

# Latest news on 5G-MAG activities

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5G-MAG Vice-Chair



# Overarching Objectives of 5G-MAG

- **Unlock the **potential** of 5G technologies for media by:**
  - Understanding how **5G** technologies can help the media industry in the production and distribution of **media content & services**
  - Driving consensus towards **standardisation** of relevant features
  - Lowering the barriers towards development and **implementation**
  - Supporting industry engagement from use cases to **deployments**
- **5G-MAG seeks **collaboration** with **all stakeholders** to pave the way for the creation of viable **ecosystems****

**Media + ICT + Collaboration**

# Production: Flexibility, Agility, Independence



# Production: Flexibility, Agility, Independence



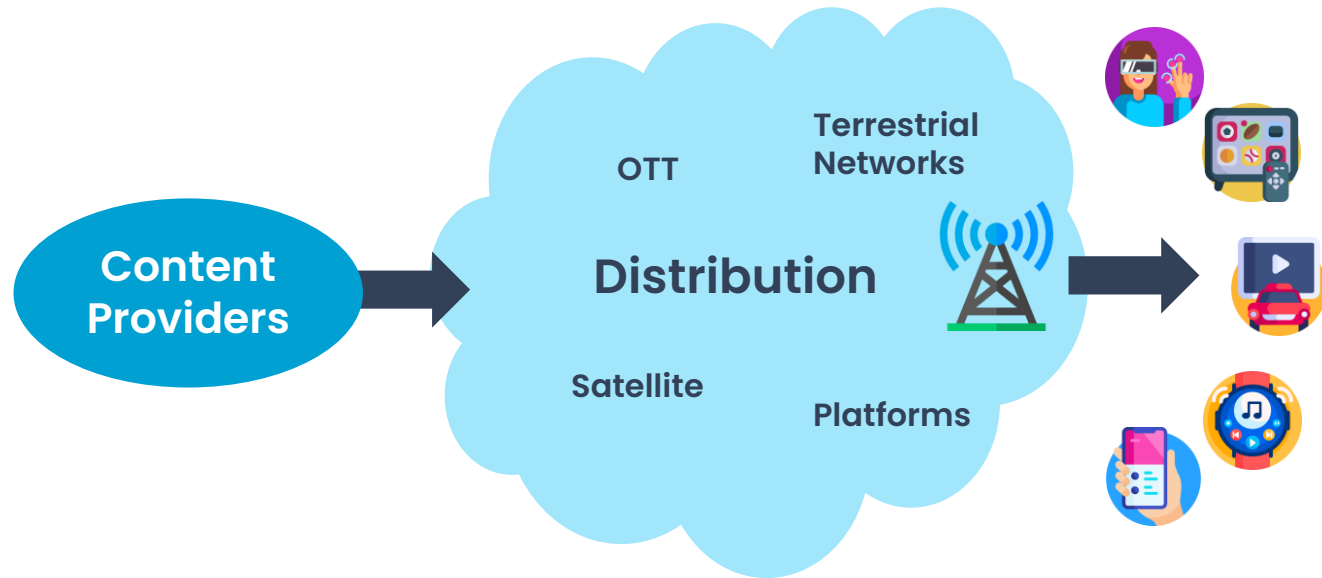
Ad-hoc and temporal setup  
SNPN & PNI-NPN  
QoS priorities  
Dynamic QoS  
QoS exposure  
D2D  
UE on-boarding  
Timing and synchronization  
Low Latency  
Cloud/Edge  
Legacy devices  
Web-based uplink/downlink streaming

