

### DETAILED PROGRAMME + BIOS

TUESDAY 14 JUNE 2022 (9:00 – 17:00 CEST)

10:00 – 10:15

#### Welcome & Introduction



**Antonio Arcidiacono** is Director of Technology & Innovation at the European Broadcasting Union. He has extensive experience in conceiving, developing and taking new products and services to market. Since joining the EBU in September 2018, Antonio has launched several initiatives designed to leverage the collective expertise and momentum of the EBU Membership for technology innovation, deliver key building blocks for the digital transformation of public service media, and strengthen collaboration between PSM, European policy initiatives, start-ups and academic institutions. Two of Antonio's most recent initiatives are the 5G Media Action Group (5G-MAG) and EuroVOX. 5G-MAG currently counts 40 members from the industry and aims to ensure future 5G standards are fit for purpose in media production and distribution. EuroVOX is a collaborative project of the EBU and several of its Members that aims to break down language boundaries for users and content. It consists of an open framework upon which services can be built, and a set of tools for

media creators, such as speech-to-speech translation. Antonio previously worked as Director of Innovation and a Member of the Management Committee at Eutelsat; the European Space Agency; Telespazio, and Selenia Spazio

### KEYNOTE SESSION

Moderated by **Hans Hoffmann (EBU)**



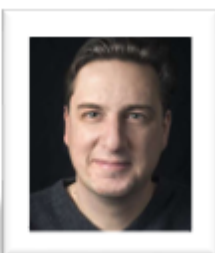
**Hans Hoffmann (PhD)** is EBU Senior Manager and head of unit on media fundamentals and production technologies in the EBU Technology and Innovation department. He has been for 9 years with the Institut fuer Rundfunktechnik (IRT) as research staff in new television technologies until moving to the EBU in 2000. In the EBU he has been leading many activities on media integration, production technologies, technology evaluations, and he established the EBU HDTV testing lab, and work with EBU Members on IT based digital workflows and open innovation strategies. More recently he and his team looked at emerging technologies such as immersive media (UHD, NGA), AI-Data, EU 5G projects, IP and cloud-based media. Hans is the current president of the SMPTE for 2021-22 ("the global home for media professionals, technologist and engineers"). He has been author of many EBU Technical documents; IEEE papers and is a standing speaker and contributor

to international conferences and recipient of the 2020 Richard Theile Medal.

10:15 – 10:45

#### Where do we go from here?

A presentation about the trends in video technology and how the market trends in computing will impact broadcasters.



**Andrew Cross, Ph.D** CEO of Grass Valley Andrew Cross, CEO of Grass Valley, has been esteemed as the "most influential leader" in the media tech industry and chartered to lead the next phase of the company's growth, empowering the digital transformation of its customers as they transition to the future of live media and entertainment. A noted executive and speaker at key media industry events, Andrew pioneered the use of IP video for the industry and created NDI which was quickly adopted as the de-factor standard for IP video transmission. NDI has won numerous key industry awards from almost all major broadcast press and organizations and has been used by millions of users and thousands of companies. Prior to Grass Valley, Cross served as an engineering manager and CEO of NewTek, where its products continued to disrupt the use of computers for video and audio production shipping products in almost category under Cross's direction. Cross studied Computational Physics at University of Manchester Institute of Science Technology, followed by his Ph.D. in Computer Vision at the University of Manchester. While

pursuing his Ph.D. he published over 20 papers in peer-reviewed scientific journals on computer vision, graph theory and optimization. <https://www.linkedin.com/in/andrewc2/>

10:45 – 11:15

### Challenges and chances for public broadcasters with regard to broadcast services

High staff costs, frozen fees and inflation. The economic pressure on public broadcasters continues to mount up. At the same time, it is getting increasingly difficult to find well-trained staff with a high level of competence and know-how who meet the demands of state-of-the-art broadcasting technology. These challenges, however, also present great opportunities. What do they look like and how do we need to approach public broadcasting and use investments in the spirit of sustainability and innovation? And how can technology open up these opportunities and drive this paradigm shift?



