givers. Clinical results through wider engagement in turn drives economic results; by reducing readmission costs and burden of care providers, patients and payers are more willing to share in the financial risk, i.e. to co-pay for the system. As such, engagement of all stakeholders needs to become the core of the telehealth ecosystem. It is the need to address this core that is leading to greater demand for managed service solutions.

Managed service solutions in telehealth involve suppliers and integrators who partner with healthcare providers to address all aspects of the telehealth system. This may use open platforms and best-in-breed of device and technologies – an approach to care delivery which is key for future telehealth adoption.



“Devices are important in telehealth because they are the interface for users. Features should be driving increased user engagement. This could be a home hub that provides immediate feedback through video, phone calls and pre-recorded messages depending on vital signs data received,” Ahadome continued. “Additionally, user engagement should apply as much to family, clinicians and care givers as it does to patients.”

However, devices alone do not achieve positive results. Monitoring, evaluating and continuous training on how clinicians use telehealth, as well as providing full integration into clinician everyday

workflow and electronic health records (EHR) is key. Engagement of other staff in the ecosystem is also often overlooked. A part of the managed service solution should include periodic interaction with patients by care givers. Moreover, this interaction should be monitored, evaluated and managed so that it can be continually adjusted based on vital signs data received. A managed service solution provides full cycle monitoring and evaluation of the telehealth system and adapts accordingly. This will provide actionable insights that can be used to improve the provider and user experience, and ultimately drive positive outcomes in the telehealth market.

nfc news



Marketing of NFC needs to be scaled up

The scale of global mobile payment transactions is expected to rise nearly fourfold over the next five years to more than \$1.3tn, a new report from Juniper Research - NFC, Remote Purchases & Money Transfer 2012-2017 - has found.

Juniper is suggesting that growth would primarily be driven by sales of physical goods by both remote purchases and NFC transactions. These transactions – which Juniper predicts will account for 54% of the total value of mobile payments by 2017 – have already been bolstered by stimuli such as the widespread rollout of NFC support infrastructure and the increased engagement of operators with the mCommerce space. Nevertheless, it observed that despite this growth, those physical goods sales conducted via the mobile phone would still only account for around 4% of global retail transactions by 2017.

NFC “lack of awareness” warning

According to the report, the recent spate of activity across the NFC value chain has marked a tipping point; it cited Google Wallet, VeriFone's POS terminals and the operator-led ISIS and Project Oscar consortia as key developments in this regard. However, it cautioned that for NFC to fulfil its potential, marketing behind the mechanism would need to be scaled up dramatically.

As report author Dr Windsor Holden pointed out, “While we are now seeing significant deployments of contactless infrastructure, consumer awareness is extremely low. Thus, it is imperative for all members of the NFC value chain to engage with the public to heighten its profile as a simple, intuitive payment mechanism.”

The report also noted the growing importance of mobile as a means of enabling both domestic and international money

transfer, although it stressed that in many markets service adoption was being inhibited by national regulatory requirements and by a lack of interoperability between services.

NXP maintains lead in ticketing market, says ABI

Despite competition clearly increasing within the contactless ticketing market, ABI Research believes that NXP is maintaining a dominant foothold, through its line of MiFare solutions. NXP achieved a combined market share in excess of 70% for 2011 smart card and RFID ticketing IC shipments.

The Open Standard Public Transport Alliance (OSPT) continues its quest in penetrating the market with CiPurse product and has certainly had a successful 2012, completing pilots and trials worldwide, leading to two ongoing commercial deployments of CiPurse cards across two transport authorities believed to be located in Europe and Latin America.

Research analyst Phil Sealy told Incisor, “The CiPurse solution has made good progress in 2012. At ABI Research we strongly believe that a robust and flexible product range will increase its appeal.” Despite the CiPurse contract wins, ABI counsils that it is important not to get carried away. The OSPT is certainly in its infancy in terms of its specifications and commercially available solutions. Added competition from the OSPT is healthy for a growing transportation market, but it is not expected to challenge NXP's market share ranking over the mid-term.

