

3GPP technologies for warning - 5G Broadcast

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Today's agenda

- # What is 5G Broadcast
- # Status of trials and deployments
- # Standards
- # Emergency Alerts with 5G Broadcast
- # Next Steps



Presenter



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Leading and driving among others

- DVB: 5G TF, DVB-I
- MPEG: MPEG-I, CMAF and DASH
- 3GPP: XR over 5G, 5G Video, 5GMS
- DASH-IF: Interop WG, Test
- ETSI & 5G-MAG: 5G Broadcast and 5GMS
- CTA WAVE: CMAF Device PB, Test
- Metaverse Standards Forum Lead

General technology introduction

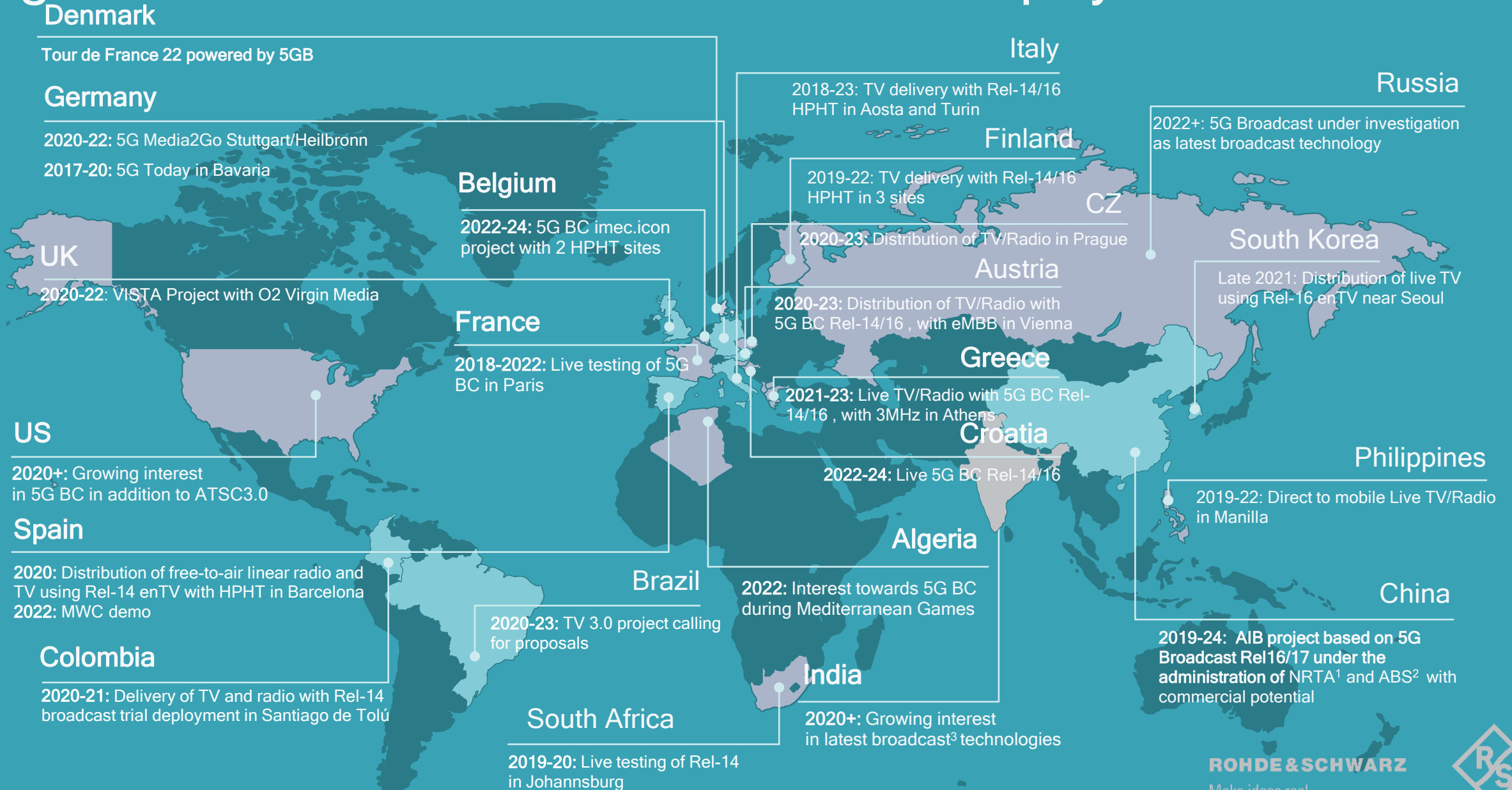
5G broadcast and 3GPP

- “5G broadcast” is a broadcasting standard defined by 3GPP (Release 16)
 - 3GPP is the industry group responsible for defining global cellular tech standards (e.g. 4G / 5G)
 - In the last few years 3GPP has expanded to new *verticals* (e.g. broadcast, automotive, satellite, etc.) hence it should not be regarded as a surprise that a broadcasting tech is coming out of 3GPP
- Even though 5G Broadcast has been standardized by 3GPP, it is a broadcasting technology
 - I.e. meant to be used by broadcasting operators, in broadcasting spectrum
 - No need of supporting a unicast network. 5G Broadcast does not have anything to do with unicast
