



# Exploring VoLTE: Architecture and Interfaces

LTE\_129d | On-Demand | LTE and VoLTE | ⚙️

Course Duration: 1 hour

Long Term Evolution (LTE) network is optimized for delivering high-speed packet-oriented content and services to a large number of mobile users. However, some services, such as conversational voice over IP (VoIP), require special treatment in order to minimize end-to-end delay and provide a satisfactory user experience. The wireless industry has adopted the IP Multimedia Subsystem (IMS) architecture to implement real-time and multimedia services to LTE subscribers; Voice over LTE, or VoLTE, is the term given to voice services delivered over LTE. This self-paced eLearning course describes the network requirements for VoLTE and describes the IMS network components and interfaces needed to implement VoLTE and other IMS-based services. The course also discusses how IMS and LTE interwork with non-IMS networks in order to support worldwide calling services.

## Intended Audience

This course is intended for a technical audience looking for an in-depth understanding of the important nodes, functions, and interfaces found in a typical VoLTE/IMS network.

## Objectives

After completing this course, the student will be able to:

- Discuss the motivations and requirements for VoLTE and IMS
- Define the key nodes and functions needed in a typical IMS network
- Identify key interfaces between IMS nodes and define the protocols carried over each interface
- Illustrate the paths control signaling and voice media take through the LTE and IMS networks

## Course Prerequisites

[Exploring LTE: Architecture and Interfaces](#)

## Outline

1. What is VoLTE?
  - 1.1 IR.92
  - 1.2 VoIP and QoS
  - 1.3 IMS
2. IMS Network Nodes and Functions
  - 2.1 P-CSCF, I-CSCF, and S-CSCF
  - 2.2 ENUM and IMS HSS
  - 2.3 TAS
  - 2.4 SCC-AS and BGCF
  - 2.5 MGCF, MGW, and SGW
  - 2.6 MRFC and MRFP
3. IMS Network Interfaces
  - 3.1 Rx
  - 3.2 Cx and Sh
  - 3.3 ISC
  - 3.4 Media interfaces
4. VoLTE Protocols
  - 4.1 SIP and SDP
  - 4.2 Diameter
  - 4.3 RTP and RTCP
  - 4.4 Megaco (H.248)