5G Core Network (SA) Overview

TPR1049x | Expert-Led Live | 5G Core | Expert
Course Duration: 4 hours

This training provides a high-level technical overview of the 5G Core Network, which is essential to deploy an end-to-end 5G Standalone (SA) network and exploit new services like network slicing, MEC, and Voice over NR (VoNR).

Intended Audience

This course is intended for planning, engineering, and operations personnel.

Objectives

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

- Sketch the end-to-end 5G Standalone (SA) network architecture focusing on 5G Core (5GC)
- Identify roles and connectivity of 5GC NFs such as AMF, SMF, UPF, UDM, PCF, etc.
- Step through the essential operations like Registration and Data Session Setup
- Sketch deployment of MEC, network slicing, and voice solutions in a 5G SA network

Course Prerequisites

5G Core Network Overview

Outline

1. 5G Core Network Architecture
1.1 Principles of 5G Core - Virtualization and CUPS
1.2 Service-Based Architecture (SBA)
1.3 5G Core network architecture for SA
1.4 Network functions and services
Exercise: Build a 5GC network
Exercise: Knowledge check

2. Deeper Dive on 5G Network Functions
2.1 AMF, SMF, UPF
2.2 Subscriber Management: UDM, UDR, AUSF
2.3 Charging and Policy Functions: PCF, CHF, etc.
2.4 Unique functions: NRF, NEF, NSSF
2.5 Interworking and roaming architecture of 5G
Exercise: Knowledge check

3. Life of a UE using 5GC
3.1 UE registration
3.2 PDU session setup
3.3 QoS in 5G and comparison with 4G
Exercise: Message flow for life of a UE
Exercise: Knowledge check

4. Services in 5G
4.1 Enabling Multi-Access Edge Computing (MEC) using 5G
4.2 Network slicing in 5G
4.3 Voice and SMS in 5G
Exercise: Knowledge check
Putting it all together
Final Assessment

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