



# O-RAN Architecture Overview

TPR1052x | Expert-Led Live | 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 automationExercise: 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 7-2xExercise: Knowledge check
3. O-RAN Operations
  - 3.1 Service instantiation and management
  - 3.2 Interactions between xApps and E2 nodes
  - 3.3 RAN usage scenariosExercise: 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-RANExercise: Knowledge check

Putting it all together