

O-RAN: Architecture, Implementation & Operation

Duration: 2 full days or 4 x ½ day
Methodology: Online Delivery

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Part 1: ORAN / An Overview

- **Architecture overview**
- **Artificial Intelligence (AI) and Machine Learning (ML) in Context with O-RAN**
- **Standardization and Interaction among Players (incl. incumbent RAN-vendors)**
- **Functional split options and O-RAN**
 - Focus on 7.2X between O-RU and O-DU

Part 2: Architecture Details: Open Cloud, Virtualization & Acceleration

- **HW-virtualization and VM's vs OS-virtualization and containers**
 - e.g. performance differences, comparison with dedicated HW-solutions
- **Open Cloud and its components**
 - Edge Cloud, Regional Cloud, Core Cloud
 - Xhaul: Fronthaul and Backhaul
- **Acceleration options: FPGA, GPU, eASIC, Inline, look-aside**
- **Kubernetes and Docker**
 - Kubernetes master node and worker nodes
 - Pods
 - Networking with Kubernetes
 - Demo of Minikube / bashing into pods and containers
 - Service mesh with Istio as example
 - Load sharing: Istio vs KubeProxy

Part 3: Architecture Details: The RIC (near-RT & non-RT)

- Tasks & functions, differences between near-RT RIC and non-RT RIC
- control loop types and their meaning
- xApps and rApps
- Looking deeper into example xApp: Traffic steering

Part 4: SMO (Service Mgmt & Orchestration)

- Interfaces (O1, O2, A1, Open Fronthaul MP)
- Relationship with FCAPS model
- SON with RIC
- Day 0 and Day 1 configuration
- Cloud Mgmt
- OAM (Operation & Maintenance)
 - Network slicing with ORAN
 - Mobile Edge Computing with ORAN

Part 5: Conclusions & Outlook

- Next steps of O-RAN standardization
- Blending of O-RAN into legacy system vendors' solutions
- O-RAN in Rakuten and Drilisch networks
- Why ORAN?
- Pros & Cons