LTE Air Interface Signaling Overview

LTE_111d | On-Demand | LTE and VoLTE | Express
Course Duration: 3 hours

Long Term Evolution (LTE) is a leading contender for next generation broadband wireless networks, providing an evolution path for a variety of 3G wireless networks, such as UMTS and 1xEV-DO. LTE offers significantly higher packet data rates, enabling advanced multimedia applications and high-speed Internet access. This on-demand course takes a look at the LTE air interface and Non-Access Stratum (NAS) signaling operations used to establish and maintain LTE calls. The key LTE network components and interfaces are described, and then the steps involved in establishing and managing data calls are illustrated, highlighting the roles of each component and the flow of signaling and data across the network.

Intended Audience

This course provides an overview of LTE signaling operations, and is targeted for a broad audience for a quick reference to LTE operations. This includes those in engineering, operations, and product sales/marketing.

Objectives

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

- Sketch the key components of a typical LTE network and the interfaces between them
- List the key channels of DL and UL in LTE
- Provide an overview of call setup and related signaling in LTE
- Walk through the steps involved in a network attach
- Discuss the establishment of EPS bearers
- Explain how QoS requirements are managed in LTE
- Summarize the cell selection and reselection processes for idle UEs
- Illustrate how active connections are maintained during handovers

Course Prerequisites

LTE Overview

Outline

1. LTE Network Architecture Overview
1.1 E-UTRAN architecture
1.2 EPC (MME, S-GW, P-GW, HSS)

2. LTE Air Interface Signaling Basics
2.1 LTE physical layer

3. System Acquisition
3.1 Power-up acquisition

4. Network Attachment and Default Bearer
4.1 Attachment steps
4.2 Default bearer setup

5. QoS and Dedicated Bearers
5.1 QoS classes
5.2 Dedicated EPS bearers

6. Uplink and Downlink Traffic
6.1 Downlink traffic operations
6.2 Uplink traffic operations

7. Idle Mode
7.1 Idle mode defined
7.2 Cell reselection
7.3 Tracking and paging

8. Handover
8.1 Handover types
8.2 Measurement
8.3 Handover stages

9. Summary
9.1 Put It All Together
9.2 Assess the knowledge of the participant based on the objectives of the course

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