Those that stand to benefit from increased CiPurse adoption, says ABI, include austriamicrosystems, Eccebs, G&D, Infineon, Inside Secure, Oberthur, Samsung, Smartrac, Openticketing, and Watchdata, all of whom are members of the OSPT Alliance. Adding a

CiPurse product range to G&D, Watchdata and Oberthur's portfolios could help them challenge ASK's dominant position as the leading smart card ticketing provider.

The overall market continues to grow at a YoY double digit rate, enabling the market to sustain business for new entrants, whilst allowing those already active and dominant to maintain a strong position.

Infineon releases dev kit for NFC tag apps

Infineon Technologies has released an NFC tag application developer kit for the North American market. Developers of smartphone apps can use the kit for design and test of information exchange applications based on NFC Forum Type 2 Tag technology.

One key category of applications for NFC (Near Field Communications) technology is based on the ability to create “Tap and Use” applications that link between a mobile device and tags embedded in objects. The tags require no attached power source and respond to the RF energy emitted by an NFC-radio device within a 10 cm range. Programmed with a short message or URL pointer to a website, embedded tags can be used to make signs and posters in retail environments “smart” and provide easy check-in to locations for consumer-oriented services.

Infineon told Incisor that its NFC Application Developer kit includes SLE66 R01 Series NFC tags in two form factors and a SLE 66R32 in a card form factor, programming information and application notes. Tags have either 128 byte or 2kbytes of usable memory (as defined for NFC Forum Type 2 Tag operation).

Infineon offers a portfolio of NFC Forum compliant tag solutions with usable memory sizes ranging from 128 bytes usable to 2 kbytes. Chips in the My-D Series include devices that support secured memory to protect data.

wi-fi/high speed wireless news



Wi-Fi Direct and Miracast face-off Apple AirPlay to bring content to TVs

ABI Research believes that consumers increasingly want to bring content from their mobile devices to the big screen TV. Wi-Fi Direct supports peer-to-peer connections between Wi-Fi devices, while Miracast (Wi-Fi Display) supports display of video content from tablets, smartphones, and other devices to the TV. By 2014 over 66% of connected CE devices (non-mobile/computing devices) are expected to support Wi-Fi Direct, with the majority of those devices Miracast certified as well. Miracast will facilitate developers bringing small screen content to the TV –making one's mobile device(s) a portable entertainment centre. Miracast certification is expected to come within the next few months, with Wi-Fi "Services" coming in 2013 – services will enable new functions, such as printing or gaming.

Senior analyst Michael Inouye told Incisor, "Part of Apple's success with AirPlay stems from its cohesive ecosystem – consumers know that multiple Apple products will work together. Unfortunately, interoperability eludes other consumers, despite standards like DLNA. The desire by competitors to replicate Apple's ecosystem has done more to fragment the market than support ease of use and interoperability. These new initiatives are attempting to address these shortcomings. Strong adoption by vendors, coupled with a better sense of what consumers want, will translate to increased consumer use in time."

To help support the increased demands on streaming content, Inouye suggested that next generation wireless technologies are also on the near-term

horizon. 802.11ac, the next generation Wi-Fi technology (branded 5G or gigabit Wi-Fi), is already available in select broadband routers with laptops not far behind. In the CE market higher-end models will receive the upgrade first, trickling down through lower price tiers as the technology becomes more widespread. 60GHz wireless technology (802.11ad/WiGig) in tri-band configurations could also enable new usage models and experiences with its robust data rates (at shorter distances).

But Set-Top Box to remain hard wired through 2017 despite Wi-Fi home networks

.... and apparently contradicting itself, ABI also observes that while Wi-Fi remains the predominant networking technology in most consumer's homes, wired solutions are gaining traction, especially for multiroom DVRs. MoCA has become the go-to wired technology for most cable and satellite operators in North America, (with trials in Western Europe), while HomePlug continues to do well in Western Europe. This has created good opportunities for companies like Broadcom who offer integrated MoCA SoCs and HomePlug solutions and Entropic (MoCA IC provider) who recently acquired Trident Microsystems to climb the STB value chain.

Sam Rosen, practice director at ABI Research told Incisor, "G.hn, with successful chipset plugfests held and certification underway, offers the potential to unify the home networking market in the long term. The technology promises to bring added flexibility to the wired networking markets with strong supporters like Sigma Designs who is heavily invested in the technology as a follow-on to its HomePlug solutions. Other G.hn chip manufacturers, Marvell and Lantiq, have a wider communications portfolio and will be less impacted should G.hn fail to gain stronger market interest."

