IEEE BTS PULSE
February 9-11, 2021

5G Content Production

Prof. David Gomez-Barquero
Universitat Politecnica de Valencia (Spain)

Agenda (9:30-11:30 ET)

- Open remarks 5G Content Production (David Gomez-Barquero, UPV)
- 5G in content production - the European perspective (Ian Wagdin, BBC)
- 5G Technology Enablers for Content Production – Part I (Thorsten Lommar, Ericsson)
- 5G Technology Enablers for Content Production – Part II (Pablo Perez, Nokia)
- 5G Wireless Studio (Paola Sunna, EBU)
- 5G for Live Audio Production (Maria Perez, Sennheiser)
- Panel (ALL)

Abstract

- This session will explore the opportunities and challenges of 5G for the professional audiovisual content production industry. 5G offers improved performance in terms of bandwidth, reduced latency, timing and quality of service. It is expected that standardized 5G-based solutions would bring down production costs and increase the operational efficiency and flexibility of production workflows, in particular in news gathering, remote production and coverage of live events.

- This session is organized by the European H2020 project 5G-RECORDS (5G key technology enableRs for Emerging media COntent pRoDuction Services) www.5g-records.eu. The project aims to explore the opportunities which new 5G technology components bring to the professional audiovisual content production, including Programme Making and Special Events (PMSE). Three use cases will be demonstrated in the project: live audio production, a multi-camera wireless studio and live immersive media production.

- The session will start with a presentation of the activities led by the European Broadcasting Union on 5G content production, which has successfully engaged in 3GPP Release-17 5G standardization. The session will continue with presentations from Ericsson and Nokia about key 5G technology enablers for professional content production, such as network slicing for guaranteed Quality of Service (QoS), Non-Public Networks, mimilimeter wave frequencies, edge and cloud computing, etc. The on-going technical work in 5G-RECORDS to enable the three use cases will be then presented, and the session will conclude with an open panel discussion.

Live Audio Production
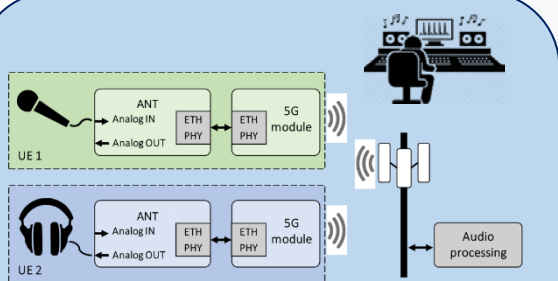
🔓 **Open and Virtualised RAN**

📶 **NR-RedCap & URLLC**

🔲 **Software Defined Radio**

📊 **Dynamic Spectrum Access**

Multiple Camera Wireless Studio

📶 **Non-Public Networks**

⏱ **Timing and Synchronization**

▨ **Network Slicing**

⚙ **Media Orchestration**

Live Immersive Media Production

⬠ **Edge Computing**

📡 **mm-Wave Antennas/Devices**

⦿ **Centralized/Distributed 5GC**

💡 **Design**
of 5G components for professional content production

🔧 **Development**
of state-of-the-art 5G prototypes

⚙ **Integration**
into end-to-end 5G infrastructures

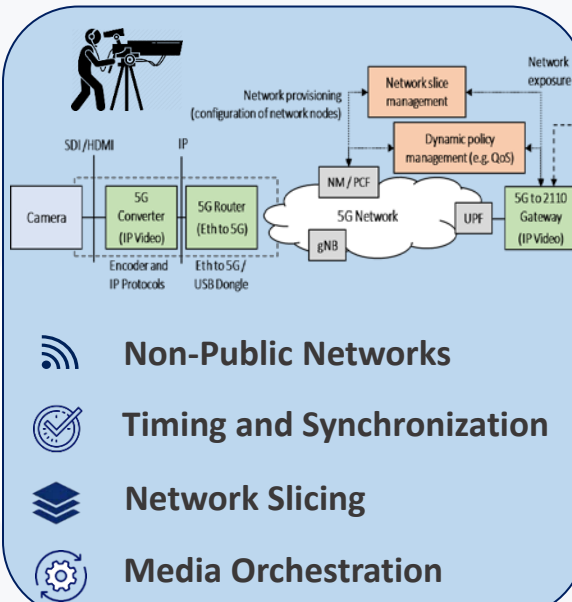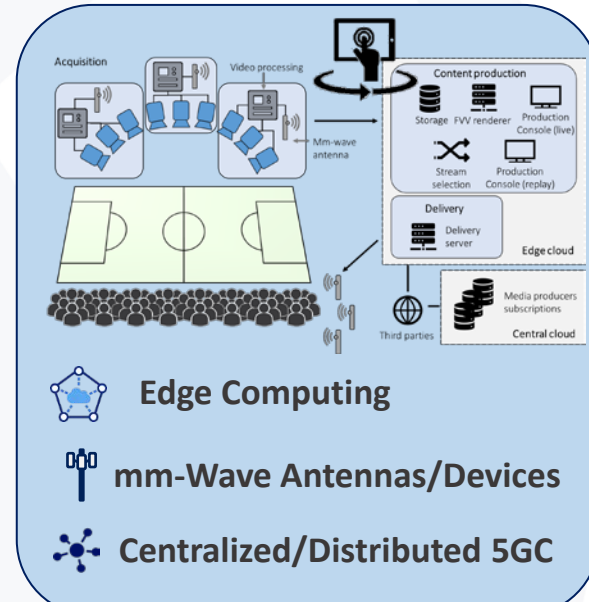☑ **Validation**
in the context of real production use cases

