



5G Enhancements in R16

5G R16 features augment the existing 5G R15 features to accomplish improved system performance and also address new verticals and deployment scenarios. This course explores 5G R16 enhancements for improved New Radio mobility performance, extended device battery life, reduced latency, enhanced reliability, and security. In addition, this course provides an overview of new features that enrich 5G system performance such as cellular IoT, private 5G networks, 5G SRVCC, and others.

Intended Audience

This course is intended for planning, engineering, and system integration teams.

Objectives

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

- Sketch the 3GPP roadmap for 5G
- Illustrate device power saving features of 5G R16
- Explain 5G R16 mobility performance enhancements
- Describe reliability improvement enhancements in 5G R16
- Describe latency improvement enhancements in 5G R16
- Describe 5G R16 enhancements for cellular IoT, NTN, IAB

What You Can Expect

- Prerequisite: Good understanding of 5G NR R15
- Expert-Led Live Duration: 4 HOUR

Outline

1. 5G Rel 16 Enhancements - What and Why?

- 1.1 5G use case requirements
- 1.2 UE-focused 5G 3GPP roadmap
- 1.3 Network-focused 5G 3GPP roadmap

2. Device Battery Life Enhancement for IoT

- 2.1 C-DRX adaptation/Wake-Up Signaling (WUS)
- 2.2 Enhanced cross-slot scheduling
- 2.3 Maximum MIMO layers adaptation
- 2.4 Relaxed RRM for idle/inactive UEs
- 2.5 Scell dormancy

3. Mobility Enhancement for URLLC

- 3.1 Dual Active Protocol Stack (DAPS) handover
- 3.2 Conditional Handover (CHO)
- 3.3 T312-based fast RLF recovery

4. Reliability Improvement Features

- 4.1 End-to-end dual connectivity

- 4.2 Redundant transmission in Core network tunnel
- 4.3 Enhanced configured grant configurations

5. Latency Improvement Features

- 5.1 2-Step RACH operation
- 5.2 Enhanced PDCCH monitoring
- 5.3 Sub-slot-based HARQ ACK Feedback
- 5.4 Inter-UE Uplink Preemption

6. 5G System Enhancement Features

- 6.1 Network Slice Specific Authentication and Authorization (NSSAA)
- 6.2 Control plane cellular IoT optimization
- 6.3 Non-Public Networks (NPN)
- 6.4 5G SRVCC (from 5GS to 3G)
- 6.5 Integrated Access and Backhaul (IAB)

Putting It All Together