**Thomas Riedel**, founder and CEO of Riedel Group, has been an innovator and entrepreneur for 35 years. He started the business in a garage in the 1980s while still a student. In the following years, Riedel introduced numerous intercom and video solutions for a broad range of applications and inked contracts with prestigious clients including the Formula One and the 1994 Winter Olympics in Lillehammer. Subsequent wins included further Olympic Games, FIFA World Cup tournaments, Eurovision Song Contests, Red Bull Stratos, the 36th America's Cup, and SailGP. Over the years, Thomas Riedel's innovative energy paved the way for entirely new production formats and actively shaped end-user experiences. Riedel has evolved into a leading provider of high-performance signal transport and communications solutions for broadcast, event, theatre, sports, and industry. Based in Wuppertal, Germany, the company now has 800

employees in 25 offices around the globe. <https://www.linkedin.com/in/thomas-riedel-1834946b/>

11:15 – 11:45

### Overcoming barriers in the adoption of virtualization and cloud technology for live production

Cloud technology has become common in the broadcast industry for playout and distribution in recent years. We are now at a point where the desire to take advantage of all the benefits that cloud technology can provide for producing live content is becoming a reality. To truly take advantage of the promise of the cloud a number of fundamental technological choices must be addressed. This talk will examine these choices and offers some thoughts on how we can all move forward together.

Troy English (CTO, Ross Video)

### Demo introductions



**Pavlo Kondratenko (EBU)** is a project manager (media production over IP networks) at EBU Technology & Innovation. His background is network engineering. He is a document editor of PICS for SMPTE ST 2110 standards suite

## SESSION 2: MEDIA ORGANIZATIONS TRANSFORMED: SOFTWARE DRIVEN INFRASTRUCTURES

Moderated by **Phil Tudor (BBC)**



Phil Tudor is a Principal Engineer at BBC R&D, leading a team of researchers looking at workflows, platforms and infrastructure for production & archives. He is the chair of the EBU Strategic Programme for Infrastructures & Security and a SMPTE Fellow.

# NETWORK TECHNOLOGY SEMINAR

AN EBU EVENT

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14:15 – 14:45

### Flexible control rooms at RTBF Media Square



Hugo Ortiz (RTBF) <https://www.linkedin.com/company/rtbf/>



Frédéric Joskin (RTBF)

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14:45 – 15:15

### Software-Based Production



**Willem Vermost** works as a Media Technology Manager at VRT (Belgian public broadcaster for the Flemish community). Prior to this role, he was the topic lead on the transition to IP-based studios at the European Broadcasting Union (EBU). He received a master's degree in electronic engineering and in applied computer science. With over 20 years of experience in broadcasting, he has worked on various projects, including the multiple award-winning VRT Live IP proof of concepts, the Joint Task Force on Networked Media (JT-NM) Tested Program, and started the open-source project EBU Live IP Software Toolkit (LIST). He acted as a deputy in the JT-NM admin board and the AWMA board of directors. Willem is a co-chair of EBU's strategic group on System Design & Interoperability and is an active member of SMPTE. As a faculty member of the EBU Academy, he provides training on the transition to live IP-based media facilities. Recent efforts at VRT focus on On-Set Virtual Productions and new workflows with Software-Based Studios. <https://www.linkedin.com/in/vermost/>

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15:15 – 15:45

### Remote production and IP – how BBC News delivers Springwatch

How BBC News delivers IP connectivity and remote production facilities to Springwatch



**Martin Abell** is a Technology Delivery Manager, Broadcast IP and Connectivity for BBC News UK Operations. Prior to this role, Martin was a Senior Systems Engineer delivering broadcast IP facilities for the BBC Wales Cardiff Central Square project.

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**Arran Paul (BBC)** is a Location Engineer and Connectivity Specialist for BBC News UK Operations. He is former BBC Broadcast Engineering Apprentice and now looks after connectivity for OBs for both News and other BBC departments. Part of this role includes managing the connectivity for BBC Springwatch and developing remote production within BBC News.

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### SESSION 3: INSIGHTS FROM MEMBERS WHEN BUILDING A NEW FACILITY

Moderated by Willem Vermost (VRT)

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16:15 – 17:00

#### Panel: From innovation to operation



**Félix Poulin** is with the national public broadcaster CBC/Radio-Canada where he leads the Media over IP Architecture team and the Lab, busy with finishing the new headquarters in Montreal among many projects. Before that mandate, Felix was lead expert on Live IP at the EBU. Felix completed his diploma in electrical engineering at Montreal's Polytechnique with his final thesis done at Massachusetts Institute of Technology. Felix is an active contributor to EBU, user-chair of the Networked Media Open Specifications (NMOS) Steering board of the Advanced Media Workflow Association (AMWA) and Fellow of the Society of Motion Picture and Television (SMPTE). <https://www.linkedin.com/in/felixpou/>

