IMPLEMENTING 5G SOLUTIONS FOR THE MEDIA INDUSTRY AND BEYOND

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5G MEDIA ACTION GROUP (5G-MAG)

5G MAG is a cross-industry initiative with a commercial focus

Founded in October 2019, the aim of the 5G Media Action Group (5G-MAG) is to create an operational framework for the harmonious and market-driven implementation of 5G solutions capable of meeting the requirements in the production and distribution of audio-visual media content and services beneficial for global media industry

• Broadcasters want to make available all their content and services, i.e. linear, non-linear, and social media on mobile devices and vehicles in a way compliant with their obligations.
• Broadcasters want to use 5G technologies in production and contribution of content and services to become more agile, flexible and cost-effective.

Membership of 5G-MAG is open to any organisation, in particular the stakeholders across the media, automotive telecoms and public security sectors that wish to support, follow and contribute to the association.

A. Arcidiacono – 5G-MAG chair – EBU CTO
FROM PRODUCTION TO DISTRIBUTION

5G will play an important role in the distribution of media content and services

- a cooperative network that combines satellite, terrestrial and cellular infrastructure in an intelligent way. The potential savings are huge.
- Popular media content currently delivered via unicast can be shifted to push multicast delivery. When combined with the use of storage at the edge of the network or in the device itself, it becomes an even more attractive opportunity.
- For the distribution of live content such as sports and news events to mass audiences, broadcast will continue to make the most sense.
- Satellite & Terrestrial networks can cover 100% of territories & population.

In content production mobile technologies are widely used in news gathering.

- Fast, low latency and reliable wireless connections, using either public network infrastructure or non-public 5G networks, would be beneficial for in a range of content production and contribution use cases, including live events, remote productions, campus networks and wireless studios.
- The main expected benefits are increased flexibility, better resource optimisation, greater artistic freedom, increased safety, and lower production costs.
5G FOR MEDIA DISTRIBUTION

- Linear Services
- Nonlinear Services
- Enhanced Media Services and Platforms
**5G BROADCAST REQUIREMENTS**

**Public Service Media**
- Universal Coverage and Access
- Free-to-air Access
- Defined Quality of Service (QoS)
- Scalability (millions of users)
- Service integrity
- Prominence
- Ease of Use.
- Accessibility
- Public Warning
- No Gatekeeping
- Costs and Sustainability

**Commercial Providers**
- **Monetization / Encryption / Copy Protection:** In linear TV this is done in the first place by airing advertisements and selling subscriptions. In the case of non-linear Catch-up & VoD services typical business models are SVoD, AVoD and TVoD.
- **Targeted Advertising (TA):** Addressable TV functionalities allowing for a personalized TV experience (e.g. regional services, customized UI and content)
- **Enhanced media services,** combining interactive elements providing access to additional linear (e.g. alternative audio tracks, real-time gaming) and nonlinear content (like e.g. time-shifted viewing, video on-demand)
COMBINING BROADCAST/MULTICAST AND UNICAST

- Combining broadcast/multicast using **Towers + Satellite overlay + Unicast Cellular** to
  - The **broadcast of events** interesting large number of users and entire territories
  - The **unicast delivery of one to one personalized contents**
  - The **multicast push delivery** of multimedia contents
    - entertainment contents but also other public service contents (e.g. live traffic/alerts, navigation corrections and emergency information)
    - and in general software and information distribution to large population of users with a zero marginal cost per additional user
    - The same contents delivered to mobiles/vehicles can be received and managed at the very edge of the network (end devices) and at the level of any edge server in general
  - Using a **local storage** to maximize efficiency and economical sustainability.
  - At the exception of some limited cases where the information flow can be purely unidirectional (emergency transmission or free to air broadcast content delivery), it is always assumed the existence of a bidirectional link resource for the integration and orchestration of the 5G multilayer approach.
  - Broadcast-only would also work in areas where there is no unicast/uplink coverage
5G FOR MEDIA DISTRIBUTION

› LTE-based 5G Terrestrial Broadcast “Release 16”

   › Evolution of work started in Release 14 to meet PSM requirements
     › free-to-air, downlink only, 100% broadcast capacity,…
     › Release 16 integrates new numerologies for better mobility and large-area SFN