# Production: Flexibility, Agility, Independence

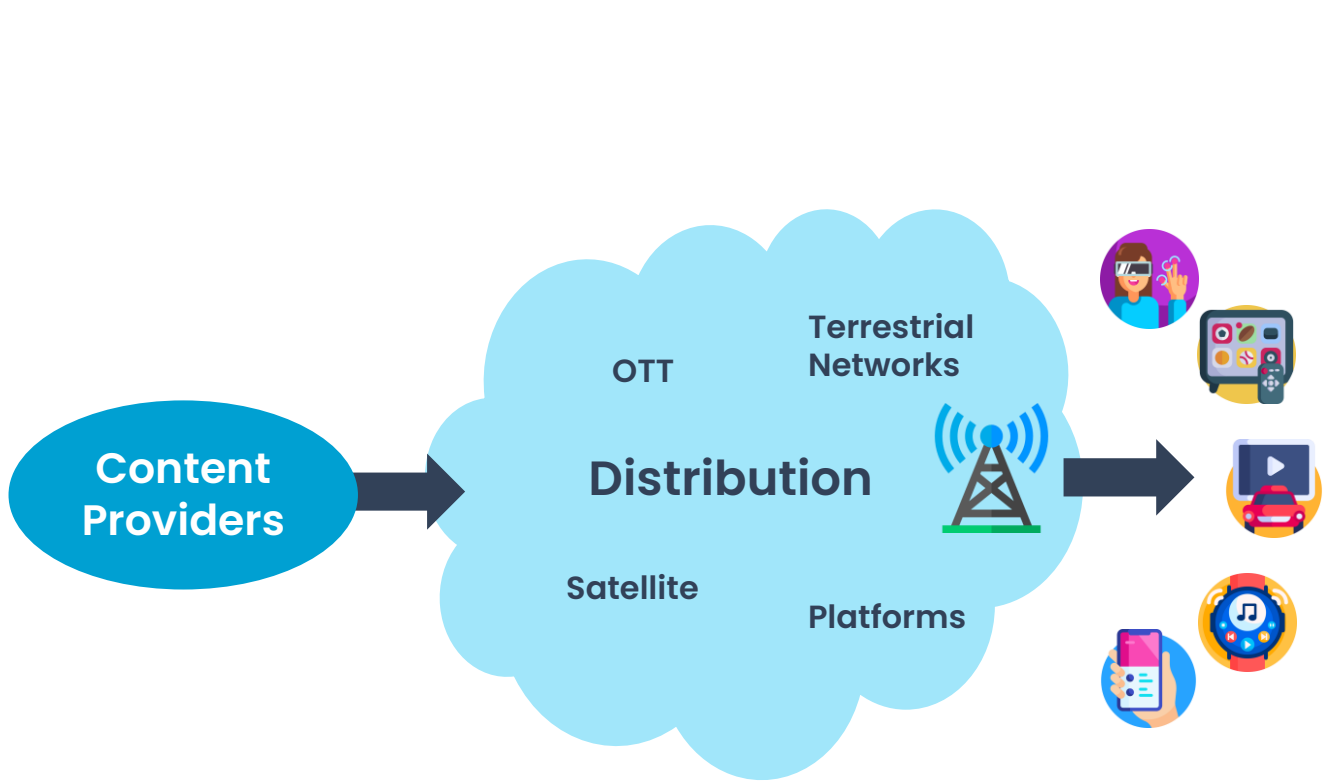


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# Distribution: Devices, Formats, Users



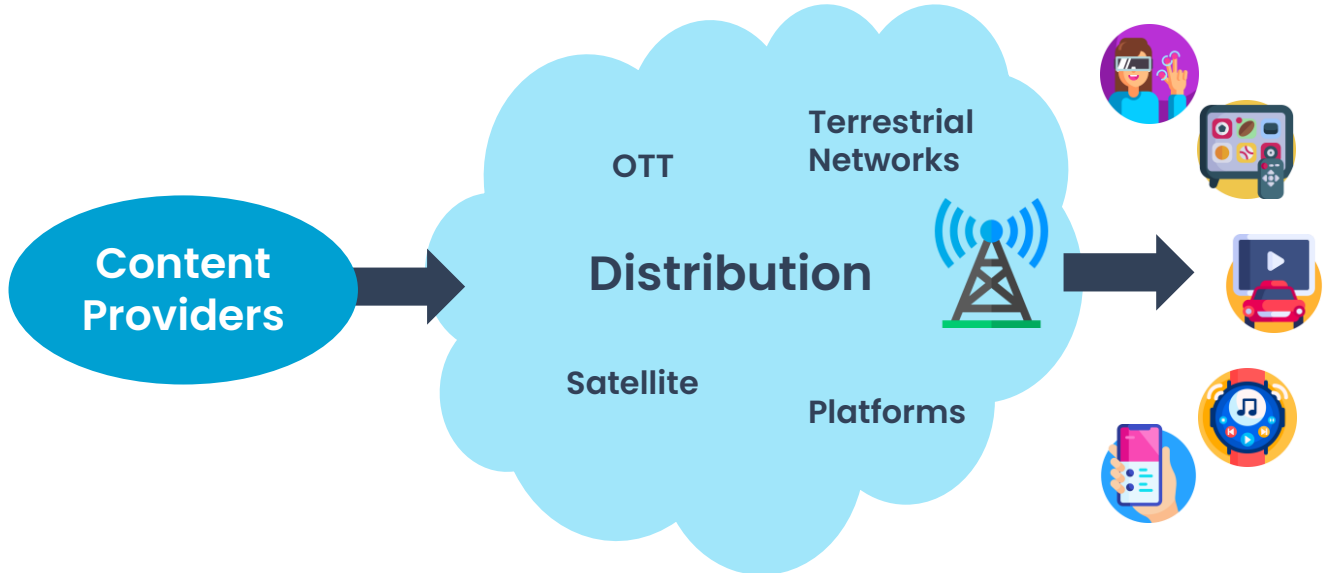
# Distribution: Devices, Formats, Users



- UHD/8K
- Social
- 3D
- Immersive
- Personalized
- Interactive
- Gaming-like
- Short & Long
- Live
- Linear
- On-Demand
- User Generated
- AI-supported
- Location
- Global
- Secure
- Time-shift

