Security, Privacy, Identity & Trust SIG

'Security vulnerabilities in critical national infrastructure'

1st June 2023

This SIG is championed by **Sam Durrant** of **Plextek, Zahid Ghadialy** of **3G4G** and **Yiru Zhong** of **Soracom**

Venue: Cambridge University Officer Training Corps, Army Reserve Centre, Coldhams Lane, Cambridge CB1 3HS

Several wireless technologies are today essential for the provision of both public services and the functioning of industry businesses and their products. The security of these technologies may be taken for granted, for example: GPS provision and usage is very widespread, though vulnerabilities exist which are not difficult to exploit. This event explores the assumed securities of a number of related technologies, from Position Navigation and Timing (PNT) through to identity management and authentication, raising awareness of their vulnerabilities and possible avenues to increase their resilience.

AGENDA

13:30	**Registration, refreshments and networking**
14:00	**CW welcome: Paul Crane, CEO, CW (Cambridge Wireless)**
14:05	**Welcome from event sponsor: Richard Jacklin, Business Development–Commercial Lead, Plextek**
14:10	**Introduction to topic by Yiru Zhong, SIG Champion and Market Development Manager, Soracom**
14:15	**Session to be chaired by Yiru Zhong, Security, Privacy, Identity & Trust (SPIT) SIG Champion** **Dr. Saif Abed, Director of Cybersecurity Advisory Services, The AbedGraham Group**
14:35	**Q & A**
14:40	**'Assured Position, Navigation and Timing'** **Dr Aled Catherall, CTO, Plextek** Many systems are critically reliant on Global Navigation Satellite Systems (GNSS) for provision of accurate position, navigation and time information. But GNSS is easily denied or even spoofed. This presentation discusses technologies that Plextek are developing to mitigate loss of GNSS.
15:00	**Q & A**
15:05	**'Resilient Time for the Future'** **Dr Leon Lobo, Head of the National Timing Centre, National Physical Laboratory** Time is an invisible utility, underpinning our digital infrastructure, the basis for global navigation satellite systems delivering Position Navigation and Time (PNT) information, synchronisation of 5G networks and the energy grid, to timestamp traceability critical for trading platforms in financial services. We have an increasing dependency on GNSS for PNT and our awareness of this dependency is poor. This puts us at significant risk of emerging and future applications being 'dependent by default' on weak space-based signals, vulnerable to interference and a rapidly developing threat landscape.
15:25	**Q & A**
15:30	**Refreshment break and networking**
16:00	**Session to be chaired by Sam Durrant, Security, Privacy, Identity & Trust (SPIT) SIG Champion** **'Being proactive: Picocom's experience of the new UK Telecommunications Security Code of Practice's Vendor Security Assessment', Richard Storer, Director of Security, Picocom** In December 2022, the UK Government published the Telecommunications Security Code of Practice. This includes the requirement for network operators to assess equipment vendors against a Vendor Security Assessment (VSA). As our customers' products are built on Picocom SoCs and software, we want to provide reassurance to them that our products have the security features they require to meet the VSA, so we submitted Picocom's products and processes to be assessed by BSI (The British Standards Institution) for compliance with the requirements of the VSA. In this talk we discuss the lessons we have learnt from the assessment and offer our opinion of the suitability of the VSA for products at our position in the telecoms supply chain.
16:20	**Q & A**

16:25	**'Scalable hardware vulnerabilities and software protections for Critical National Infrastructure'** **Dr Franck Courbon, CEO, Ethicronics** Space, datacenters, energy, food manufacturing…Operational technology and other critical systems always run on some electronics hardware - and no security is possible without an adequate root of trust. This short talk will particularly highlight associated supply chain and tamper attacks/protections.
16:45	**Q & A**
16:50	**Wrap-up from all SIG Champs (plus remaining questions from audience)**
17:00	**End of session and opportunity for informal networking**
18:00	**Event close**

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

Plextek
Plextek's technology specialists can solve your hardest challenges in smart sensing, advanced communications & intelligent data insight. Our people provide solutions to give you the market edge. With a 30-year history of providing complex engineering solutions, we continuously innovate to push the boundaries of engineering and technology today. We grow and develop ideas for our clients and have a history of turning our own innovation into successful spin-out technology companies. We start by studying and understanding the key challenges that you wish to address. We then explore a range of ideas and potential solutions, bringing fresh thinking to the problem. After selecting the most appropriate approach we proceed through design, development and verification stages and, if required, into manufacture**.** Our experience in successful delivery guides us to select approaches that are inventive, work in practice, can be delivered on time and to the agreed budget. We work within multiple markets, from Smart Cities & IOT, to Industrial Automation, Transport and Medical.

