

Technology Primer: Cloud and Open RAN Architectures

Instructor Led Live | Duration: 0.5 Day | Course Number: TPR1024

Centralized RAN and Cloud RAN, or C-RAN, is poised to completely transform the way Radio Access Networks are traditionally designed. Open RAN utilizes open interfaces to facilitate deployment of RAN from a wider vendor community. Cloud RAN reduces OpEx, CapEx, and energy consumption while boosting overall capacity, coverage and spectral efficiency. The course starts with defining Cloud RAN and Open RAN and identifying their drivers. It describes the evolving RAN architecture for 4G LTE and 5G NG-RAN. The course describes the Common Packet Radio Interface (CPRI) technology and highlights its role in Cloud and 5G NG-RAN.

Intended Audience

This course is designed for a wide range of teams in planning, design, engineering, operations, and systems performance as well as personnel interested in understanding the basics of virtualization and transport network changes in RAN.

Learning Objectives

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

- Define Open and Cloud RAN
- Identify the drivers for Open RAN and Cloud RAN
- Compare and contrast Open and Cloud RAN with traditional RAN architectures
- Sketch architecture of Cloud RAN, Open RAN, and 5G NG-RAN
- Discuss the use of CPRI and related protocols for the fronthaul and backhaul networks
- Step through the progression of deploying Open and Cloud RAN

Suggested Prerequisites

- A working knowledge of LTE radio networks and the LTE air interface

Course Outline

1. Cloud and Open RAN Drivers

- 1.1. LTE-Advanced and LTE-Advanced Pro features
- 1.2. 5G service and performance requirements

2. Cloud RAN, Open RAN and 5G NG-RAN

- 2.1. The Four Cs of C-RAN
- 2.2. Open RAN interfaces
- 2.3. Cloud RAN architecture
- 2.4. NG-RAN: CU and DU

3. CPRI and eCPRI

- 3.1. Fronthaul and backhaul
- 3.2. CPRI overview
- 3.3. CPRI for 5G
- 3.4. Distance requirements

4. Cloud and Open RAN Deployment

- 4.1. Centralized BBU
- 4.2. Virtualization in BBU
- 4.3. Getting ready for 5G