**Sandro Furter** is working as a Project Manager for broadcast IT projects at SRF, a subsidiary of Switzerland's Public Broadcasting Company SRG SSR. He joined SRG SSR in 2006 and is nowadays responsible for the IP community at SRF and the realtime IP technology at the campus in Zurich. Within SRG, he is responsible for the exchange of knowledge on the topic of real-time IP in the various corporate units. With his team, he focusses on the implementation of a SMPTE ST2110 based building on an all-IP production facility for TV, radio and online. As a member of SMPTE, he closely follows the ongoing technology developments on the market. As a member of AIMS and AMWA, he follows the open approach in the usage of IP technology. Sandro Furter graduated from FHNW University of Applied Sciences and Arts Northwestern Switzerland with a bachelor degree in systems engineering and a specialization in realtime systems. As a holder of the IPMA Level C certification he has extended project management skills to lead large projects.



**Roger Crothers** has worked in Technology for over 30 years in a variety of different industries including Manufacturing, Logistics, Software and Local Government. The last 18 years he has worked for BBC Wales and is currently Senior Head of Engineering & Operations where he is responsible for the specification, delivery and support of technology at all BBC sites in Wales. For the last 6 years he has been involved in the delivery of BBC Wales' new high tech broadcast centre based in Cardiff, Wales which is one of the most advanced broadcast centres in the UK. At completion the site was the largest SMPTE2110 installation in the world. His current focus is on reskilling the engineering team to ensure they are equipped to support an IP broadcast operation and building toolsets to help assist monitoring and management of the new infrastructure. <https://www.linkedin.com/in/roger-crothers-510b8a4/>

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17:00 – 17:30

### Production workflows and tomorrow's technology

Roadmaps in production technology



**Sacha Lagrillière (Yle)** As a producer I focus on discovering new production workflows for content creators. <https://www.linkedin.com/in/sacha-lagrilliere/>

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17:30 – 18:00

### Flexible and scalable facilities



**Werner Ramaekers (EMG Belgium)**. Werner has been working in the broadcast industry for the past 20 years. He worked for EVS on the C-cast product and has taken up different roles within the public broadcaster VRT in Belgium. Werner is currently the product manager for diPloy within EMG group.

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**WEDNESDAY 15 JUNE 2022 (9:00 – 17:00 CEST)**

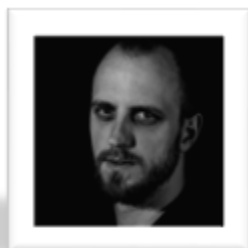
### SESSION 4: BREAK-FEST

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09:00 – 10:30

### BREAK-FEST MASTERCLASS

Building a virtual production set in Unreal Engine



**Dries Tastenhoye (VRT)** has worked for several years in IT development prior to coming to VRT in 2009. Currently working as a Product Owner for TV Studio's, one of his main tracks is the "Software Based Studio". Next to this, he likes to combine his broadcast experience and his IT development skills in Unreal Engine, creating Virtual Studio Productions.

### SESSION 5: MIXED TECHNOLOGY INFRASTRUCTURES

Moderated by Mark Patrick (BBC)

11:00 – 11:25

#### IP-based studios for BBC Radio

Discussion of the issues involved in installing new IP based studios into existing broadcast centres with a focus on the new flagship studio 80A in Broadcasting House and integrating an IP core into the new BBC Music Studios.



**Mark Patrick** CEng MIET (Lead Architect, BBC Technology) started his career in the BBC in 2000 initially working for World Service and has worked on a number of major projects for the BBC including W1 (Broadcasting House), Salford Media City and Cardiff Central Square for BBC Cymru Wales. Mark specialises in broadcast infrastructure including control systems, routing, networking, MCRs and central areas. He led the design of the 'IP Live Core' for Cardiff Central Square based on the latest IP for media standards including ST2110 and AES67. [www.linkedin.com/in/markalanpatrick/](http://www.linkedin.com/in/markalanpatrick/)

**Jamie Laundon** has experience delivering complex broadcast technology projects spanning UK commercial radio and the BBC. He received a MEng (Hons) degree in Electronic Engineering from the University of Nottingham in 2002. Jamie has worked at Chrysalis Radio, Global Radio, RCS, and since 2014, has been based at BBC Technology Group in London. His role as a Principal Systems Engineer at the BBC involves the design and implementation of a wide range of broadcast technology projects for the UK's national radio networks. @jamielaundon



11:25 – 11:50

#### IP implementations and challenges

A review of a couple of IP implementations and the inevitable challenges these have had to overcome and the benefits these have brought.



