# **O-RAN Architecture Overview**

# **TPR1052x | Expert-Led Live | 5G Access | Expert 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





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