📶 **Demonstration**
of the potential value for the sector

Consortium

x11 countries
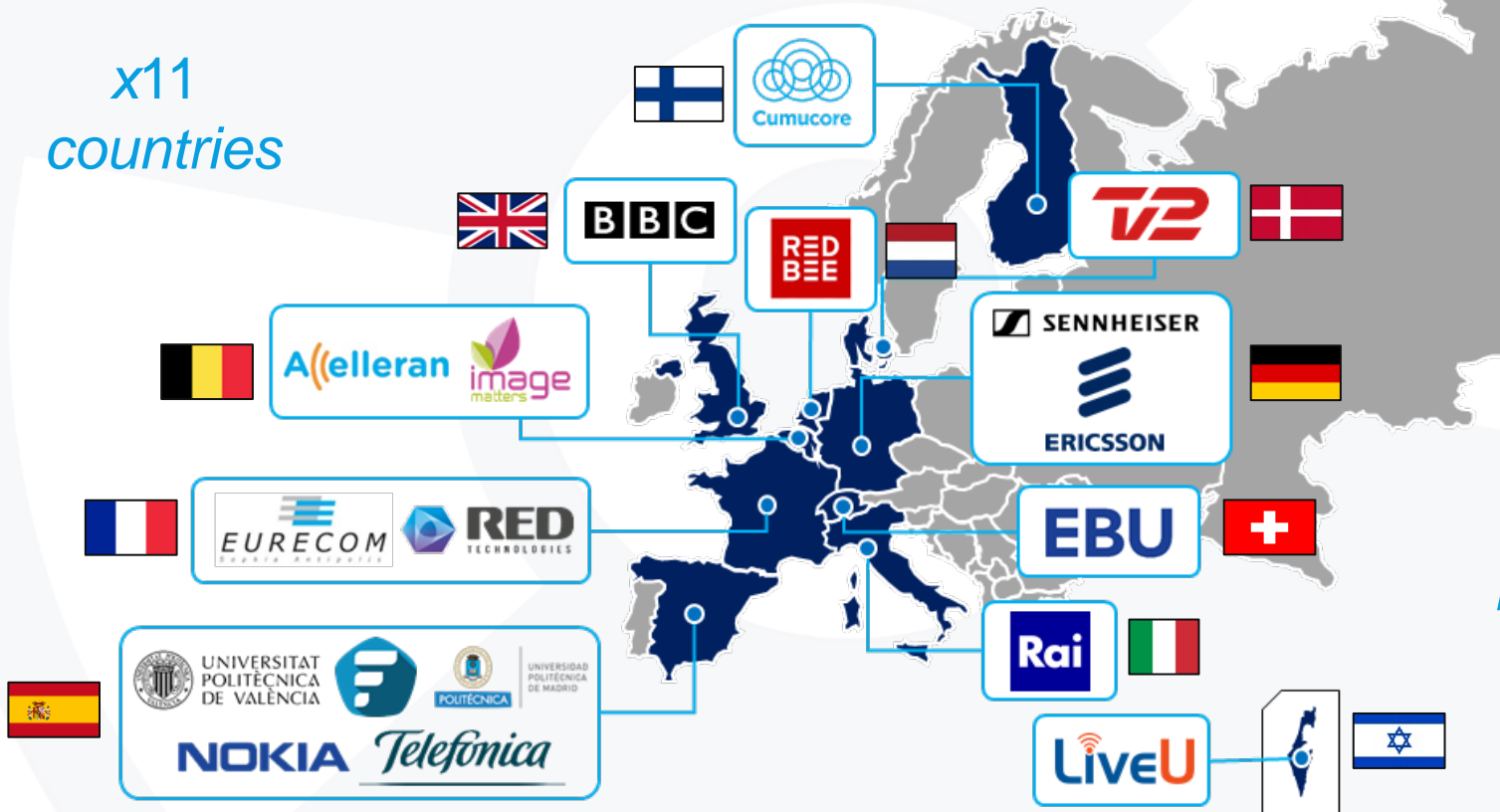
x18 partners

Bios

DAVID GOMEZ-BARQUERO is an Associate Professor with the Communications Department, Universitat Politecnica de Valencia (UPV), Spain. He leads a research group at the Institute of Telecommunications and Multimedia Applications (iTEAM) at UPV, working on the design, performance evaluation, and optimization of next generation wireless communication technologies, with a special interest of 5G and broadcasting. He participated in digital broadcasting standardization, including DVB-T2, T2-Lite, DVB-NGH and ATSC 3.0. He was the Coordinator of the 5G PPP project 5G-Xcast, that designed broadcast and multicast point-to-multipoint capabilities for the standalone 5G New Radio and the 5G service-enabled Core Network, and he is currently coordinating the project 5G-RECORDS on 5G content production. He is an Associate Editor of the IEEE Transactions on Broadcasting, Distinguished Lecturer and member of the Administrative Committee of the IEEE Broadcast Technology Society. He was the General Chair of IEEE BMSB 2018.