- The main design target & “reason for being” of 5G broadcast is to enable operation of a broadcast network where the receivers are **hardware-compatible** with cellular modems
 - “Hardware compatible” means lower barrier to adoption in mobile devices compared to other broadcasting technologies
 - This is because several 5G Broadcast building blocks are already there in a 4G/5G modem, hence the additions are marginal.
 - For other technologies, a separate piece of silicon / die area would be required
 - To be clear, 5G Broadcast has nothing to do with “cellular operators trying to take over from broadcasters”

5G Broadcast - Core Features for multiple use cases

- SIM-less reception with simplified architecture
- Receive-Only Mode (ROM) & Free-to-Air (FTA)
- Different spectrum options (e.g. UHF, SDL), as well as SFN/MFN
- Various deployment possibilities (e.g. MNOs, BNOs)
- Using existing infrastructure (HPHT, MPMT and LPLT)
- Highly flexible velocities (up to 250 KM/h Vs up to 300 μ S)
- Can be combined with existing 4G and 5G features (unicast, PWS)

Significant interests towards 5G broadcast deployment worldwide



Eurovision Song contest

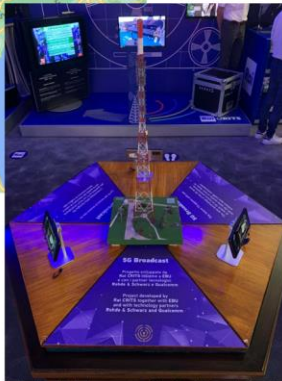
5G Broadcast demoed live in multiple cities

- [Link](#)



