

**A CW Special Event:  
“Wirelessly Connecting the Internet of Things”**

19<sup>th</sup> June 2014

Jointly Sponsored by



and



Venue – The Talking Point, TTP, Melbourn Science Park, Melbourn, Herts, SG8 6EE, UK

## AGENDA

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**12:30** Registration & Networking over Buffet Lunch

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**13:30** **Introduction by the Chairman, John Haine of u-blox UK**

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**13:35** Welcome from the host, **Richard Walker**, Head of Communications & Wireless, **TTP**

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**13:40** Welcome from the joint sponsor, **Steven Edwards** of **Rohde & Schwarz UK**

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**13:45** **“Future IoT Connectivity Requirements: the Mobile Operator Perspective”**

**David Lister**, R&D Manager, **Vodafone**

Availability of spectrum and infrastructure are prerequisites for delivering wide-area IoT connectivity. Mobile Operators have the required assets, but are the cellular based technologies the best approach for delivering ubiquitous coverage, to very low-cost, low-power devices? What new technology set might an operator require?

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**14:05** Q&A

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**14:10** **“Meeting the Requirements Through Evolution of LTE Through Release 12 & 13”**

**Johan Bergman**, System Manager, **Ericsson** and **Amitava Ghosh**, NAM Radio Systems Research, **Nokia**

LTE is being evolved to meet the future IoT connectivity requirements. LTE Rel-12 enables cheaper devices with lower power consumption compared to earlier releases, and further evolution steps with respect to lower device cost than Rel-12, enhanced coverage and enhanced battery life are envisioned in LTE Rel-13.

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**14:30** Q&A

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**14:35** **“Characteristics of a Possible ‘Clean Slate’ New Air Interface”**

**Weiliang Zhang**, System Architect, **Huawei** and **Robert Young**, VP, Systems & Silicon, **Neul**

There is a huge opportunity for Mobile Network Operators to exploit the emerging IoT market. This talk makes a brief introduction to clean-slate radio access technology, which offers substantial benefits:

1. IoT network can be deployed in a very small bandwidth (DL: 180 kHz, UL: 180kHz)
2. Optimized for ultra-low terminal module cost (< \$5)
3. Optimised for very long terminal battery life (> 10 years)
4. Extended coverage compared with existing cellular (20 dB enhancement)
5. Reuse existing cellular network equipment, such antenna, remote radio head, etc.

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**14:55** Q&A

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**15:00** **“The Silicon Vendor’s View”**

**Robin Heydon**, Fellow, Global Standards, **CSR**

To enable any wireless technology requires the support of the silicon vendors, but what do they need, apart from good standards and huge volumes? Where will silicon process technology take those wireless things and what other design issues need to be considered?

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**15:20** Q&A

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**15:25** **Five minute pitch from Nick Appleyard, Head of Digital, Technology Strategy Board**

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**15:30** **Coffee/Tea and Networking**

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**16:00 “Driving the Next Wave of Industrial Revolution – A System Integrator viewpoint”**

**John Roe**, Technology Planning Lead at **Accenture Digital**

The Industrial Internet is the integration of complex machinery, sensors, software and communications. What is happening in this emerging and rapidly growing space, what are the business drivers and what will the eventual ecosystem look like?”

**16:20** Q&A

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**16:25 “Opportunities for Transformative Growth - an Entrepreneur's Viewpoint”**

**Antony Rix**, Senior Consultant, Communications & Wireless, **TTP**

End users and developers increasingly get the concept of the Internet of Everything, but from the early days of M2M we have struggled against practical challenges. What are the key issues, and how can they be overcome? What types of application could today's proposals unlock to enable new industries to grow?

**16:45** Q&A

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**16:50** Open Forum with all the Speakers, chaired by **John Haine** of **u-blox**

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**17:30** Fill in Evaluation Forms and **Event Closes**

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*With the permission of the speakers, presentations will be loaded to the Cambridge Wireless website on the day following the event*

## Profile of Organisers

### Cambridge Wireless (CW)

CW is the leading international community for companies involved in the research, development and application of wireless & mobile, internet, semiconductor and software technologies. With 400 members from major network operators and device manufacturers to innovative start-ups and universities, CW stimulates debate and collaboration, harnesses and shares knowledge, and helps to build connections between academia and industry. CW's 20 Special Interest Groups (SIGs) provide its members with a dynamic forum where they can network with their peers, track the latest technology trends and business developments and position their organisations in key market sectors. CW also organises the annual Future of Wireless International Conference and Discovering Start-ups competition along with other high-quality industry networking events and dinners. With headquarters at the heart of Cambridge, UK, CW partners with other international industry clusters and organisations to extend its reach and remain at the forefront of global developments and business opportunities. For more information, please visit [www.cambridgewireless.co.uk](http://www.cambridgewireless.co.uk)

