Small Cell SIG

'Stretching the Limits'

3rd April 2014

This event is jointly sponsored by Microlease and Agilent

*This SIG is championed by David Chambers of **ThinkSmallCell,** Simon Fletcher of **NEC Telcom MODUS**, Zahid Ghadialy of **eXplanoTech**, Simon Saunders of **Real Wireless** and Paul Kenworthy of **Ranplan***

Venue: Bamford and Skillicorn Room, Homerton College, Hills Rd, Cambridge CB2 8PH

AGENDA

13:45	**Registration & Networking over Refreshments**
14:20	Introduction to the Small Cell SIG by **David Chambers** of **ThinkSmallCell**
14:30	Welcome from our Joint Sponsors **Mike Lawton** of **Agilent Technologies**
Sessions chaired by **David Chambers** of **ThinkSmallCell**	
14:35	**'Operator Plans for the Ultra-Dense Network'** **Caroline Gabriel**, Research Director, **Rethink Technology Research** Over several years of forecasting small cell deployments, Rethink Research has seen changes in operators' priorities in technology, timing and services. However, one factor has remained constant - with every forecast, the projected density of urban networks increases as data consumption outdoes expectations and new services are added. In this session, we will share the results of a new survey of mobile operators worldwide and their plans for small cells, Wi-Fi offload and other approaches to adding dense capacity. This will provide insights into current thinking, as well as forecasts of future uptake, including how MNOs anticipate they will achieve 'ultra-dense networks' by the end of the decade, as well as the key obstacles in their path.
14:55	Q&A
15:00	**'Small cells deployment Challenges'** **Jouni Korhonen**, Technical Director, **Broadcom** Future wireless networks are a composition of multiple radio technologies in an increasingly challenging deployment environments, where macro network coverage and capacity is compensated with small cells. This presentation looks into multi-radio small cell deployment challenges in rural, metro and indoor environments. We take a broad look into technical, environment and ecosystem challenges the deployment face.
15:20	Q&A
15:25	**'Unlocking Small Cell for the Enterprise'** **Atul Roy**, Network Strategy Manager, **EE** At EE we thrive to know what our customers want, and aim to offer them far greater innovation than they imagine. We believe that records are only set so that they can be broken. In our pursuit of setting higher bars of innovation, and pushing limits, we see small cell as a potential solution to some of the challenges ahead. However, we don't believe that small cell will solve all coverage or capacity challenges, but we do believe that small cell could lead to something much bigger. This talk will give an insight into our views of what the future may look like, and the role small cell would play in it. We believe that to find the limits of what is possible, sometimes we may need to go into the realms of what is perceived to be impossible.
15:45	Q&A
15.50	**Refreshment Break & Networking**
Sessions chaired by **Zahid Ghadialy of eXplanoTech**	
16:20	**'The use of Inter-cell Interference Co-ordination (ICIC) Techniques for Small Cell Deployment in Heterogeneous Networks'** **Mike Lawton**, Product Planning Engineer, Mobile Broadband Operation, **Agilent Technologies** Whilst there are multiple ways to grow network capacity, it is clear that small cells are needed in order to meet the challenge presented by the explosive growth in data traffic. Operators need to invest wisely and find ways to support the exponential traffic growth whilst driving down the cost per bit. Heterogeneous networks provide the opportunity to enjoy the benefits of small cells with an incremental investment to an existing large cell network. This brings many advantages but also challenges associated with managing interference. This paper looks at the techniques used to address these interference issues as they progress through standardisation into a commercial reality.
16:40	Q&A

	'Automation –answer to the Capacity Crunch or Recipe for disaster'
16:45	**Justin Paul**, Head of OSS Marketing, **Amdocs** and **Neil Coleman**, Marketing Director, **Amdocs Radio Access Network Division** The rapid adoption of smart phones and tablets is driving phenomenal growth in data usage. Networks will not be able to cope without radical change. Amdocs believe that two types of automation within the network will be key to future success. The first type of automation is through Self-Optimizing and organizing networks (SON). Neil will explain Amdocs experiences of SON and how closed loop optimization of networks is the secret to success. The second type of automation is automation of the network roll out process. Justin will explain Amdocs experiences in Small Cell rollout and using network data to drive placement of Small cells.
17.05	Q&A
17:10	Open Forum with all speakers chaired by **Zahid Ghadialy of eXplanoTech**
17:45	**Event Close** and fill in evaluation forms