Live content produced by RAI in Turin

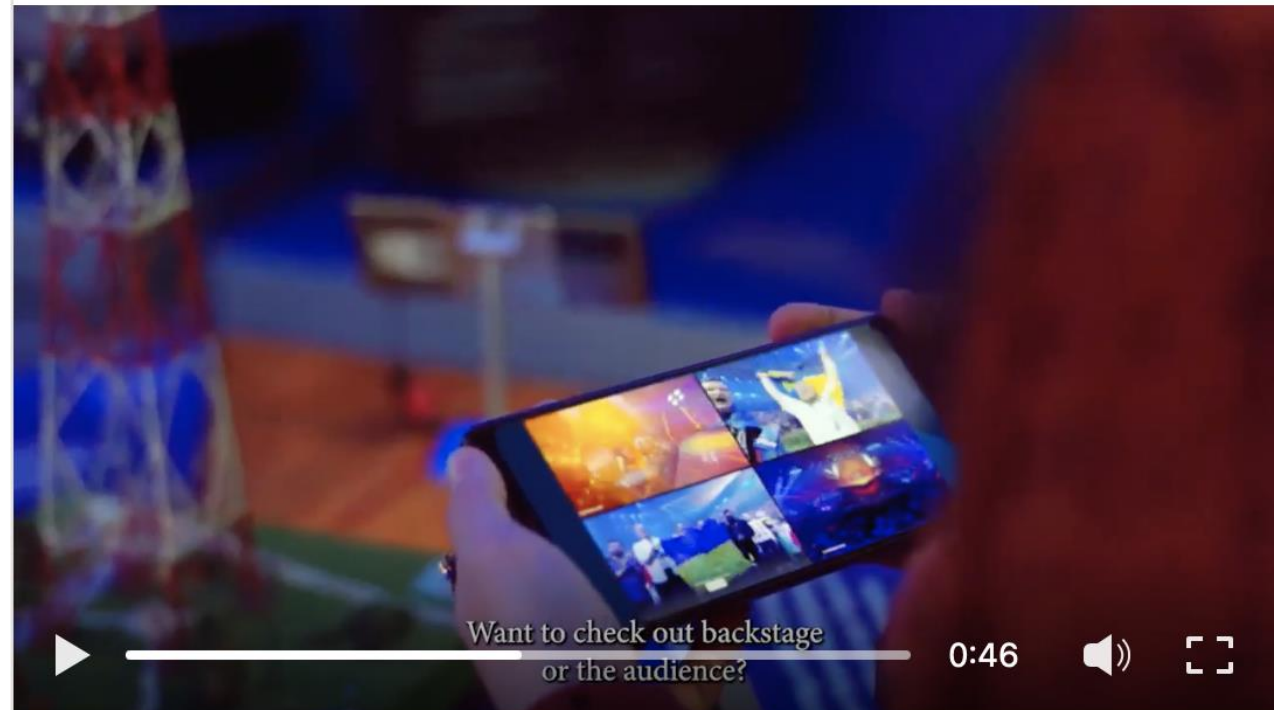
Encoded by Ateame at EBU HQ in Geneva and distributed to
SWR in Stuttgart
France Televisions in Paris
ORS in Vienna



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This year's **#Eurovision** showcased the future of live broadcasting, with the latest multimedia distribution solution, allowing viewers to witness the action from multiple angles at once. Watch the video below to learn how we helped make this a reality.

In partnership with **ORS Group (Austrian Broadcasting Services), Rai - Radiotelevisione Italiana, Rohde & Schwarz, towerCast, European Broadcasting Union and SWR**



Qualcomm Eurovision

Other demos / trials



Stuttgart (test drive)



IMC'22



CABSAT'22

Rohde & Schwarz and Qualcomm show end-to-end live 5G Broadcast streaming to smartphones at CABSAT Show 2022

Dubai World Trade Centre, Booth E6 - 20



Rio open '23 (BR)

TowerCast event in Paris



MWC '23

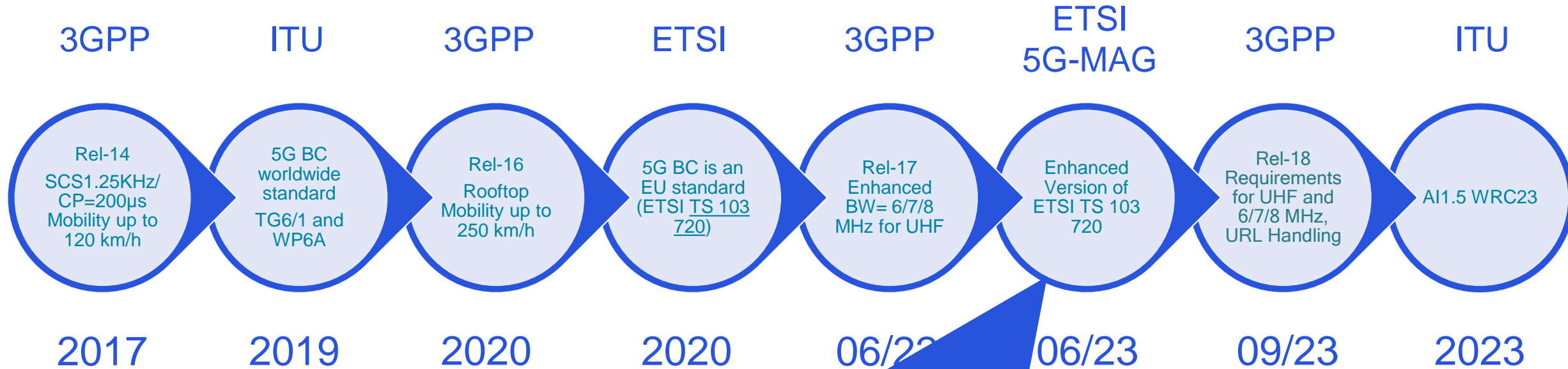


BES expo (Delhi)