## Profiles of Sponsors

### The Technology Partnership plc (TTP)

The Technology Partnership plc (TTP) is a leading independent technology and product development company. TTP works closely with its clients to create new disruptive products based on advances in technology and engineering innovation. TTP's technology lies behind many products and processes in areas as diverse as communications, digital printing, instrumentation, consumer & industrial products, medical devices, cleantech and security systems. For more information please visit: [www.ttp.com](http://www.ttp.com)

### Rohde & Schwarz UK

Rohde & Schwarz UK Ltd has been the UK subsidiary of Rohde & Schwarz GmbH for 40 years. Based in Fleet, RSUK employs 105 people to provide dedicated sales, services and support to customers across the UK and Ireland. Rohde & Schwarz has designed and manufactured the highest-quality specialist products in Germany for 77 years across a wide range of technologies and industries, including wireless, broadcast, aerospace, defence and security markets. For further information please visit: [www.rohde-schwarz.co.uk](http://www.rohde-schwarz.co.uk)

## Profiles of Speakers

### John Haine, u-blox UK

John Haine has spent his career in the electronics and communications industry working for British Telecom, Marconi, PA Consulting, and with start-ups including Cognito and Ionica. His technical background includes R&D in radio circuitry and microwave circuit theory; and the design of novel radio systems for cordless telephony, mobile

data, and fixed wireless access. He has led standardisation activities in both the latter areas in ETSI, and contributed to WiMax.

In 1999 he joined TTP Communications working on research, technology strategy and M&A activities; and after the company's acquisition by Motorola became a Director of Technology Strategy in Motorola Mobile Devices. After leaving Motorola he was CTO, Enterprise Systems with ip.access Limited, the leading manufacturer of GSM picocells and 3G femtocells. In early 2010 he joined Cognovo Limited, which was acquired by u-blox AG in 2012. At u-blox John is defining RF platform strategy for future wireless modules and looking at emerging standards for M2M. John has a first degree from Birmingham and a doctorate from Leeds universities. For further information please visit: [www.u-blox.com](http://www.u-blox.com)

#### **David Lister, R&D Manager, Vodafone**

David Lister works in Vodafone's Group R&D team where he leads research into m2m network and access technologies. He has 20 years' experience in mobile telecommunication networks leading a variety of technical teams including radio propagation, planning, optimisation and network system modelling. He has been closely involved in the life-cycle of new technologies, from requirement setting through to their introduction into commercial networks. David is a Chartered Engineer, and holds engineering degrees from the University of Strathclyde and the University of East London. For further information, please visit [www.vodafone.co.uk](http://www.vodafone.co.uk)

#### **Johan Bergman, System Manager, Ericsson**

Johan Bergman is a system manager within Ericsson, currently involved in standardization of LTE enhancements for machine type communications within 3GPP RAN WG1. Johan joined Ericsson in 1997 and has since then been focused on physical layer aspects of WCDMA and LTE, in particular base station baseband performance and physical layer standardization. Since 2005, Johan is a delegate of 3GPP RAN WG1, the working group responsible for standardization of the physical layer in WCDMA and LTE.

For further information, please visit [www.ericsson.com/uk](http://www.ericsson.com/uk)

#### **Amitava Ghosh, Head of North American Radio Systems Research, Nokia**

Amitabha (Amitava) Ghosh joined Motorola in 1990 after receiving his Ph.D in Electrical Engineering from Southern Methodist University, Dallas. Since joining Motorola he worked on multiple wireless technologies starting from IS-95, cdma-2000, 1xEV-DV/1XTREME, 1xEV-DO, UMTS, HSPA, 802.16e/WiMAX/802.16m, Enhanced EDGE and 3GPP LTE. Dr. Ghosh has 60 issued patents and numerous external and internal technical papers. Currently, he is Head, North America Radio Systems Research within the Technology and Innovation office of Nokia. He is currently working on 3GPP LTE-Advanced and 5G technologies. His research interests are in the area of digital communications, signal processing and wireless communications. He is a senior member of IEEE and co-author of the book titled "Essentials of LTE and LTE-A". For further information, please visit [www.nsn.com](http://www.nsn.com)

#### **Weiliang Zhang, System Architect, Huawei**

Weiliang Zhang is a system architect within Huawei, currently involved in M2M research, prototype and standardization projects. Weiliang joined Huawei in 2008 and since then he has managed to lead LTE TDD prototype development, LTE Test UE, LTE FDD MIMO prototype, device to device (D2D) research/prototype development, and M2M research/prototype/standardization projects. Before joining Huawei, Weiliang worked for Panasonic, National Instruments and Beijing Tuoyutai, a start-up in broadband digital communication. He graduated from the EE Dept, Tsinghua University with a Masters degree in 2003.