**Mike Bryan** is Technology Director of the UK's largest broadcast systems integrator, dB Broadcast Ltd. and is responsible for overseeing the delivery of all dB Broadcast's projects from conception through to support. He has overseen large, multi-disciplined teams that have delivered complex, multi-million-pound projects for such clients as BBC, Sky, Bloomberg and ITN. From 2017 to 2020 he was Programme Manager for the new world-class broadcast facility for BBC Cymru/Wales in central Cardiff. The project encompassed the design, build and integration of an IP-based broadcast infrastructure to support BBC Cymru/Wales TV, Radio and Post Production facilities in their new headquarters, using the latest SMPTE-2110 standards; the first of its kind for the BBC and now considered by many a flagship facility. Most recently he has been working with ITN to modernise the infrastructure at their London Headquarters, centred around a large IP routing core. His background in Project Management (experience of almost 20 years) is underpinned by a deep technical expertise and before his

directorship Mike spent 8 years as Head of Solutions at dB Broadcast, responsible for designing and delivering advanced technical solutions for their global client base. <https://www.linkedin.com/company/db-broadcast-ltd>

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11:50 – 12:15

### Networks, Virtualization and Automation

Automation enables complex and dynamic IT workflows and simplifies network operations while reducing downtime, and human error.



**Kate Weatherall** is a Senior Account Manager at Arista Networks looking after customers and prospects from a number of different verticals including Retail and Media and Entertainment. She joined Arista just over 7 years ago, and has spent almost 40 years working in the computer networking industry, for a number of different manufacturers and resellers – so she has seen a lot of change over the years in terms of technology! At Arista Kate provides commercial and relationship management to her customers, as well as convincing new contacts that it is worth considering Arista as an alternative to their existing networking vendor.

**Gerard Phillips** is a Systems Engineer at Arista Networks, a role which involves providing deep technical and architectural support to customers during the design, installation and running of complex IP infrastructure. Before joining Arista 5 years ago, Gerard spent 22 years at the cutting edge of broadcast technology development with Snell and Wilcox, Snell and finally SAM. His experience ranges from designing composite decoders, de-interlacers, motion compensated standards converters through to helping to shape the company's IP strategy – you'll find Gerard listed as one of the contributors to the VSF's TR-03, much of which eventually became ST2110. Gerard was an AMWA board member for SAM, and now fulfils that role for Arista Networks. At Arista, Gerard provides technical and architectural support to customers throughout their IP journey, covering general Data Centre applications, as well as providing a strong Media and Entertainment focus throughout EMEA, and Globally when needed. This mix of broadcast heritage, and deep understanding of the world of Ethernet/IP switching and routing allows Gerard to provide invaluable support to broadcasters looking to make the move from SDI to IP for Live Production. [www.linkedin.com/in/gerard-phillips-0037052](http://www.linkedin.com/in/gerard-phillips-0037052)



12:15 – 12:40

### 5G for wireless microphones

About challenges of transmitting professional low-latency audio over 5G networks. Measurement results will be presented.



**Norbert Werner**, research engineer in Sennheiser's future technologies research team. He joined Sennheiser in 2015 after receiving his master's degree in electrical engineering and information technology from the Leibniz University Hannover in Germany. His expertise is in low-latency audio streaming and wireless technologies. In this context, Norbert has worked on multiple publicly funded research projects like LIPS and 5G RECORDS. <https://www.linkedin.com/in/norbert-werner/>

12:40 – 13:05

### Extended Q&A

### SESSION 6: TECHNOLOGY BRIEFINGS

Moderated by **Peter Brightwell (BBC)**



Peter Brightwell leads BBC R&D's work on infrastructure for live IP production, and is a frequent contributor to industry initiatives on interoperability. He is a vice-chair of EBU's infrastructure and security SP, and chairs the Networked Media Incubator and NMOS security groups of the Advanced Media Workflow Association. (BBC)