Joint ITU-R-EBU Workshop "Broadcasting in times of crisis - 2023"

5G Broadcast Standards Evolution

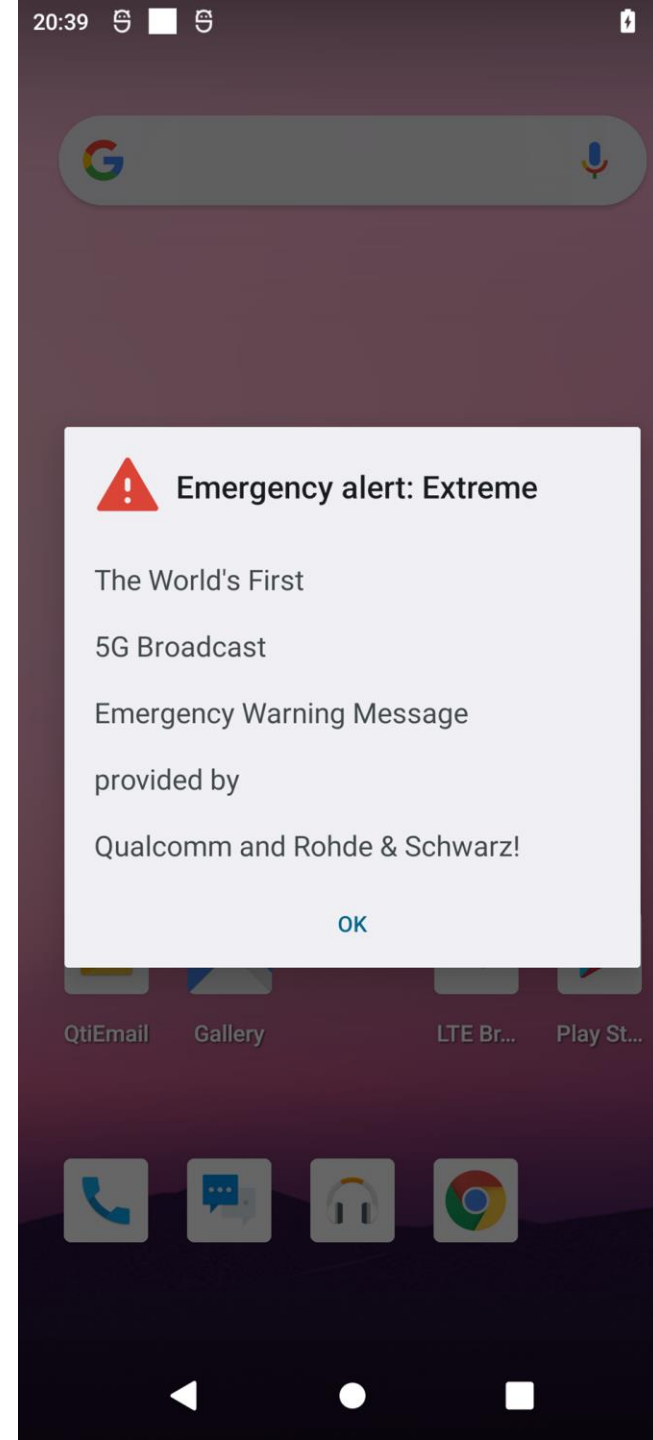
Roadmap towards WRC23



- Bug fixes and clarifications from trials & Rel-17
- Adding bandwidth information, including 6/7/8 MHz
- 5G Media Streaming: integrated unicast & broadcast
- Consistent codecs and formats
- Support of Public Warning System & Emergency Alerts