Perhaps Sam and Michael should talk to each other?

Wi-Fi Alliance looks to expand Wi-Fi Direct certification, continues to expand into WPAN

The Wi-Fi Alliance has initiated a task group to build upon its certification for Wi-Fi Direct. The effort is aimed at developing a Wi-Fi Direct Services platform to foster development of applications and drive an enhanced user experience with a range of common tasks.

The work will augment the existing Wi-Fi Direct certification, says the Alliance, and will be backward compatible with already available Wi-Fi Direct devices. Launch of the new enhancements is targeted for 2013.

Kelly Davis-Felner, Wi-Fi Alliance marketing director told Incisor, "Our members have embraced Wi-Fi Direct as an important solution to connect devices directly, which creates an opportunity now to do more. Building on Wi-Fi Direct to enable multi-vendor interoperable applications will continue to drive the technology's adoption."

Few could argue with the fact that Wi-Fi Direct is gaining traction, with more than 1,100 certifications completed since the program's launch in October 2010.

Wi-Fi Direct is, of course, the version of the originally wireless local area networking protocol that now bangs heads with Bluetooth in the wireless personal area networking space. Attendance at enough Bluetooth events tells us that, while the Bluetooth SIG is aware of what is going on, it is not prepared to publicly confront Wi-Fi Direct's less than subtle invasion of its core territory. The Wi-Fi sector has always been more aggressive than Bluetooth. With the Wi-Fi Alliance and members' increased emphasis on achieving success in the WPAN sector, it will be interesting to see how co-existence of the two technologies pans out (sorry).

Ite/4g/m2m news



Sierra Wireless reaches agreement to acquire Sagemcom M2M

Sierra Wireless has entered into an exclusivity agreement for the acquisition of Sagemcom's machine-to-machine (M2M) business. Sierra Wireless has submitted a binding offer to acquire substantially all of the assets of the business for €44.9 million in cash consideration plus assumed liabilities.

The proposed acquisition remains subject to completion of the consultation process with employee representatives. This process is expected to commence immediately and, when complete, Sagemcom will be able to enter into a definitive agreement with Sierra Wireless. The companies expect this to occur in the third quarter.

Sagemcom, which is a French high-technology group active in broadband, telecom, energy, and document management, was an early entrant in the M2M market. The company has built a growing M2M franchise that includes 2G and 3G wireless modules, as well as rugged terminals for GSM-Railway (GSM-R) applications. Sierra Wireless told Incisor that Sagemcom M2M offers a significantly enhanced market position in key segments, including payment, transportation, and railways, as well as new geographical expansion into Brazil.

Jason Cohenour, President and CEO of Sierra Wireless explained, "Combining Sagemcom's M2M business with Sierra Wireless is a unique opportunity for us to enter new markets and bolster our leadership in wireless M2M communications. With a strong market position in key segments, a culture of innovation, and experienced teams based in Paris and Shenzhen, Sagemcom M2M is an ideal fit for Sierra Wireless."

Sagemcom's M2M business generated approximately €39.9 million in revenue and was solidly profitable during the twelve-month period ended December 31, 2011. Sierra Wireless will fund the purchase price out of cash reserves.

Tower top RF solution for wireless infrastructure

As the mobile network struggles to cope with the growing level of traffic and pressures on CAPEX, ABI Research suggested to Incisor that the RF electronics of a typical base station design will be subject to great innovation, namely in the form of tower mounted amplifiers, remote radio heads, and active antennas.

ABI believes that tower mounted amplifiers represent one of the best values for improved base station performance for service providers. Balancing the system link budget equation can now be easily accomplished at nominal cost, however, remote radio heads will represent a threat to TMA market growth. In turn, remote radio heads (RRHs) have become one of the most important subsystems of today's new distributed base stations. The remote radio head contains the base station's RF circuitry plus analog-to-digital/digital-to-analog converters and up/down converters. Active antennas, especially for wireless infrastructure base station applications, utilize the latest technology and will allow beam forming and shaping that will help today's crowded conditions in a data-rich signal environment. Active antennas could themselves affect the RRH market as that function is now incorporated into the active antenna.

