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AT A GLANCE

Running as part of the core network, the R&S®BSCC1.0 broadcast service and control center is a new, software defined solution that delivers multimedia content over LTE/5G networks in broadcast mode. It generates service announcements and encapsulates multimedia content into specific FeMBMS bearers to be delivered from the evolved packet core (EPC) down to the receiver.

The R&S®BSCC1.0 allows content providers to deliver high data rate content to their mobile users simultaneously with consistent quality of service (QoS). This results in higher quality of experience (QoE), spectral efficiency and reduced costs.

The solution supports the latest approved 3GPP Release 14, which allows operators to roll out advanced FeMBMS services that mix potentially different types of media over networks with hybrid unicast/broadcast coverage.

The R&S®BSCC1.0 implements the MBMS-GW and BM-SC 3GPP instances, making it possible to launch mobile TV services for broadcast network operators.

In order to deliver more services such as multimedia streaming on demand and public warning, the R&S®BSCC1.0 functions can be enhanced with more features and optionally integrate MCE and/or MME to provide a complete LTE broadcast solution. It can also be easily connected to third-party MCE and/or MME as a highly flexible platform.

The R&S®BSCC1.0 broadcast service and control center supports all required 3GPP standardized interfaces to control all EPC elements involved in the delivery of broadcast content over the LTE/5G network.

Benefits
▶ Compliant with 3GPP standards
▶ Full support for multicast broadcast single frequency network (MBSFN)
▶ Software defined application for resource optimization
▶ Flexible and cost-effective service rollout
▶ Intuitive GUI based control
▶ Centralized core network architecture

Key features
▶ 3GPP Release 14 support
▶ NTP management
▶ Time synchronization based on SYNC protocol
▶ Purely software defined network functions
▶ HD audio and 4K/UHD video delivery
▶ x-MB interface with TSoIP support
▶ Multiservice support (up to 10 services)
▶ Multi-TX connections support (MBSFN up to 5 TX)
▶ M1 and M2 interfaces with static MCE configuration

Network functions

▶ **BM-SC**
Broadcast multicast service center is a 3GPP instance that provides membership and session control. One of the main tasks of the core entity is to ensure content synchronization, service announcements and security. The BM-SC sets up the FeMBMS session and initiates delivery of the content by pulling it from the content server

▶ **MBMS-GW**
Multimedia broadcast multicast service gateway distributes FeMBMS user plane data to the transmitters using IP multicast and performs FeMBMS session control signaling. It acts as a mobility anchor and provides service continuity
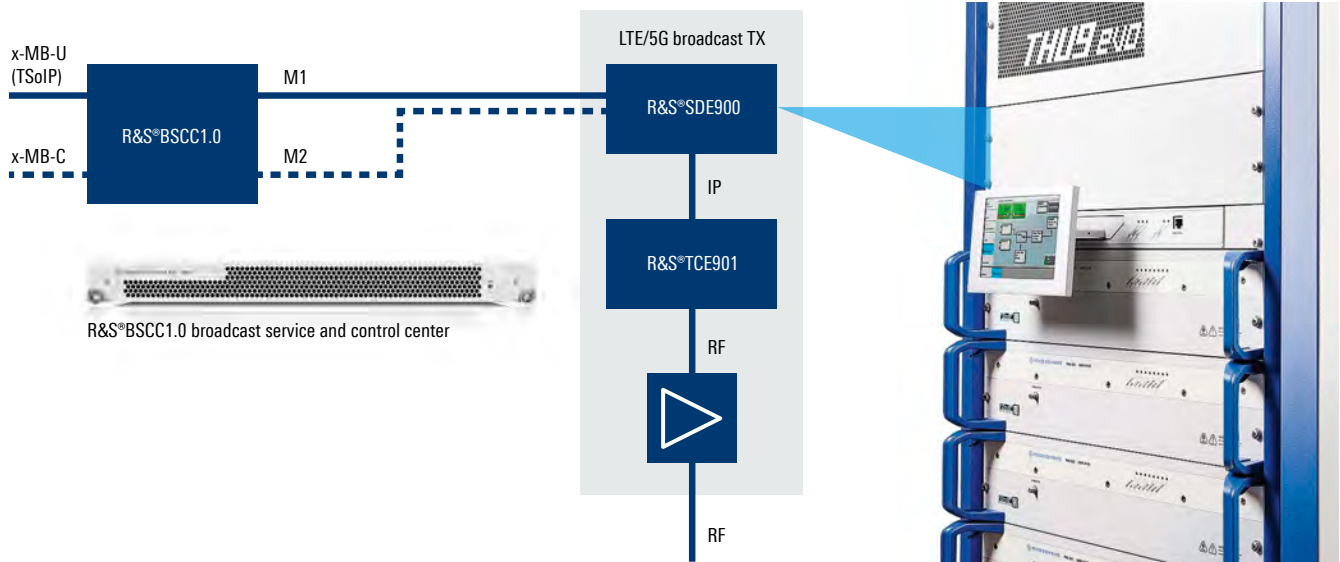
▶ **MCE**
Multicell/multicast coordination entity can be a separate entity or a part of eNodeB/transmitter. The main role of the MCE is to manage the broadcast/multicast-related radio resources such as the modulation and coding scheme (MCS)

