

# VRAN and Open RAN Overview

The virtualized RAN and Open RAN initiative of the O-RAN Alliance are introduced into the 5G RAN to support 5G use cases of mobile broadband, edge computing, and IoT. This training presents an overview of 5G RAN and gNB split architecture, concepts of virtualization in RAN, role of RU, gNB-DU and gNB-CU and their connectivity of CPRI, eCPRI and Ethernet.

## Intended Audience

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

## Objectives

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

- Sketch the network architecture of 5G RAN and understand the placement of RAN components
- Draw the connectivity of RAN components and identify the role of CPRI and Ethernet
- Highlight the benefits of virtualization in RAN and potential use cases of virtualization
- Sketch O-RAN architecture for 5G RAN and define role of Split Option 7-2x
- Define RAN slicing and step through RAN slicing deployment using O-RAN

## What You Can Expect

- Prerequisite: Welcome to 5G
- Self-Paced Duration: 4 HOUR

## Outline

### 1. 5G RAN Architecture and Transport

- 1.1 5G RAN evolution
- 1.2 5G RAN (gNB) architecture
- 1.3 Transport connectivity in 5G RAN

**Exercise:** 5G RAN evolution  
**Exercise:** Knowledge check

### 2. Virtualization in 5G RAN

- 2.1 Benefits of Virtualizing RAN
- 2.2 Examples of V-RAN

**Exercise:** Virtualization in 5G RAN  
**Exercise:** Knowledge check

### 3. Open RAN and O-RAN

- 3.1 What is Open RAN and O-RAN?
- 3.2 O-RAN architecture for 5G
- 3.3 O-RAN Open Fronthaul Split Option 7-2x

**Exercise:** O-RAN network  
**Exercise:** Knowledge check

### 4. RAN Slicing and O-RAN

- 4.1 RAN slicing in 5G RAN
- 4.2 RAN slicing using O-RAN

**Exercise:** Knowledge check  
**Putting it all together**  
**Assessment**