

IMS/RCS Technology

For a long time, IP Multimedia Subsystem (IMS) was nothing more than just a revolutionary idea to move all existing teleservices, including telephony to the PS domain of the mobile network and to create a vast variety of brand new teleservices totally based on end-to-end IP connectivity.

Today, thanks to GSMA Rich Communication Suite (RCS) initiative, there is a clear path and agreement on how to turn IMS into practice. RCS ensures that the same initial subset of IMS services will be introduced by all operators, infrastructure and terminal vendors and will work smoothly also in inter-operator scenarios.

The course explains IMS architecture, addressing, intra- and inter-operator signalling procedures, paying a special attention to the **non-voice services** selected by the GSMA for RCS-e and RCS5.

Target audience

The course is intended for technical mobile network staff and their management who plan to or already work on introducing IMS/RCS services.

Training contents

- **Introduction**
(IMS and RCS standardisation, horizontally and vertically integrated networks, RCS-e and RCS R1-R5 services),
- **Architecture**
(basic IMS architecture, RCS R1-R5 architecture, IPX architecture, numbering and addressing, ENUM in IMS, DNS and ENUM in RCS/IPX),
- **Access networks**
(PS bearer services in GSM/GERAN, UMTS/UTRAN, LTE/E-UTRAN, Broadband Access - I WLAN, QoS, Policy Control and Charging – PCC),
- **Signalling procedures**
(SIP & SDP, SIP signalling bearer establishment, media bearer establishment, IMS discovery, registration, subscriber profile, initial filter criteria, mobile-to-mobile call, mobile-to-PSTN call, multi-device environment and SIP forking),
- **Security**
(IMS authentication, SIP confidentiality and integrity, SIP Digest, SIP Digest with TLS, GPRS-IMS-Bundled Authentication - GIBA, Generic Authentication Architecture - GAA),
- **Enhanced address book & Presence service**
(Enhanced address book and Presence service in RCS R1-R5, network address book, address book synchronisation in single and multi-device environment, presence information sharing, service availability/capability discovery, social presence relationship, geo-localisation, VIP contacts, 3GPP IMS Presence service, Presence Server, Resource List Server, OMA XDMS, XCAP, OMA Presence Service, service capability discovery via SIP options in RCS-e),

- **Image Share & Video Share**

(service capability discovery for IS&VS, IS&VS session setup, IS&VS in RCS R1-R5e, multi-device environment),

- **Messaging & File transfer**

- 3GPP IMS Messaging
(immediate messaging, session-based messaging, SMS over generic IP-CAN),
- OMA Instant Messaging (IM)
(pager mode, large message mode, session mode, file transfer mode, 1-to-1, peer to peer, 1-to-many chat, predefined and ad-hoc group chat, deferred delivery, history and search, IM barring, final delivery reports),
- OMA Converged IP Messaging (CPM)
(store and forward, common message store, CPM – SMS/MMS interworking),
- RCS-e/RCS5 Messaging
(multi-device environment, 3GPP and OMA messaging services in RCS-e/RCS5),
- Geolocation services
(geolocation PUSH and PULL).

- **IP Voice and IP Video Call overview***

(VoLTE and VoHSPA overview, MMTel architecture, call setup, supplementary services),

- **Auto configuration and provisioning**

(RCS managed objects, first time registration and client configuration provisioning, re-registration, OMA DM, OMA CP).

Prerequisites

The participants should have a general technical knowledge about IP networks and packet bearer services in 3GPP mobile systems.

Training method

Lecture

Duration

2 days

Level

Intermediate

* Since the training is focused on non-voice RCS services, this section of the training has an overview character only. In case the full description of those services is required, we recommend combining this training with one of our IMS voice-focused trainings e.g. "VoLTE Basics".