Exploring LTE: Signaling and Operations - Part II

LTE_128Bd | On-Demand | LTE and VoLTE | Express
Course Duration: 1.5 hours

The Long Term Evolution (LTE) network is designed to deliver services and content to mobile subscribers quickly, efficiently, and with high quality. In order to achieve this goal, the various elements within the network communicate with each other and with the mobile device using well-defined protocols and procedures to accomplish the various tasks and operations required. This self-paced eLearning module is part two of the two-module package. Together, these two modules describe each of the key LTE operations, starting with the mobile's initial access to the system, followed by the steps needed to connect users to their services and content, and continuing with the challenges associated with maintaining the connections as the user moves through the network. The course concludes with a discussion of the mobile's idle mode activities and the low-level operations needed to maintain the radio link.

Intended Audience

This course is intended for a technical audience looking for an in-depth understanding of the important signaling sequences and detailed operations used in a typical LTE network.

Objectives

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

- Explain how user traffic is exchanged over the air interface under varying radio conditions
- Define the physical layer functions needed to maintain an active radio connection
- Discuss the methods used to track the mobile's location and maintain its active connections as it moves through the network
- Describe the tasks the mobile must perform while in idle state

Course Prerequisites

Exploring LTE: Architecture and Interfaces

Outline

1. UL and DL Traffic Operations
1.1. QCI and QoS parameters
1.2. PCC
1.3. CQI, RI, and PMI
1.4. Downlink packet processing
1.5. Uplink packet processing
1.6. Error detection and recovery

2. Physical Layer Operations
2.1. Timing alignment
2.2. Power control

3. Mobility and Handover
3.1. Handover measurements and events
3.2. X2-based handover signaling
3.3. S1-based handover signaling

4. Idle Mode Operations
4.1. Paging
4.2. Tracking area updates

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