O-RAN Architecture Overview

TPR1052d | On-Demand | 5G Access | ⚙⚙
Course Duration: 4 hours

The Open RAN initiative of the O-RAN Alliance defines O-RAN architecture that facilitate deployment of 5G RAN to support uses cases of mobile broadband, edge computing, and IoT. This training presents an overview of O-RAN architecture, components of 5G RAN and its interfaces and likely deployment scenarios.

Intended Audience

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

Objectives

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

- Identify key drivers for 5G RAN based on O-RAN architecture
- Sketch O-RAN architecture for 5G RAN and describe role of each logical functions
- Describe SMO architecture and its role in interfacing with external applications
- Identify the importance of Open Interface Split Option 7-2x
- Define RAN slicing and step through RAN slicing deployment using O-RAN

Course Prerequisites

Welcome to 5G

Outline

1. Drivers for Open RAN and O-RAN Alliance
1.1 Need for Open RAN
1.2 Industry initiative and role of O-RAN Alliance
1.3 Virtualization in 5G RAN
1.4 Role of artificial intelligence and automation
Exercise: Knowledge check

2. O-RAN architecture for 5G
2.1 O-RAN reference architecture
2.2 Functions of O-CU-CP, O-CU-UP, O-DU, O-RU
2.3 Role of Service Management and Orchestration (SMO)
2.4 RAN Intelligent Controllers (RIC)
2.5 O-RAN interfaces - A1, E1, E2, …
2.6 O-RAN Open Fronthaul Split Option 7-2x
Exercise: Knowledge check

3. O-RAN Operations
3.1 Service instantiation and management
3.2 Interactions between xApps and E2 nodes
3.3 RAN usage scenarios
Exercise: Knowledge check

4. O-RAN Deployment Scenarios
4.1 Location strategy for Near RT-RIC, O-CU, O-DU, O-RU
4.2 RAN slicing using O-RAN
Exercise: Knowledge check

Putting it all together

Final Assessment