› 5G Multicast/Broadcast “Release 17”

   › 5G system architecture and 5G-NR to include for the first time multicast/broadcast
   › No SFN, no receive-only capabilities, registration with MNO required
   › Possibility of synergies with automotive industry, public protection,…

› Both activities relevant to ensure QoS and scalability of IP distribution

A. Arcidiacono – 5G-MAG chair – EBU CTO
5G FOR CONTENT PRODUCTION AND CONTRIBUTION
5G FOR CONTENT PRODUCTION AND CONTRIBUTION

› Technical Requirements on-boarded
  › Study on Audio-Visual Service Production (TR 22.827)
  › Service requirements for video, imaging and audio for professional applications (VIAPA) (TS 22.263)

› Specification work to start in Release 17
  › No specific work item for AV Production but requirements to be met by relevant activities
  › Similar requirements as industrial automation, health, public protection,…
5G-MAG ACTIVITIES

- **Identify relevant use cases** in the global media industry where 5G can be beneficial
- **Estimate** the volume of chipsets and user devices required by the global market, together with a timeframe
- **Catalyse the development of collaborative 5G infrastructure** including mobile, terrestrial broadcast and satellite networks.
- **Collaborate with the Mobile and Automotive industries** to develop and deploy successful services
- **Support the development of pilot networks and terminal prototypes** to accelerate the commercial availability of end user devices

This requires collaboration with relevant stakeholders along the entire media chain, explaining the issues and the relevance of Media requirements, opportunities and benefits

A. Arcidiacono – 5G-MAG chair – EBU CTO

WWW.5G-MAG.COM
## 5G-MAG ELECTED BOARD

<table>
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<tr>
<th>Name</th>
<th>Organization</th>
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<tbody>
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<td>Stan Baaijens, Funke</td>
<td>Richard Waghorn, RTE</td>
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<td>Lei Zhao, Huawei – Vice-Chair</td>
<td>Frank Heineberg, RTL</td>
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<td>Hyungkyu Lee, LG Electronics</td>
<td>Wim Moortgat, VRT</td>
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<td>Maria Perez, Sennheiser</td>
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<td>Roland Beutler, ARD / SWR</td>
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<td>Greg Bensberg, Digital 3&amp;4</td>
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<td>Antonio Arcidiacono, EBU - Chair</td>
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Membership April 2020
40 members signed
10 members pending
Under huge pressure from increased global competition and shifting consumption patterns, broadcasters and other content providers need to adapt their distribution models to meet user expectations. The development of hybrid services, combining linear and time-shifted elements, along with personalized on-demand services, using a combination of broadcast and multicast content delivery, represents a cost effective and sustainable solution.

A win for the media industry will see broadcasting reinvented to use collaborative infrastructure that combines the reach and efficiencies of terrestrial and satellite, broadcast and multicast, with the high throughput and personalized delivery mechanisms of mobile networks.
The MNOs are in a strong position, with a well-established business built on direct relationships with end users and strong leverage over device manufacturers. But they need to greatly expand their media content offer which – in their current model - comes with a heavy investment burden.

A win for the MNOs will involve enhancing their media offer to both mobile devices and cars via 5G broadcast and multicast modes, as a powerful means of efficiently and cost-effectively using available network resources.
As our transport infrastructure becomes ever smarter, we will require networks that can meet the need for entertainment, navigation, safety and software updates. Such networks need to cover 100% of the territory and 100% of the population with guaranteed quality of service at a sustainable cost/user. Currently, no single infrastructure can achieve this.

A win for the automotive industry will involve equipping connected cars and networks with the intelligence to use broadcast, multicast and unicast in an efficient and reliable configuration that enables the full potential of smarter, safer and – eventually – self-driving cars.
Alerting the public in emergencies, whether natural or man-made, is an essential element of public safety systems. Both broadcasters and telecoms operators have a regulatory obligation to build the necessary infrastructure and put it at the disposal of local, regional or national authorities. This is technically challenging and costly.

A win for the national authorities, broadcasters and telecoms operators, and ultimately the citizens, will be a reliable, cost-effective, advanced network infrastructure with near-universal coverage of the population and territory, that can support public warnings in emergency situation.
THANK YOU FOR YOUR ATTENTION

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