Lance Wilson, research director for mobile networks at ABI Research, told Incisor, "Tower top active RF electronics will become more important as LTE roles out

over the next few years. This will be especially true for remote radio heads and active antennas."

All three of the above major RF electronics sub-systems have therefore become intertwined as functions start to converge.

Samsung demonstrates broadcast services over LTE

Samsung Electronics has demonstrated clear reception capabilities of LTE Broadcast services using evolved Multimedia Broadcast Multicast Service (eMBMS) technology using Anritsu's Rapid Test Designer (RTD) and MD8430A to simulate the LTE network environment.

The two companies explained that eMBMS technology allows the LTE network infrastructure to be used for the delivery of broadcast services such as TV. It enables carriers to adjust coverage and capacity as needed, allowing for more efficient use of network resources.

Anritsu's RTD delivers a set of test features using its flowcharting user interface. The Samsung engineers were able to create the eMBMS demonstration using RTD's graphical script design to drive the execution of the test simulation on an Anritsu MD8430A LTE signaling tester.

Kenji Tanaka, Executive Vice President at Anritsu commented, "Anritsu is delighted that Samsung, the world's largest cell phone maker, has selected RTD and MD8430A's technology leading capabilities to verify the implementation of eMBMS capability in its devices. Samsung's demonstration shows how Anritsu's RTD helps LTE device makers to prove their leading-edge technology in an intensely competitive market where reducing the product launch cycle time is critical to success".

Lte/4g/m2m news



Alliance advances multi-band / multi-standard transceivers

Multi-band, multi-standard transceiver chip firm Lime Microsystems will partner with the strategic investment firm In-Q-Tel. This is an independent, non-profit organisation that identifies technology solutions to support the missions of the U.S. Intelligence Community.

The partnership says that it is setting out to enable advances in transceiver technology to be deployed in commercial and government markets, and to create of systems that can be used across a diverse array of applications.

Lime CEO, Ebrahim Bushehri told Incisor, "IQT's partners require exceptional reliability, high performance and a proven product, so the partnership is a significant validation of both our transceiver and our stringent manufacturing and testing procedures. Furthermore, it demonstrates application of our technology in multiple markets where performance and reliability are of prime importance."

Robert Ames, Senior Vice President of the Information and Communication Technologies practice at IQT added, "Lime is a leader in RF technologies and has produced the world's first commercial integrated transceiver that can be used across a wide range of frequencies as well as multiple standards. Lime is an ideal partner to help advance vital communication systems in the U.S. and beyond."

The LMS6002D is a fully integrated multi-band, multi-standard single-chip RF transceiver for 3GPP (WCDMA/HSPA and LTE), 3GPP2 (CDMA2000) and WiMAX applications. It can be digitally configured to operate in 16 user-selectable bandwidths up to 28MHz.

The company has also designed an FPGA based Universal Wireless Toolkit, which enables users to create and test all commonly



used wireless systems. In addition to femtocells, enterprise femtocells and picocells, the kit can be used to create repeaters, GNU radio and white space radio applications.

Rohde & Schwarz provides tests for MIMO signals in the uplink

Rohde & Schwarz (R&S) claims to be the first T&M equipment supplier to offer a test solution for 3GPP LTE uplink with MIMO technology.

The R&S FS-K103PC software option from Rohde & Schwarz already meets one of the requirements of LTE-Advanced, the next incarnation of the 3GPP LTE standard. In release 10 for LTE-Advanced, the 3GPP has specified that user equipment with MIMO technology will be able to use up to four antennas to transmit data in the uplink to the mobile radio network. In the downlink, up to eight parallel data streams are provided for. MIMO allows the capacity of the LTE network to be expanded even further. Currently, 3GPP LTE only uses MIMO in the downlink with four parallel data streams. Until now, transmission of only one data stream was possible in the uplink.

R&S told Incisor that chipset developers can use the new software option to directly test whether the LTE uplink MIMO function is correctly implemented in the device under test. A setup consisting of two Rohde & Schwarz signal analyzers connected to a PC is used to test two antennas of the device under test simultaneously. This allows users to verify the MIMO precoding. The software analyzes the data streams and their distribution among the antennas according to the matrix multiplication defined by 3GPP. This also makes it possible to verify the time correlation between the antenna signals.

