



# VRAN and Open RAN Overview

TPR1047x | Expert-Led Live | 5G Access | ⚙️⚙️⚙️

Course Duration: 4 hours

The virtualized RAN and Open RAN initiative of 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 Option 7-2x interface defined by ORAN and identify its benefits

## Course Prerequisites

[Welcome to 5G](#)

## Outline

1. Virtualized RAN in 5G
  - 1.1 5G RAN Components - gNB-CU and gNB-DU
  - 1.2 Protocols and Interfaces
  - 1.3 Separation of User and Control Planes
  - 1.4 Virtualization in 5G RAN
  - 1.5 Fronthaul, Midhaul, and Backhaul
  - 1.6 Data rate and distance requirements
  - 1.7 Role of CPRI and Ethernet
2. Open RAN Architecture
  - 2.1 Separation of gNB-DU and Radio Unit (RU)
  - 2.2 O-RAN Option 7-2x interface
  - 2.3 Role of eCPRI
  - 2.4 Benefits of O-RAN architecture
  - 2.5 Connectivity of 5G RAN with 4G - X2
  - 2.6 Signaling and Traffic Paths
  - 2.7 Considerations for Sub 7 GHz and mmW