Delegates are invited to attend the Founders' Dinner pre-dinner drinks, taking place at Homerton College in the Fellows' Dining Hall, Cambridge and is kindly sponsored by Microlease and Agilent

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

Profile of Organiser

About 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

Profile of Sponsor

Agilent Technologies

Agilent Technologies, the world's premier measurement company offers a full range of the latest wireless test equipment that spans the entire lifecycle from early design and development through to volume manufacturing, network deployment and service assurance. For more information, please visit: www.**agilent**.co.uk

Microlease

Microlease is the expert in Test Equipment Management. We have over 30 years of experience offering the best test equipment with a range of financing options. With over 4,000 instruments to choose from covering a range of manufacturers and industries, Microlease can help deliver your projects on time and on budget. Whether you need equipment for short or long periods, we can help you easily acquire what you need, when you need it, with options that are ideal for your situation. Our portfolio of services includes rental, leasing and finance, buying new or used equipment, calibration, asset management and auditing and even a programme to buy back your unused equipment. Microlease is also Agilent's Authorised Technology Partner in the UK, Ireland and Italy. Our strong partnership with Agilent gives you access to the best Agilent equipment supported by an unbeatable range of Microlease financial solutions. For more information please visit: www.**microlease**.com.

Profile of SIG Champions

Simon Fletcher, NEC Telcom MODUS

Simon Fletcher has working in the communication industry for over 10 years, having represented NEC in Global joint venture enterprises developing 3G and 4G radio access products; working in various Systems and Project Management roles. Recently he has completed a spell as the Steering Board representative for NEC Corporation in LSTI (LTE SAE Trials Initiative) and is engaged in the management of 3GPP RAN1 standards development and early stage product

innovation processes. Simon is a member of the Board of the Mobile Virtual Centre of Excellence (MVCE), Industrial Chairman for the EPSRC/MVCE Green Radio Programme, and on behalf of the MVCE Board leads discussions on new Open Innovation initiatives targeted to launch in 2012. For more information please visit: www.**t-modus.nec**.co.uk

Zahid Ghadialy, eXplanoTech Ltd.

Zahid has been working in the mobile industry since the dawn of 3G. He worked with the team responsible for the first 3G network rollout in Japan and Europe. Since then he has worked with several established and small companies in different areas of technology as an engineer, programmer, researcher, architect, trainer, project manager, product manager and even in PR and marketing functions. During his career spanning over 15 years, he has worked with chipset and handset manufacturers, network equipment vendors, research companies, small cells and wi-fi companies, analyst firms and even consulting companies. As a Co-Founder, Managing Director and CTO of eXplanoTech, Zahid is using his immense experience to help this young company become well established and successful. Along with an expertise in programming and 3G / 4G technologies, he is nowadays working on futuristic ideas and technologies, including 5G. He is a regular speaker at many small and international conferences and events. His 3G4G blog (http://blog.3g4g.co.uk/) is one of the most well-known independent mobile technology blog worldwide. You can also follow him on twitter **@zahidtg**. For more information please visit: www.**explanotech**.com

Prof. Simon Saunders, Real Wireless

Simon is an independent specialist in the technology of wireless communications, with a technical and commercial background derived from senior appointments in both industry (including Philips and Motorola) and academia (University of Surrey). As co-founder of Real Wireless, he is responsible for overall technical capability and direction. He is an author of over 140 articles, books and book chapters. He has acted as a consultant to companies including BAA, BBC, O2, Ofcom, BT, NTL, Mitsubishi and British Land and was CTO of Red-M and CEO of Cellular Design Services Ltd. Simon speaks and chairs a wide range of international conferences and training courses and has invented over 15 patented wireless technologies. Particular expertise includes in-building wireless systems, radiowave propagation prediction, smart antenna design and mobile system analysis. He has served on technical advisory boards of several companies, Visiting Professor to the University of Surrey, member of the industrial advisory board at University College London and was founding chairman of Small Cell Forum (formerly Femto Forum), which he chaired from 2007-12. He is a member of the Ofcom Spectrum Advisory Board. For more information please visit: www.**realwireless**.biz

