UK5G – The death of IP?
Realising opportunities in Next Generation Protocols

26th April 2018
Sponsored by Cambridge Consultants

Venue: Cambridge Consultants, 29 Science Park, Milton Road, Cambridge CB4 0DW

AGENDA	
09:30	Registration and networking with refreshments
10:30	Welcome from host: **Derek Long, Head of Telecoms and Mobile, Cambridge Consultants** Morning sessions and discussions chaired by **Derek Long, Head of Telecoms and Mobile, Cambridge Consultants**
10:35	**'Why LTE didn't cut it for Ocado'** **Fraser Edwards, Associate Director, Wireless Systems, Cambridge Consultants** Ocado is the world's largest online only food distributor and developed the Ocado Smart Platform a fully integrated warehouse and logistics platform. A critical part of the platform is the communication system connecting the control element of the platform with the automated machinery used for collection and sorting of produce into totes ready for loading into the distribution network. The communications system must be wireless on account of the movable machinery and must be high performance as it operates in unlicensed spectrum and yet must provide very highly reliable communication so as to ensure full control. In this presentation we will describe the work we performed in the design of the system and some of the decisions that we made in order to develop the system and also key elements of the final system design and performance.
10:50	Q&A and discussion
11:05	**'Operators' requirements'** **Kevin Smith, Senior Technology Strategist & Distinguished Engineer, Vodafone** The projected surge in connections, data consumption and mobility in the 5G era will place demanding requirements on networks - especially regarding performance, reliability and security. This step-change drives the need for next generation protocols to deliver these requirements with efficiency and scalability.
11:25	Q&A and discussion

11:40 **'Packet forwarding in NGP'**

John Grant, ETSI Industry Strategy Group chair & partner at Nine Tiles

Changes in digital electronics since TCP/IP was created are outlined, and technology more appropriate to the 21st century, and to operators' requirements, is described. This provides two services; one is a synchronous service offering latency of a few microseconds per hop, to support applications requiring ultra-low latency as well as being the most convenient way to send continuous media such as audio and video. The other, which can use all capacity not used by the synchronous service, is a more traditional packet data service but with packet headers simplified by replacing per-flow information with a label which points directly to a routing-table entry; as well as reducing overheads this should greatly simplify the forwarding plane for SDN and allows new kinds of addressing to be supported.

12:00	**Q&A and discussion**
12:15	**Lunch**
13:15	**Session Facilitator**, Derek Long, Head of Telecoms and Mobile, Cambridge Consultants
	Open discussion – The effect of the change away from TCP/IP on other parts of the system
15:15	**Coffee break**
15:45	**Open discussion continues**
17:00	**Event close**

With the permission of the speakers, presentations will be loaded to the CW 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 and mobile, internet, semiconductor and software technologies. With over 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 major conferences and start-up competitions 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. **www.cambridgewireless.co.uk**

Profile of host and sponsor

Cambridge Consultants @CambConsultants

As a global centre of excellence for wireless design, Cambridge Consultants has developed a series of world firsts in a range of wireless technologies. Many products that you have used will have some component of our work inside. Project examples range from ultra-low-cost consumer radios to high value satellite handsets. Cambridge Consultants has helped clients to develop:

- World's smallest satellite data terminal
- World's first single-chip Bluetooth radio
- World's first GSM videophone for Orange
- World's first Continua Health-certified Bluetooth device
- Europe's first FCC-approved UWB product
- The ATC radios that manage US airspace

The company thrives on complex system design, getting it right, first time. The wireless team of over 100 engineers, designers, scientists and consultants create and deliver market-leading products and systems for clients around the world. **www.cambridgeconsultants.com**

Profile of speakers

Fraser Edwards, Associate Director, Wireless Systems, Cambridge Consultants
Fraser currently works for Cambridge Consultants Wireless and Digital Services Division. Cambridge Consultants is recognised as a world leader in helping clients identify, create and launch breakthrough products and services that disrupt their markets. It has offices in Europe, North America and Asia and serves clients from start-ups to blue chips. His main role is to provide technical leadership for high value, predominantly breakthrough wireless technology developments. His experience covers multiple programme aspects from system definition, analysis and risk mitigation through to test definition and product development. Prior to working for Cambridge Consultants Fraser managed and led the RF Systems group for the UK research division of the Canadian telecoms giant, Nortel Networks. Fraser graduated from The University of St Andrews, 'Scotland's First University' with a BSc in Physics. He is a named inventor on several patents. Profile to follow **www.linkedin.com/in/fraseredwards/**

John Grant, ETSI Industry Strategy Group chair & partner at Nine Tiles
John Grant chairs the ETSI Industry Strategy Group on Next Generation Protocols. He has been designing digital networks since 1981 when he created local area networking technology which was used in both industrial and commercial environments. Since then he has created products for carrying video and audio over digital networks, including network switching equipment; this has given him an insight into the requirements of audio and other live media, which are very different from those for data traffic. More recently he has been researching how packet networking can meet these requirements as well as avoiding the various problems that have been identified with IP. He is a Fellow of the Audio Engineering Society and chairs their standards subcommittee SC-02 on digital audio. He is also editor of several international standards documents including ISO TR 29181-3 (Future Network switching and routing). Profile to follow **www.linkedin.com/in/johngrantninetiles/**

Kevin Smith, Senior Technology Strategist & Distinguished Engineer, Vodafone

Kevin Smith is a Distinguished Engineer, Vodafone Group. Kevin has worked with mobile Internet technologies since 1999, as a developer, enterprise architect and standards contributor. Since 2007 he has represented Vodafone at industry fora, including W3C, OMA, GSMA and IETF; and chaired several cross-operator and multi-vendor initiatives, including OneAPI and GSMA's ENCRY and SMART groups. He chaired ETSI ISG NGP (Next Generation Protocols), 2016-17, driving the need for new Internet protocols that can securely sustain a broad range of 5G scenarios.

Profile to follow **www.linkedin.com/in/kevinsmithmobileweb/**