Bios

IAN WAGDIN has over 25 years of media production experience with the BBC. Starting in news in 1997 he worked as a multi skilled operator specialising in cameras, editing and link (both microwave and satellite). Ian then moved on to support other production types, leading the move to HD and file based working in long form production specifically in factual and BBC Childrens. As Production Innovation Executive he worked closely on the technical design, workflows and build of the BBC North headquarters at MediaCityUK. As a key member of the BBC Edge group, Ian has spent several years looking at contribution technologies from the first video enabled mobile phones to bonded cellular technologies. Since 2014 he has been working with BBC Research and Development as Senior Technology Transfer Manager and has played a key role on production focused trials from the 2104 Commonwealth Games trails in Glasgow in 2014 which demonstrated the first live UHD end to end production via IP. Recently he has been working on tests and trials of the BBC R&D technologies such as low cost live solution, AI in production and UHD as well as being involved in several mobile technology trails. Ian's role in BBC R&D also involves the management communication and exploitation of intellectual property generated from technology. In spring 2018 Ian took up the role of Chair of the EBU working group on 5G in content production. Ian is also an active member of 5G MAG and UK5G creative industry working group and led the recent IBC technology showcase on 5G remote production.

Bios

THORSTEN LOHMAR graduated from the Technical University of Aachen (1997), where he also received his PhD (2011) in Electrical Engineering. Thorsten joined Ericsson in Germany in 1998 and was working for several years in different Business and Ericsson Research units. He worked on a variety of topics related to mobile communication systems and led research projects specifically in the multimedia technologies area. He is focusing on video delivery (downlink and uplink) and delivery optimizations, including broadcast distribution of media. He is currently working as Expert for Media Delivery.

Bios

PABLO PEREZ received the Telecommunication Engineering degree (integrated BSc-MS) in 2004 and the Ph.D. degree in Telecommunication Engineering in 2013 (Doctoral Graduation Award), both from Universidad Politécnica de Madrid (UPM), Madrid, Spain. From 2004 to 2006 he was a Research Engineer in the Digital Platforms Television in Telefónica I+D and, from 2006 to 2017, he has worked in the R&D department of the video business unit in Alcatel-Lucent (later acquired by Nokia), serving as technical lead of several video delivery products. Since 2017, he is Senior Researcher in the Distributed Reality Solutions department at Nokia Bell Labs. His research interests include multimedia quality of experience, video transport networks, and immersive communications. Pablo is also member of the Video Quality Experts Group board, being chair of the 5G-KPI working group and vice-chair of the Immersive Media Group, as well as Nokia representative at ITU-T SG 12.

Bios

PAOLA SUNNA joined the Centre for Research & Technology Innovation of RAI, the Italian public broadcaster, in 1997 after getting her degree in Electronic Engineering at Politecnico of Torino. She has worked on a wide variety of video projects over the years spent at RAI, including: image processing, video coding, next generation video formats, multimodal user-interfaces, hybrid broadcast and broadband middleware, second screens apps, standards (DVB, MPEG, etc) and 3D computer graphics. She got a MBA in 2005. In March 2017, she moved to the EBU Technology and Innovation Department as Senior Project Manager. At the EBU she was involved in the activities related to VR (Virtual reality) and AR (Augmented Reality) and currently is focusing on next generation audio services, newsroom workflows and 5G for professional media content production. She is the coordinator of the EBU groups dealing with sound-related topics and the technical coordinator of the 5G-RECORDS project.

Bios

MARIA D. PEREZ GUIRAO received her degree in telecommunication engineering from the Politechnic University of Valencia, Spain, in 2002. She received the Dr.-Ing. Degree from the Faculty of Electrical Engineering and Computer Science of the Gottfried Wilhelm Leibniz University Hannover in December 2008, receiving the honour distinction Summa Cum Laude. From January 2009 to October 2013 she worked as a Post-Doc researcher at the Institute of Communications Technology (IKT), Gottfried Wilhelm Leibniz University Hannover, Germany. In 2011 she co-founded a technology-oriented start-up company focusing on cognitive radio systems and coexistence management for professional wireless applications. She led the engineering team of the company till March 2018 when she moved to Sennheiser electronic, one of the leading PMSE equipment manufacturers. She represents Sennheiser in several working groups across standardization and regulatory bodies. She's an active member in 5G-MAG and is contributing to the development of 5G for content production.

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Thanks for your attention!
Any questions?