The R&S FS-K103PC option for use with R&S signal and spectrum analyzers is available now.

Snippets

"Couch commerce" trend to drive user adoption of mobile transactions

The value of remote transactions for digital and physical goods purchased via mobile devices is expected to exceed \$730bn annually by 2017, a new report from Juniper Research has found.

According to the report, transaction growth will be driven by the increasing scale of real-world (non-digital) purchases from major brands and retailers, with companies such as Domino's in the US and Argos in the UK already seeing 6-7% of all sales occurring via the mobile channel. Juniper also noted that as consumer tablet adoption continues to rise, there will be significant migration, with consumers increasingly engaging in online shopping while watching TV. Indeed, it found the development of this "couch commerce" trend would result in mobile and nomadic devices accounting for 30% of eRetail within five years.

In-car navigation market bottoms out

The total in-car navigation market has been in continual decline for the last 3 years, but ABI Research believes it has now reached its lowest ebb. While pure navigation is unlikely to reach the highs of 2008 again, the overall market is reaching a revenue plateau. Senior analyst Patrick Connolly told Incisor, "When we look at the decline from 2008 to 2011, there is a perfect storm of economic conditions, low-cost/free smartphone navigation, the decline of PNDs, and falling car sales. The market is forecast to reach a low of \$22 billion this year, before fluctuating around the \$22-\$24 billion mark, as a new period of growth for factory-fitted solutions, coupled with smartphone solutions, will take in-car navigation towards saturation point in many regions by 2017."

Should we expect NFC in iPhone 5?

ABI Research analyst John Devlin has been blogging about the likelihood of NFC appearing in the next-gen iPhone. As he says, the question on everyone's lips - at least in the NFC world - is will the new iPhone feature NFC?

Apple is certainly changing its use of wireless connectivity; it has got behind Bluetooth 4.0 but Devlin sees that as serving a different purpose to NFC. To find out whether or not he believes NFC will be in the iPhone 5, read the full blog [here](#).

Mobile payments war heats up

Mobile point of sale company mPowa has expanded its mobile payments service to cover Android smartphones and tablets as well as Apple iPhones and iPads. Customers with mPowa's free card reader may simply go to the Android Google 'Play Store' and download the mPowa mobile payment app to their phones for free, and then make and accept card payments - using any major credit or debit card - on the go anywhere. This news comes as Swedish mobile payments provider i-Zettle has been forced to announce that from 1st August it will not be able to process any payments using Visa in Denmark, Finland or Norway, as it was reported that i-Zettle's device does not meet Visa Europe's standard device acceptance.

events



DATE	EVENT	LOCATION	NOTES	LINK
Sept 11 - 12 2012	Wi-Fi World Summit	Barcelona, Spain	-	http://www.wi-fi.org/wifi-world-summit
Sept 11 - 12 2012	5th Annual NFC Congress	Hagenberg, Austria	-	http://www.nfc-forum.org/events/
Sept 25 - 26 2012	Smart Cities Industry Congress 2012	London, England	-	http://www.wi-fi.org/smart-cities-industry-congress-2012
October 9 - 11 2012	Smart Homes 2012	Rai Convention Centre, Amsterdam, The Netherlands	-	http://www.smarthomes-europe.com/
Nov 7 - 8 2012	Energy Harvesting and Storage USA	Washington DC, USA	-	www.idtechex.com
Nov 13 - 16 2012	electronica	Messe Munchen, Munich, Germany	-	http://www.electronica.de/
Nov 29 - 30 2012	Connected World Forum	Chengdu, China	-	http://www.wi-fi.org/connected-world-forum
Jan 8 - 11 2013	2013 International CES	Las Vegas, Nevada, USA	-	www.cesweb.org
Jan 29 - 30 2013	DECT & CAT-iq World Conference	Hotel Fira Palace, Barcelona, Spain	-	www.dectconference.com
Feb 26 - 28 2013	Embedded World	Nuremberg, Germany	-	www.embedded-world.de
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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