

# 5G-MAG Proposals for 3GPP SA/SA4 Rel-18

5G-MAG (Media Action Group), 3GPP MRP  
3GPP SA4 Rel-18 e-Workshop  
Electronic Meeting, August 17, 2021

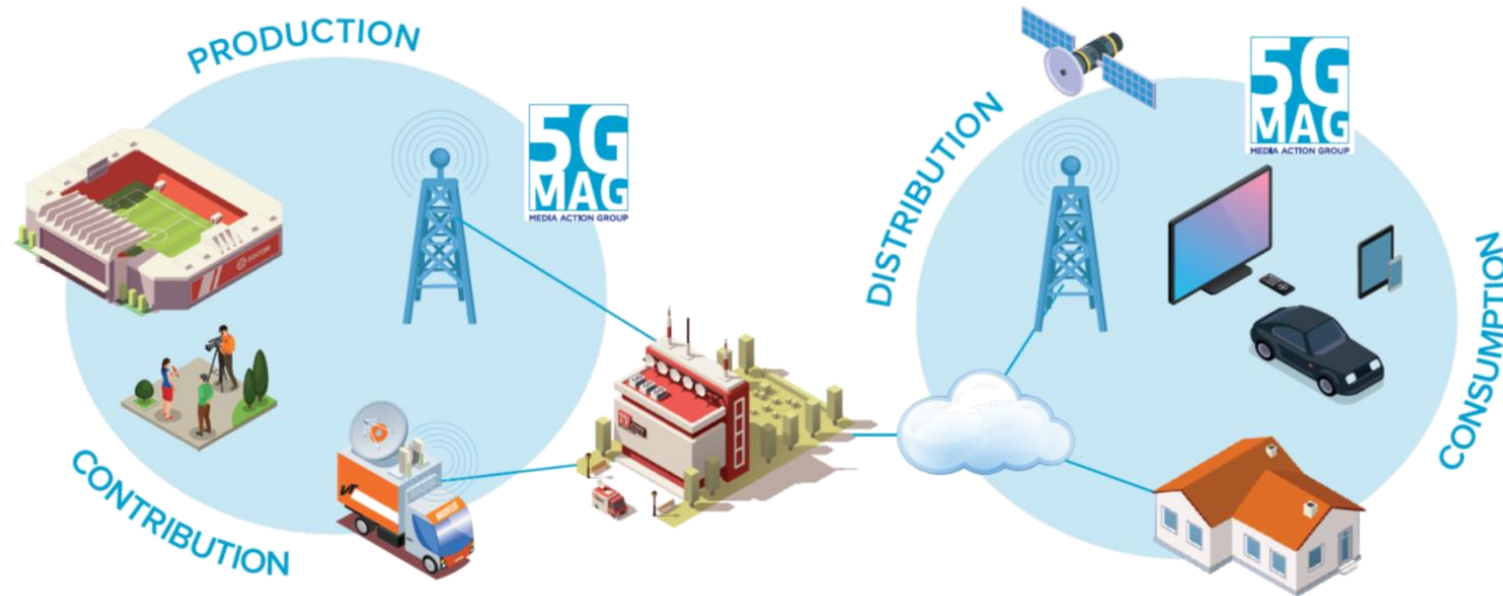


**MEDIA ACTION GROUP**

[www.5g-mag.com](http://www.5g-mag.com)

# 5G-MAG workshop on 5G-Advanced Release 18

- 5G-MAG held a series of workshops to gather inputs on Services Aspects and Technical Enablers for **Media Distribution** and **Production/Contribution** topics relevant to Rel-18 (RAN, SA and SA4)
  - In RWS-210205, 5G-MAG proposes enhancements for RAN Rel-18



- These slides are a recollection of the topics highlighted by 5G-MAG members with a focus on SA

# Media Distribution: Background

- 5G-MAG members support a **global standard-based ecosystem** for media distribution
- Media content (e.g. linear TV, radio, on-demand content, personalization, immersive media, etc.) is currently reaching audiences by means of different networks and technologies.
- 5G-MAG members support work based on 3GPP standards on **features** and **techniques** for the distribution of content over **mobile broadband**, **terrestrial broadcast** and **satellite** networks, considering:
  - Widespread feature support in handsets is essential
  - Backwards compatibility of the introduction of any new technique

# Media Distribution: General service requirements

- **Unified Broadcast and Unicast (Internet) Service Layers**
  - Alignment between broadcast and unicast (Internet) protocols for media distribution
  - Support of a CMAF-based ecosystem, DVB-I extensions for Rel-18
- **Service continuity and/or traffic switching/steering/splitting between different delivery modes (unicast, multicast, broadcast) and across different access networks (e.g. terrestrial broadcast access networks, mobile broadband access networks, non-terrestrial networks)**
- **Universal Access for media content**
  - Universal access to content independent of MNO subscription
    - E.g. for unicast/MBS users out of coverage range of home MNO
    - E.g. content provisioning to a single or federated mobile network providing service to any user
  - Reception of broadcast content in mobile networks independent of MNO subscription with no content encryption and being made available at no additional cost to the end user.