# Distribution: Devices, Formats, Users

- Quality
- Cost
- Scalability
- Control
- Security
- Sustainability



- UHD/8K
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# Opportunity: Global media & access technologies



## Content Production Services and Applications

Global technologies and APIs  
(formats, codecs, transport, networking)

Examples (non-exhaustive):



## Content Distribution Services and Applications

Global technologies and APIs  
(formats, codecs, delivery, presentation)

Examples (non-exhaustive):



# Internet & 5G-Based Access

# 5G-MAG's member-driven activities

- Transitioning technology into applications

## Driving Industry Consensus



Proposing Use Cases

Creating Requirements

Assessing Opportunities

## Driving Standardization



Tracking Standardization

Defining Architectures

Profiling Specifications

## Driving Implementation



Developing Software

Supporting Developers

Creating Ecosystems

# Current Work Items

WI#8 Feasibility Analysis of Audiovisual Production over 5G

WI#6 AV Production in 5G Non-Public Networks



**Content Production**

WI#7 Emergency Alert System based on LTE-based 5G Broadcast

WI#5 Audio-Video Codecs and Protocols

WI#4 5G Multicast Broadcast Services

WI#3 5G Linear and On-Demand Streaming

WI#2 5G Media Distribution in Mobile Networks

WI#1 LTE-based 5G Terrestrial Broadcast



**Content Distribution**

# Driving Industry Consensus (examples of on-going work)

## Use Cases, Requirements, Architectures and Features

- High-level architectures for news-gathering, live production and music setups,...
- 3GPP technologies for streaming over Unicast, Broadcast, Multicast, Edge,...

## Ecosystem and Regulatory aspects

- Global 5G roll-out driving equipment and device ecosystems
- Frequency bands suitable for media production scenarios, in particular for NPNs
  - Mid-bands below 6 GHz, Germany 3.7-3.8 GHz, UK 3.8-4.2 GHz, ..., mmWave bands
- Identification of suitable spectrum access frameworks (eLSA, CBRS, ...)
  - Time-limited and ad-hoc access vs long-term license, coordination requirements to maximize efficiency

## 5G-MAG Explainers and Workshops

- Workshops for industry engagement into 3GPP work items
- 5G-MAG Explainers on NPNs (SNPN & PNI-NPN)
- Linear TV and Radio with LTE-based 5G Broadcast
- Work in progress around 5G Media Streaming, MBS and AV Codecs

# Driving Standardization (examples of on-going work)

## 3GPP SA4 Work Item on NPN4AVPROD



- Contributions by 5G-MAG members into TR 26.805 “Study on Media Production over 5G NPN Systems”; Annex A on 5G-MAG Workshops and Trials
- 5G-MAG to follow up on recommendation guidelines

## ETSI 103 720 «5G Broadcast System for linear TV and radio services»

- Specification update to include enhancements from 3GPP Rel-17 specifications:
- Kanban Board

## 3GPP TS 26.512 – 5G Media Streaming (5GMS); Protocols



- Bug fixing and detection of issues arising from spec implementation
- Kanban Board

## 3GPP TS 26.346: MBMS; Application Programming Interface and URL

- Bug fixing and detection of issues arising from spec implementation
- Kanban Board

Contributions? <https://github.com/5G-MAG/Standards/issues>



# Driving Implementation (examples of on-going work)

## Why 5G-MAG Reference Tools?

- Implementation-driven specs
- Testing, validation, verification and direct feedback to SDOs
- Lower the complexity of spec implementation for developers



### Open Community of Developers

Open developers' community sponsored by 5G-MAG members



### Reference Implementations

Reference implementation of 5G media platform components and features



### Feedback to standards experts

Facilitating exchange between developers and standardization experts



### IPR-friendly License Model

Developed to foster contributions, demos, testing, commercialization

## Current list of official contributors



# Driving Implementation (examples of on-going work)

**B B C** Reliable **Video On-Demand** over Mobile Networks with **5G Media Streaming**

**B B C** Reliable **Personalized Live Radio** over Mobile Networks with **5MBS**

  **5G Broadcast On-Demand** with **5G Media Streaming**

 **Premium and Targeted Content Insertion** with **5G Media Streaming**

 **DVB-I** over **5G Media Streaming**

 **DVB-I Hybrid Service** over **5G Broadcast** and **5G Media Streaming**

 **Emergency Alerts** and **Media Services** through **5G Broadcast**



Contribution to **LTE-based 5G Broadcast** completion and **Multicast-Broadcast Service (MBS)** and **satellite/NTN broadcast** integration

## Join the development efforts in 2023!

**5G Media Streaming**  
**Dynamic network QoS policies**  
**Event exposure framework**  
**Media Streaming over eMBMS**  
**Edge Applications for Streaming**  
**5G Multicast Broadcast Services**  
**eXtended Reality**



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