5G Roaming and Interworking

TPR1057x | Expert-Led Live | 5G Core | Expert
Course Duration: 4 hours

Roaming is an essential feature in wireless networks. It extends home PLMN coverage to other service provider networks nationally or internationally. 5G roaming is implemented as a complement to 4G roaming because the operators will be at different points of implementing 5G networks over the next 5 to 10 years. 5G roaming is different from 4G roaming as it uses Service-Based Architecture. There are several different options for interworking between 5G and 4G networks, and there are differences between IMS network implementations - VoNR versus VoLTE, etc. Further, there are many 5G use cases - Enhanced Mobile Broadband, Massive Machine Type Communications, Ultra-Reliable Low Latency Communications, vehicle apps, etc. This course focuses on the Enhanced Mobile Broadband based on 3GPP specifications Release 16.

Intended Audience

This course is intended for planning, engineering, and operations teams. It assumes existing knowledge of 5GS Core networks.

Objectives

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

- Define various roaming scenarios such as 5G-5G, 5G-4G
- Sketch end-to-end architecture of 5G<-->5G and 5G<-->4G Roaming networks
- Step through end-to-end roaming call flows - Registration and PDU Session
- Walk-through important roaming procedures, e.g., handovers
- Explain service delivery implementations for voice and data services

Course Prerequisites

5G Core Network Overview

Outline

1. 5G Roaming Architecture
1.1 5G Roaming Scenarios
1.2 5G <--> 5G Roaming architecture
1.3 5G <--> 4G Roaming architecture
1.4 Inter-PLMN secured interconnections
Exercise: Build 5G roaming network

2. Basic 5G Operations for Roaming Ues
2.1 Session Registration and Security Setup
2.2 Policy Implementation
2.3 PDU Session Setup in roaming scenarios
Exercise: End-to-end 5G roaming call flow

3. Special Procedures for Roaming
3.1 Network Slice Management
3.2 Network Steering
3.3 5G <--> 4G Handovers
3.4 Idle Mode behavior

4. Service Delivery in Roaming Configurations
4.1 Data services
4.2 IMS VoNR services
4.3 IMS emergency services

Putting It All Together

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