14:00 – 14:45

#### Software definable broadcast



**Richard Hastie** currently is a Senior Business Development Director for NVIDIA (previously Mellanox which was acquired) specializing in Video, Cloud and Edge use-cases. Richard has worked across Information Technology for over 25 years in a variety of different verticals including Telecommunications, Financial Services, Cloud Services and Media and Entertainment. He currently focuses on Media use-cases across the cloud, on-premise and edge landscapes. He has worked in and around the broadcast production industry for nearly 10 years. During this time he has been at the forefront of the digital transition to IP-based networking, playing a key role in the establishment and growth of Studio Video over IP. His main focus is supporting customers and partners deploying leading video and edge solutions for all markets. He has a strong passion for reducing customer costs and improving business agility. He sees software-defined broadcast as the future and operating agnostically across on-premise, hybrid and cloud infrastructures as being the key to optimising and democratising the future of broadcast and content creation. He represents NVIDIA in several bodies including

SMPTE, AMWA, VSF, AIMS with the goal of driving and accelerating the adoption of software-defined broadcast ecosystems. In a prior life, Richard was a keen skydiver and has had the honor of parachuting into Manchester United's stadium...

**Gareth Sylvester-Bradley** is a Principal Engineer at NVIDIA, and currently serving as the chair of the Networked Media Open Specifications (NMOS) Architecture Review group in the Advanced Media Workflow Association (AMWA). He focuses on building software toolkits and agile, collaborative industry specifications to deliver open, software-defined, hardware-accelerated media workflows for broadcast, live production, medical imaging, industrial video, etc. [www.linkedin.com/in/gareth-sylvester-bradley](http://www.linkedin.com/in/gareth-sylvester-bradley)



15:00 – 15:45

#### Media Gateways & NMOS for integration, discovery & control in 5G-based production systems

Discussion on challenges, lessons learnt and outcome of virtual implementation of media gateways in 5G-based production environment.



**Pedro Ferreira** is a Software Engineer, Trainer and Consultant, with more than 20 years of experience in the Media & Entertainment industry. He is the owner of BISECT, a company that provides software engineering services, specializing in Media over IP, Cloud, GPU and Edge computing. In addition to working at BISECT, Pedro is also the lead architect of the EBU LIST project and a member of the Eurovision Academy faculty, where he has trained hundreds of people in subjects like MXF, File-based workflows and Live-IP. He has collaborated on multiple EU research projects throughout his career, and he is actively involved in standardisation, namely with SMPTE and AMWA, where he is a member of the Architecture Review Group. Pedro has an MSc in Telecommunications and Computers from the University of Porto.



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**Shyamalie Thilakawardana** joined BBC Research & Development as a senior engineer in 2009. During this time, she has gained technical expertise and experience in TV white space technology, medium access control techniques for in-home distribution, digital terrestrial television (DTT) planning in the UK and characterisation of BBC iPlayer consumption in the UK. Her current role involves researching and implementing novel technologies for wireless IP production. Shyamalie was awarded the Inmarsat Prize for Research Excellence for her PhD in Mobile Communications in 2002 from the University of Surrey, Guildford. She subsequently joined the University of Surrey as a research fellow at the Centre for Communications Systems Research (CCSR). As a research fellow, Shyamalie has led technical contributions in EU 6th and 7th Framework Projects and prepared research proposals in spectrum-related research and satellite multicast technologies. She has published research in international journals, at conferences, as a book chapter, and holds a UK patent. Alongside this, Shyamalie volunteers as a diversity and inclusion representative at BBC R&D, promoting schemes to encourage girls into careers in engineering and related disciplines.



16:00 – 16:45

### Automated security scanning



**Gerben Dierick** combines running the network team at VRT with his role as Information Security Officer. He currently co-chairs the EBU's Media Cybersecurity Group and lectures on networking and cybersecurity topics at the University College Leuven Limburg.

16:45 – 17:00

### Wrap-up



**Ievgen Kostiukevych** is a member of the EBU Technology & Innovation team. He has gained more than a decade of experience in the broadcasting and sound production industry, including experience in change management, solutions architecture and AoIP integration. He is working on topics of IP networks, media over IP, PTP, networks programmability and automation, etc. Ievgen is a member of SMPTE and AES.

## DEMOS

1	<b>GlobalM – SRT over cloud backbone</b>
2	<b>5G RECORDS – media/control gateway</b>
3	<b>Matrox – cloud media framework</b>
4	<b>Phabrix/Nvidia – Rivermax display</b>
5	<b>Nvidia – software driven platforms</b>
6	<b>Yle's radio studio in the cloud</b>
7	<b>NetOn.Live - private cloud for live production</b>