▶ **MME**
Mobility management entity, a core network element

5G trial platform for the R&S®Tx9 transmitter family

R&S®BSCC1.0 broadcast service and control center

LTE/5G broadcast TX

x-MB-U (TSoIP) — M1
x-MB-C — M2

R&S®BSCC1.0 — R&S®SDE900 — IP — R&S®TCE901 — RF — RF
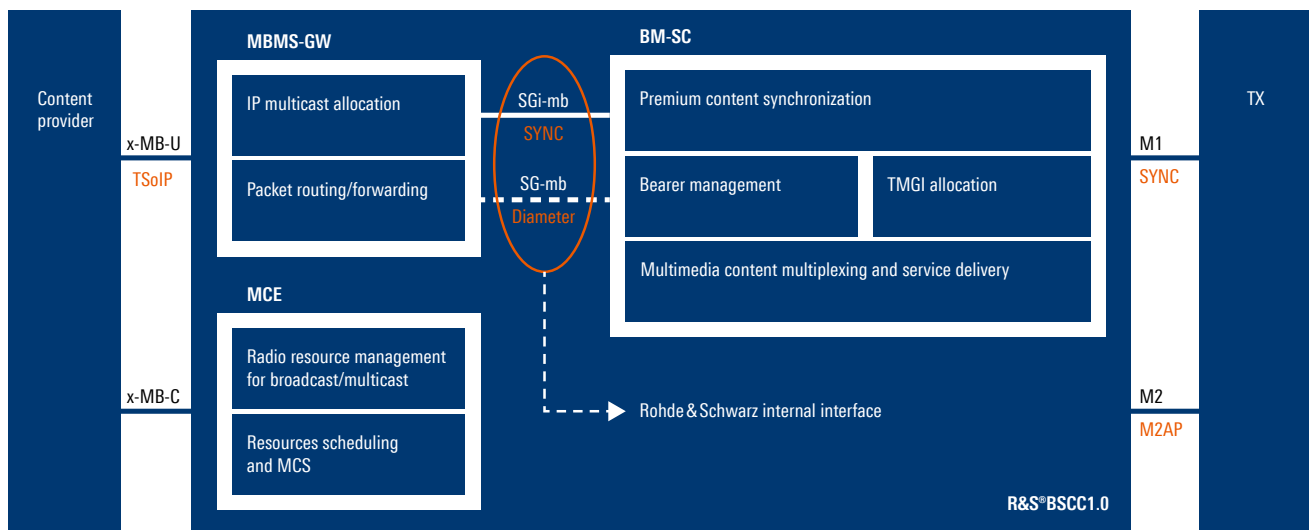
Broadcast service and control center

Running as a part of the core network, the R&S®BSCC1.0 broadcast service and control center, including the broadcast multicast service center (BM-SC), is a new solution that enables the delivery of multimedia content over LTE/5G networks in broadcast mode. It encapsulates multimedia content into specific FeMBMS bearers to be delivered from the evolved packet core (EPC) down to the receiver.

It allows content providers to deliver high data rate content to their mobile users simultaneously with consistent quality of service (QoS). This results in higher quality of experience (QoE), spectral efficiency and reduced costs.

The software defined R&S®BSCC1.0 supports the latest approved 3GPP Release 14, which allows operators to roll out advanced FeMBMS services that mix potentially different types of media over networks with hybrid unicast/broadcast coverage.