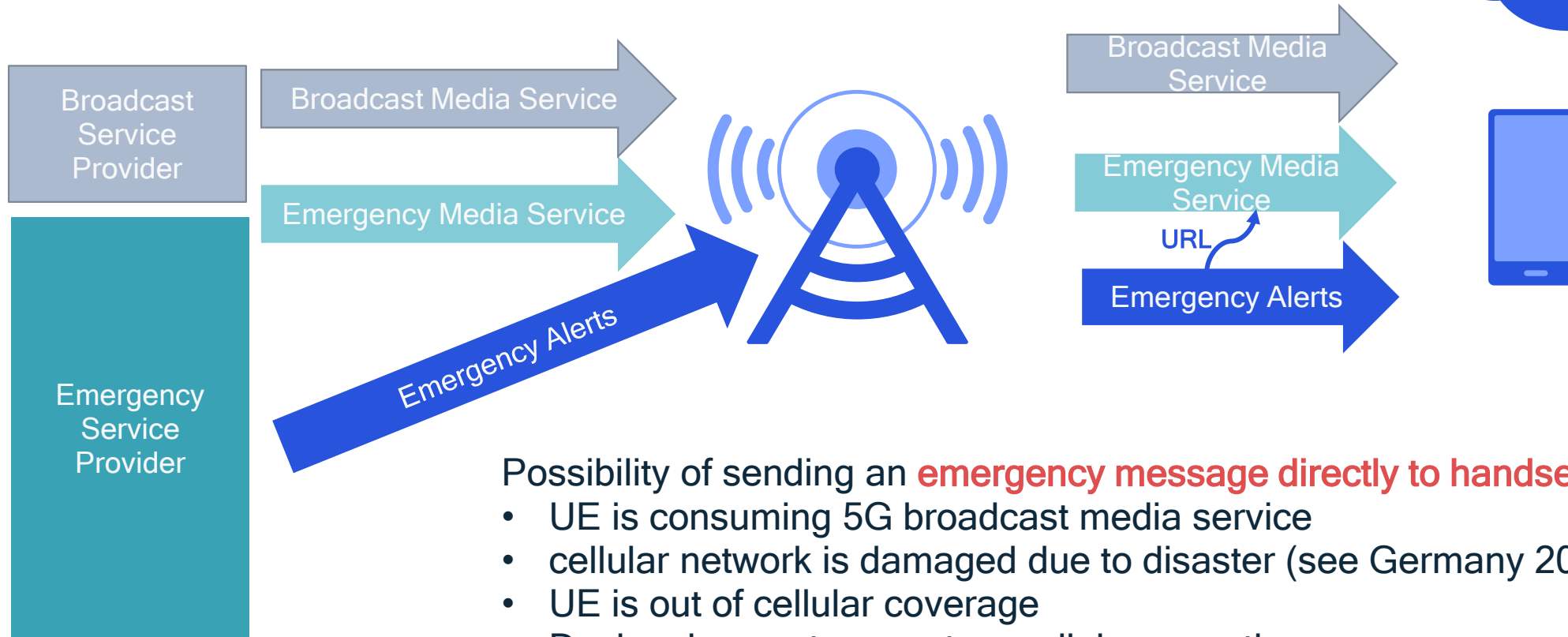
Emergency alerts

- 5G broadcast inherits from 5G the public warning system capabilities.
- The Cell Broadcast Service (CBS) does not require authentication with a PLMN. Hence, a ROM network is inherently compatible with CBS (see 3GPP TS 23 041).
- CMAS (commercial mobile alert system) is available in current commercial devices.
 - Devices monitor periodically a low-duty cycle paging channel (low power)
 - CMAS over 5G broadcast has been demonstrated with R&S infrastructure
- Additional capabilities of CMAS:
 - **Geofencing** (send notification to users within a given area)
 - Possibility of sending URL linking to **emergency media**



Use cases for emergency notifications

Details in ETSI
TS 103 720



Possibility of sending an **emergency message directly to handsets**

- UE is consuming 5G broadcast media service
- cellular network is damaged due to disaster (see Germany 2021).
- UE is out of cellular coverage
- Device does not support an cellular reception

5G broadcast viewed as complementary **“resiliency layer”** in case of disaster.

Emergency media can be accessed by means of a URL in the CMAS message (which supports text-only)



Emergency message demo with ABS

Self-contained emergency system (text + multimedia) without need of unicast.



Summary & Next Steps

Join the community of open standards and developments



5G is a platform for Broadcasters and Content Providers with features including 5G broadcast, Public Warning and many others







3GPP Standards are global and address billions of devices - from smart phones to many more verticals (automotive, IOT, etc.)



Qualcomm contributes, supports and drives open systems through technologies, standards and reference tools



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