MCNS
Mobile | Cloud | Network Services

MCNS Training Program

Open RAN (O-RAN) Workshop

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Open RAN (O-RAN) Workshop introduces participants into Open RAN (O-RAN) technology and architecture, for both 5G and 6G network evolution from both radio and core domain

COURSE REVIEW

This 5G / 6G training course will introduce audience into **O-RAN Concept** and how it could be implemented in 5G and the **latest and promising 6G technology**. This workshop is an introductory but thorough training course for both cloud technology beginners and specialized RAN and core engineers, providing information related to the **virtualization and Openness of O-RAN**.

A good introduction and reference **to O-RAN specifications, the O-RAN interfaces and functional entities, the slicing deployment and the cloud NFV infrastructure** will be discussed in this course. After this course participants will have a solid understanding of the O-RAN for 5G and 6G network necessity, new services and network topology and architectures with all functional modules in both O-RAN and core domain.

AIMED AT

Open RAN (O-RAN) Workshop is aimed at both **RAN and Core engineers** who are interested in Virtualized RAN and subsequent Open RAN (O-RAN) technology, fusing together cloud architecture and RAN slicing. It might be also useful for **students**, **researchers and technical consultants** working into various mobile technology fields, filling the gap between their expertise (**IT technology machine learning and software engineers etc)** and the 5G/6G technology.

Prerequisites: In order for the attendant to better understand the content of this topic and to gain a further insight, prior knowledge of **5G RAN and 5GC** and cloud overview knowledge is recommended.

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Course Benefits for individuals (Professionals)

- Evaluate implementation options for O-RAN
- Build knowledge of a comprehensive set of **Cloud and Open RAN technology / deployment**
- Identifying the use cases with slicing and virtualization
- Learn how to deploy **O-RAN services** and use cases.
- Confidence to set expectation for O-RAN technology and to better evaluate solutions in terms of commercially viability, reliability, risk and strategy

Course Benefits for your Organization

- Equip organization engineers with the necessary knowledge of O-RAN and virtualization
- Develop **technology solutions and roadmaps** that are better aligned with the expected **O-RAN industry** direction
- Learn about latest O-RAN and cloud virtualization technology developments and initiatives
- A solid foundation on which to build organizational competency development plans to ensure opportunities arising from **O-RAN architectures**.
- **Keep ahead of competitors** in preparing your network for O-RAN deployment.
- Prepare for future network expansions and quality performance optimization

Training Format

Instructor-Led Training
On-Site Classroom: 2 days
Web delivered (Virtual): 2 days
Excellent and descriptive course material (pdf file) will be provided

Customer Tailored!

We can tailor the included topics, tech level, and duration of this course right to your team's technical requirements and needs

Section 1: Open RAN (O-RAN) Overview

Course Program Outline

Module 1: O-RAN Ecosystem

- What is Open RAN (O-RAN)
- O-RAN Alliance
- O-RAN players
- O-RAN ecosystem
- O-RAN trials

Module 2: O-RAN Specifications Review

- O-RAN WG1
- O-RAN architecture specs
- O-RAN use cases
- O-RAN slicing architecture
- O-RAN WG2 A1 interface
- O-RAN WG3 E1/E2 interface
- O-RAN WG4 F1-C/F1-U interface
- O-RAN WG5 CUS plane fronthaul

Section 2: O-RAN Deployment

Course Program Outline

Module 3: 5G/6G Deployments

- Classic RAN Deployment
- Distributed RAN (D-RAN)
- Centralized RAN (C-RAN)
- RAN hardware (BBU, RRU)
- Virtualized RAN (V-RAN)
- V-RAN vs. O-RAN
- V-RAN to O-RAN smooth migration

Module 4: O-RAN Architecture

- O-RAN architecture
- Service Management and Orchestration Framework (SMO)
- O-RAN Intelligent Controller (RIC)
- O-RAN real time Controller
- O-RAN non-real time Controller
- O-RAN CU-CP
- O-RAN CU-UP
- O-RAN DU
- O-RAN RU

Module 5: O-RAN splitting

- Why RAN splitting?
- O-RAN split options 1-8
- O-RAN split options pros and cons
- How to select the proper O-RAN split option

Section 3: O-RAN 5GC/6GC

Course Program Outline

Module 6: 5G/6G core functional description

- 5G core Functions
- AMF Functionalities
- UPF Functionalities
- SMF Functionalities
- AUSF Functionalities
- 5G Core Interfaces

Module 7: 5G Network slicing and NFV

- The Software Defined Networking (SDN) Concept
- OpenFlow Protocol
- Network Functions Virtualization (NFV)
- NFV Management and Orchestration
- Overview Network Slicing Architecture
- Use Cases and Slice Selection
- Resource Multiplexing and Isolation
- RAN Support of Slicing and RAN Sharing