For trial purposes, the R&S®BSCC1.0 implements the MBMS-GW and BM-SC 3GPP instances with a static configuration of MCE. It is mainly used to deliver multimedia contents from content providers with a maximum of 31 Mbit/s using a flexible number of bearers. This makes it possible to launch mobile TV services for broadcast network operators.

R&S®BSCC1.0 broadcast service and control center as a part of the core network

Content provider

x-MB-U — TSoIP
x-MB-C

MBMS-GW
- IP multicast allocation
- Packet routing/forwarding

MCE
- Radio resource management for broadcast/multicast
- Resources scheduling and MCS

SGi-mb — SYNC
SG-mb — Diameter

BM-SC
- Premium content synchronization
- Bearer management
- TMGI allocation
- Multimedia content multiplexing and service delivery

Rohde & Schwarz internal interface

TX

M1 — SYNC
M2 — M2AP

R&S®BSCC1.0

APPLICATIONS

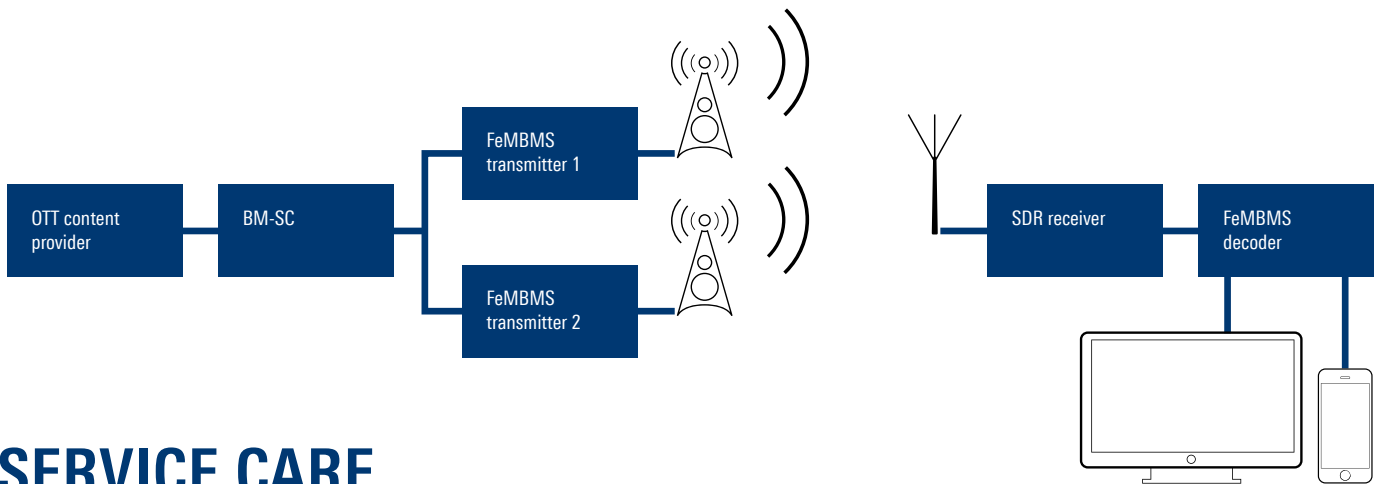| Automotive (V2X) | IoT (Smart home appliance) | Media and entertainment (Mobile TV) | Public safety (Natural disasters) |

R&S®BSCC1.0 broadcast service and control center

5G BROADCAST ARCHITECTURE

OTT content provider → BM-SC → FeMBMS transmitter 1 / FeMBMS transmitter 2

SDR receiver → FeMBMS decoder

SERVICE CARE

Rohde & Schwarz provides comprehensive support that meets the unique needs of your business, enables you to ensure your services and delivers the seamlessness your customers expect. R&S®BSCC1.0 service care and service care advanced offer flexible and progressive service level agreements (SLA). Their purpose is to proactively detect, isolate and help resolve issues that can affect customer experience, as well as measure actual improvements in services. For the R&S®BSCC1.0, service care includes several key benefits such as general software updates, major software upgrades, technical expert support, hotline support, advanced hardware replacement and technical training.

ORDERING INFORMATION

Designation	Type	Order No.
Broadcast service and control center	R&S®BSCC1.0	2511.9201.10