Profile of SIG Champions

Sam Durrant, Plextek
Sam graduated from the University of Leeds with an honours degree in Human Physiology & Biomedical Sciences. He then joined the British Army, commissioning from the Royal Military Academy Sandhurst into the Royal Anglian Regiment in 2014. He spent the next 5 years supporting UK foreign policy around the world, notably in West Africa, and worked alongside both the Police and NHS in the UK. On leaving the military Sam first spent some time in the Biotech world before combining that with his Defence experience, supplying innovative physiological monitoring products for military and first responder markets. Through managing the company's global supply chains, Sam was introduced to the wide variety of communications standards and companies supplying into the blue light services across the world. For the last year Sam has moved from product to consultancy, managing a portion of Plextek's Defence and Security business. He majors in the UK MOD, the Land environment, and generally novel communications and sensing technologies for both the Defence & Security industries' requirements. **www.plextek.com**

Zahid Ghadialy, 3G4G
Zahid is a technologist with a deep understanding of architecting world-class mobile products and solutions. With over 20 years of experience in the telecom industry in various roles, he has been an evangelist for mobile and wireless technologies. Over the years he has accumulated a vast following on his blogs and social networks with simple explainer posts and videos. His 3G4G blogs are widely read where he looks at different aspects of mobile technology and especially 5G and 6G nowadays, including the architecture, deployments, use cases, applications, etc. His YouTube channel is also very popular where he explains many new features expected as part of 5G in the future. While his style and content is unique, he also references many industry publications and provides slides that are very useful to view online. He is also very active on Twitter under his @3G4GUK brand helping disseminate the benefits of 5G and why 5G will be needed in the long run. He covers a very wide portfolio of 5G related information that is hard to find otherwise. Until recently, Zahid was a Senior Director looking at Technology & Innovation Strategy in Parallel Wireless. As a brand ambassador, he represented the company in various Open RAN discussions and also created tutorials on Open RAN and O-RAN which are being used as reference for new starters on the topic. **www.3g4g.co.uk**

Yiru Zhong, Soracom
Yiru is an M2M/IoT market veteran with an industry research background and practical deployment experience. She understands the complexity of new service launches and the investigative nature of enterprise adoption trends. In her analyst past, she has launched two successful M2M/IoT research programmes, changed leadership minds on focussing on security, and managed an IoT platform validation programme. Her current role utilises her industry and IoT technology knowledge to accelerate enterprise adoption. She represents Soracom in the UK to lead conversations with start-ups, SMBs and enterprises on how to use IoT for their business. She is passionate about resolving commercial practicalities of IoT deployment and mostly building a positive conversation around IoT security. **www.soracom.co.uk**

Profile of speakers

Dr. Saif Abed, The AbedGraham Group
www.abedgraham.com

Dr Aled Catherall, Plextek
Aled is the CTO at Plextek and a visiting fellow at within the school of defence and security at Cranfield University. Aled is responsible for setting Plextek's technology strategy, directing its internal R&D programme and providing technical leadership and oversight to key R&D programmes for customers. Aled has 20 years' experience of leading R&D programmes aimed at de-risking and developing novel concepts across a broad range of applications including sonar, radar, communications, electronic warfare, GNSS-denied navigation, and Internet of Things. Aled has authored numerous papers in peer-reviewed journals, chaired sessions at international conferences and holds several patents. Prior to joining Plextek, Aled was a Principal Scientist in the then Physical Sciences Department at Dstl. Aled Graduated from the University of Nottingham with a 1st class honours degree in Physics 2002, gaining the Barton prize for highest marks in his academic year, followed by a PhD in physics in 2005, sponsored by Oxford Scientific Instruments. **www.plextek.com**

Franck Courbon, Ethicronics
Dr Franck Courbon MPhil, MRes, Meng, PhD is a Franco-British cybersecurity enthusiast, also driven by greener, fair and privacy enabling electronics. During 3.5 years at Gemalto Security Labs (now Thales-DIS) and 7 years at the University of Cambridge, he has brought innovative methods in the growing area of hardware security from reverse engineering, laser fault injection, memory content extraction to hardware supply chain security. Franck is now Founder & CEO at Ethicronics Limited to ensure no more compromised, counterfeit and unsustainable electronics hardware – using software. **www.ethicronics.com**

Dr Leon Lobo, National Physical Laboratory
Focussed on developing and delivering a national timing strategy, Dr Leon Lobo is SRO and Head of the National Timing Centre (NTC) programme at the National Physical Laboratory (NPL), the UK's National Metrology Institute. The NTC will be developing capability toward a national resiliency in timing for our expanding digital infrastructure, stimulating the development of an assured supply chain and addressing the skills gap for time and frequency technologies and dissemination solutions. A chartered engineer, with a PhD in high power laser material processing,

Dr Lobo joined NPL in 2011 as Group Leader for the Time & Frequency group, working with the team managing the UK's time scale and developing quantum frequency standards. He led the team developing NPLTime®, NPL's certified fibre-delivered time dissemination solution to the City of London for high frequency trading systems and regulatory compliance. **www.npl.co.uk**

Richard Storer, Picocom
Richard Storer has worked in the semiconductor industry for over 25 years, latterly specialising in security for embedded systems as a consultant, trainer, security architect and contributor to industry security standards. He currently has responsibility for security at Picocom, a multi-award-winning semiconductor company that designs and markets Open RAN standard-compliant baseband SoCs and carrier-grade software products for 4G and 5G small cell infrastructure. **www.picocom.com**