# Media Distribution: General service requirements

- **Service Multiplexing for 5G Media Distribution**
  - Dynamic allocation of common radio resources for a set of audiovisual services, for example by use of Statistical Multiplexing (StatMux) in broadcast
  - For broadcast, consider potential extension of the xMB interface and UE complexity
  - For unicast and multicast distribution, consider content-aware streaming
  - Support dynamic inter-layer information exchange and cross-layer optimization
- **Support of encrypted broadcast services, including authentication mechanisms**
- **5G-MAG welcomes work on new media and 5G integration, e.g.:**
  - Support of new codecs and transport protocols
  - Support of new television formats (e.g. 4K / 8K)
  - Support for low-latency real-time communication (e.g. alignment with webRTC)
  - Augmented/Extended Reality Experiences
  - Study of AI/ML-based media processing
- **The provision of Public Warning Multimedia to receive only mode UEs is relevant for 5G-MAG**
  - 5G-MAG is studying existing 3GPP functionality to identify potential gaps and/or new requirements

# Enhancements on LTE-based 5G Terrestrial Broadcast

- **Service requirements and Technical Enhancements**
  - Enhancements and extensions of Rel-17 work on 5GMS over eMBMS and 5GMS hybrid unicast/broadcast services
  - Support for low-latency streaming (CMAF) and applicability of ROUTE
  - Support the connection of LTE-based 5G Broadcast to the 5G Core

# Enhancements on Multicast/Broadcast Services (5MBS)

- **Service requirements and Technical Enhancements**
  - Complete the definition of a service layer for 5MBS
    - Define 5MBS User Services, if not completed in Release 17
    - Address the extensions identified in the Rel-17 SA4 studies
  - Support of Receive only devices and devices with no subscription or with 3rd party content provider subscription only for 5MBS broadcast
  - Technical enhancements to improve scalability, efficiency and availability, among others:
    - Reception of Multicast MBS Session data with RRC Inactive state
    - Efficient resource utilization for RAN sharing scenarios
    - Any other issues identified by RAN WGs with SA2 impact, e.g., SFN enhancement.

# Enhancements on Media Streaming and Codecs

- **Service requirements and Technical Enhancements**
  - Continuation of work started in Rel-17 (e.g. FS\_5GMS\_Multicast, FS\_5GMS\_EXT) addressing leftovers and new topics, with focus on the following areas of interest:
    - Background traffic
    - Low-Latency CMAF-based & Content Aware Streaming
    - Traffic Identification
    - New Protocols
    - Security and DRM
    - Data Collection (NWDAF) and Event Exposure (EVEX) extensions
  - Support and characterization of new codecs including extensions to DASH/CMAF and RTP-based delivery, support for 4K/8K TV profiles



# Media Production/Contribution: Background

- 5G-MAG members support a **global standard-based ecosystem** for media production/contribution
- Relevant use cases, applications and requirements are part of TR 22.827 and TS 22.263
  - SA4 is conducting a study item on Media Production over NPNs (NPN4AVPROD)
- 5G-MAG members support work based on 3GPP standards on **features** and **techniques** for media production and contribution over PLMNs and NPNs

# Enhancements related to Media Production/Contribution

- Evolution of NPNs in particular to address PALS requirements in SA1
  - Related to production use cases in venues
- Study architecture design for, e.g., vehicle fixed mounted relays and repeaters to support ENG (electronic news gathering), contribution, and distribution models
- Study uplink enhancements for 5G Media Streaming via a gap analysis against AV Production requirements
- System enhancements for XR
- Support of high-end UEs (e.g., high bandwidth and low processing latency, multiple TRP, advanced receiver) for contribution equipment

# 5G-MAG: Shaping together the future of media

- We would like to inform the 3GPP community on recent initiatives conducted by 5G-MAG, including:
  - Pre-standardization:
    - Commercial analysis
    - Market needs and studies
    - Commercially-oriented requirements
  - Post-standardization:
    - Promotion
    - Explainers ([www.5g-mag.com/explainers](http://www.5g-mag.com/explainers))
    - Workshops ([www.5g-mag.com/events](http://www.5g-mag.com/events))
    - Software and Reference Tools ([www.5g-mag.com/reference-tools](http://www.5g-mag.com/reference-tools))
    - New activities under consideration (e.g. interop and development programmes)





@5GMAGnews



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## Contact us

Jordi J. Giménez - Head of Technology

[gimenez@5g-mag.com](mailto:gimenez@5g-mag.com)

Eva Markvoort - Head of Finance and Administration

[markvoort@5g-mag.com](mailto:markvoort@5g-mag.com)



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