For further information, please visit [www.huawei.com](http://www.huawei.com)

#### **Robert Young, Co-Founder & VP Systems & Silicon, Neul**

Robert is a co-founder of Neul, and is responsible for the systems engineering, silicon design and product engineering teams. Previously, he was a co-founder of Cambridge Silicon Radio (CSR). At CSR, he served in various design and engineering management roles from 1999 to 2010, the latter 5 years as VP Chip Design, responsible for the analogue/RF, digital and system design teams across Europe. Prior to CSR, Robert held technical positions at Cambridge Consultants Ltd. He holds a degree and PhD in Electronic Engineering from the University of Cambridge. For further information, please visit [www.neul.com](http://www.neul.com)

#### **Robin Heydon, Fellow, Global Standards, CSR**

Robin Heydon has a degree in Computer Science from Manchester University. After working in both the US and Canada, Robin joined CSR in early 2000 and has worked on both the firmware for Bluetooth chips as well within the Bluetooth SIG chairing many of the committees and working groups. Robin is a member of the Bluetooth SIG Hall of Fame, as well as the author of the best selling book on Bluetooth low energy. For further information, please visit [www.csr.com](http://www.csr.com)

#### **John Roe, Accenture Digital**

John is Technology Planning Lead at Accenture Digital, based in Cambridge. Accenture is a global management consulting, technology services and outsourcing company, with 261,000 people serving clients in more than 120

countries. John is responsible for spearheading the Technology agenda in Accenture Mobility, where he has worked since 2009 helping clients deliver key device projects, and taking new technology offerings to market. Prior to Accenture he worked at Nokia and at Symbian where he spent 10 years working closely with handset OEMs on the architecture and realisation of many market leading smartphones. John holds a MA in Engineering from Churchill College, Cambridge University and is a Chartered Engineer. For further information, please visit [www.accenture.com](http://www.accenture.com)

### Antony Rix, Senior Consultant, Communications & Wireless, TTP

Dr. Antony Rix is a Senior Consultant in the Communications and Wireless group at TTP, Europe's leading independent technology consultancy and product development company. He has led projects in areas including mobile TV, phone apps, network planning, and novel short-range and wide area wireless technologies. Antony is currently engaged in business development and programme management in wireless healthcare and in safety-related radio systems, where he focuses on developing breakthrough products and services for TTP's clients based on applications of technology.

Before he joined TTP in 2004, Antony worked at BT's Research Laboratories and then co-founded Psytechnics, a successful start-up company developing quality of service and network monitoring software.

Antony has a Ph.D. from the University of Edinburgh and a Masters in Engineering from the University of Cambridge. He is a member of the American Telemedicine Association, Institute of Engineering and Technology and Audio Engineering Society, and he co-chairs the Cambridge Wireless Special Interest Group on Connected Devices.

For more information please visit [www.ttp.com](http://www.ttp.com)

Delegate List		
Name	Organisation	Company Profile
Colin Aitken	NextG-Com limited	Wireless protocol stack product/services development company specialising in M2M/IoT technologies.
Lawrence Archard	Upbeat Product Development	Electronic product development for fees or equity stake
Yassin Awad	NEC Telecom Modus	
John Bechtel	Badger Pass	
Johan Bergman	Ericsson	
Francesc Boixadera	Mediatek	
Stan Boland	Neul	
Eric Bouton	Vodafone Group	
John Bromell	Telyx Ltd	Provider of systems engineering consultancy services to the telecoms industry
Paul Bruce	BT PLC	Incumbent UK fixed operator
Phil Burr	Arkessa	Arkessa provides an M2M platform, connectivity & an Enterprise Internet of Things platform.
Andy Bush	Accenture	
Colin Campbell	Cambridge Consultants	Innovative product development
Iain Campbell	Accenture	
Rick Chandler	Airworking	IoT and Smart City Consultancy
Gilles Charbit	Mediatek	Chipset manufacturer
Jeannette Chin	Anglia Ruskin University	
Phil Claridge	JDSU	
Chris Clifton	Sony Europe	
Ashley Coles	Ringtrack Ltd	Manufacture and Operation of GSM and Wi-Fi based IoT Devices
Clennell Collingwood	The Technology Partnership	TTP works with clients to bring new products to market, creating business from advances in technology
Graham Collins	University College London	