David Chambers, ThinkSmallCell

David Chambers is Founder and Senior Analyst at ThinkSmallCell.com, an independent website which has tracked the evolution of small cells from their early femtocell origins. With both an engineering and marketing background, and a career spanning product management and marketing for several large telecom vendors, he has gained insight and experience by meeting with mobile operators worldwide. Well known throughout the small cell industry, David writes articles, white papers and presents at conferences on all aspects of the subject. Based in a firm belief that the only technical solution to meet strong data demand is rapid deployment of large numbers of small cells, David continues to be a strong advocate of their adoption whilst pointing out their technical and commercial constraints. For more information please visit: www.**thinksmallcell**.com

Paul Kenworthy, Ranplan

Paul Kenworthy is the Sales & Marketing Manager for Ranplan Wireless Network Design who provide a wireless network design tool for indoor & and indoor-outdoor wireless networks. Previously, Paul founded Apoideas, who developed an ultralow power wireless communications platform for telemetry applications. Prior to that, Paul was in management and engineering positions at Motorola, TTPCom and NEC. Paul has twenty years of experience in wireless communications and international business experience having lived & worked in Japan, Singapore, Australia & the United Kingdom. Paul holds an MBA from the University of Cambridge and bachelor degree in electrical engineering from Monash University (Australia). For more information please visit: www.**ranplan**.co.uk

Profile of Speakers

Neil Coleman, Amdocs Radio Access Network Division

Neil Coleman is the Marketing Director for Amdocs Radio Access Network Division, and joined Amdocs following the acquisition of Actix and Celcite late in 2013. Prior to joining Actix Neil held a number of marketing and product management roles in companies such as IBM and Fujitsu/ICL. For information please visit: www.**amdocs**.com

Caroline Gabriel, Rethink Technology Research

Caroline co-founded Rethink Technology Research in 2002 to focus on emerging mobile technologies. Rethink recently combined its published research activities with those of fellow 4G analyst company, Maravedis, to focus on LTE and operator strategies.

Caroline has been analysing and reporting in the hi-tech industries since 1986 and has a wealth of experience of technology trends and how they impact on business models. She started her career as a technology journalist and then took senior roles in online publishing and research before focusing full time on wireless industry research and consultancy. For information please visit: www.**rethinkresearch**.biz

Jouni Korhonen, Broadcom

Jouni Korhonen, Ph.D, is an associate technical director in Broadcom. Has been an active contributor to the IETF, GSMA and also 3GPP since beginning of Release-6. Jouni has authored more than 25 IETF RFCs with a high adoption rate in 3GPP system architecture and currently holds three IETF working group chair positions. He has also served as a rapporteur for the 3GPP evolved packet core DNS specification. During the past years, Jouni has focused on and

profiled IPv6 and mobility issues in cellular networks in his research, product and standards development work. His interests include the Internet at large, IPv6, IP in 3GPP system architecture and its evolution, mobility and recently also mobile platform security aspects. For information please visit: www.**broadcom**.com

Mike Lawton, Agilent Technologies

Michael Lawton is a Lead Product Planning Engineer within the Mobile Broadband Operation of Agilent Technologies' Microwave Communications Division. He has been with Agilent for 20 years, spending the majority of his career, working in product planning on a variety of different wireless technologies. Michael holds both a bachelor's degree (BEng) and a PhD in electrical engineering from the University of Bristol. He has been awarded 4 patents in the areas of wireless networking and fiber optic communications. He has also represented Agilent and served as chair for external groups developing industry standards. For information please visit: www.home.**agilent**.com

Atul Roy, EE

Atul Roy is a Network Strategy Manager at EE, UK's largest mobile operator which currently operates three brands EE, Orange and T Mobile in the UK. Atul's experience includes engineering, management and driving innovative start-up businesses to market. Atul is also closely associated with various venture capital firms, universities, and other organisations including IEEE. Atul believes that both innovation and its execution are equally important for achieving and sustaining a market leadership position. For information please visit: www.**EE**.co.uk

Justin Paul, Amdocs

Justin Paul is the Head of OSS Marketing at Amdocs. He is based in Bath in the UK. He has previously worked as a consultant to the Scottish Government, Airwave and a number of network equipment providers over the past 17 years. For information please visit: www.**amdocs**.com