Andy Crisp	7Layers	7Layers: Test experts for Wireless Technologies; LTE, HSPA, W-CDMA, GSM, Bluetooth, Wi-Fi, NFC, WLAN
Ayse Cufoglu	Anglia Ruskin University	Anglia Ruskin University
Esko Dijk	Philips	Professional and consumer lighting
Paul Dillien	High Tech Marketing	High Tech Marketing offers consultancy, marketing and sales for semiconductor and electronics firms
Clifford Dive	Argon Design	We develop technologies and products for Fortune 500 and FTSE100 brands, and SMEs
Gaoke Du	Huawei	
Richard Edgar	Imagination Technologies	
David Edwards	Underwriter Laboratories	Global market Access (Type Approvals) for wireless and automotive products
Steven Edwards	Rohde & Schwarz UK	
Tim Ensor	Cambridge Consultants	Product Developers and Technology Consultants
Simon Fletcher	NEC Telecom Modus	
Shane Flint	Affarii Technologies Ltd	Wireless IP Developer
Richard Fry	u-blox	
Jibin George	Ofcom	
Amitava Ghosh	Nokia	
Paul Gillespie	Gillamor Stephens	Building the Exec and Non-Exec teams for start-up companies across Europe
Simon Glassman	Numerex	Numerex is a leading provider of M2M Managed solutions and services.
Svetlana Grant	GSMA	trade association
John Haine	u-blox UK	
Lindsay Harris	Rohde & Schwarz UK	
William Harrold		
Mark Harrop	BT Plc	Lumbering incumbent
Christopher Haseldine	Deaf Alerter plc	Radio based emergency communications
Stephen Haseldine	Deaf Alerter plc	Radio based emergency communications
Robin Heydon	CSR	
Ward Hills	Albion Innovations	
Tracy Hopkins	Neul Ltd	
Gillian Huang	Mediatek	<a href="http://www.mediatek.com">www.mediatek.com</a>
Richard Jacklin	Anite	Wireless Test & Measurement
Mike Jarvis	Roodmicrotec	Independent test house based in Germany
Gareth Jones	Solid State/2001	wireless technology technical distribution
Soraya Jones	Cambridge Wireless	
Jussi Kahtava	Sony Europe	
David Kenyon	MAC Ltd	
Guy Kenyon	Kenyon Consulting	
Kit Kilgour	ip.access Ltd	ip.access is the leading provider of 2G, 3G & LTE small cell solutions with over 1M cells deployed
Kamran Kordi	Nokia	
Zsolt Kormanyos	Ericsson	

David Lister	Vodafone	
Peter Love	Nokia	
Michele Mackenzie	Analysys Mason	Research and consulting telecommunications
Graham Maile	Plextek Ltd	
Antonio Marcantonio	UL	
Peter Mason	Welwyn Business Services	
Peter Montgomery	GSMA	
Paul Morris	CSR	Wireless platforms
John Okas	Real Wireless	Independent Wireless Advisors for Market, Product & Technical Strategy
Hassan Osman	Real Wireless	Independent Wireless Experts
Raul Padilla	OrangeLabs UK	
Purvi Parekh	Olswang	
Amyas Phillips	ARM	
Marco Pisano	techUK	Trade body representing ICT sector in the UK.
Antonello Pisu	Alcatel Lucent	
Chris Pudney	Vodafone Group	
Khurram Qayam	Net-Integ Solutions	
Tom Rebbeck	Analysys Mason	
John Redford	Neul	
Michael Reynolds	Invisibly Connected	Wireless technology consultancy specialising in low power license exempt and mesh technologies.
Antony Rix	TTP	
John Roe	Accenture	
Mauro Scagnol	CSR	
David Sharp	Ocado	Ocado is the world's leading online only grocery retailer
Andy Simpkins	Toby Churchill Ltd.	Providing communications, cognition and access solutions for disabled customers.
Steve Sims	Ziconix Ltd.	Developing hardware and software for mobile device centered systems.
Iain Stanbridge	EE	Mno
James Stein	TTP	Product and technology development and consultancy.
Mårten Sundberg	Ericsson	
Richard Thurston	Vodafone	
Ari Toivonen	Home Office	Government
Paolo Ursino	ConneXM	
Benny Vejlgaard	Nokia	
Catherine Viola	Quindi Research	Research and advisory services for energy & telecoms sectors
Richard Walker	TTP	
Nigel Wall	Climate Associates	excited by the potential of IoT & smart networks to reduce carbon footprint.
Jiangzhou Wang	University of Kent	We are focused on research in mobile communications, including M2M
Ian Wassell	Computer Lab, University of Cambridge	Teaching and Research

Richard Wloch	Accenture	
Steven Wright	IPextreme	IPextreme is providing ways of licensing, managing & leadership in semiconductor IP.
Robert Young	Neul	
Weiliang Zhang	Huawei	
Yang Zhao	Huawei	
Bin Zhen	Huawei	
Shiri Zilberman	Broadcom	