IoT in 4G and 5G in an Hour

CONTENTS

This course presents the overview of Machine-Type Communication (MTC) features for the Cellular Internet of Things (CIoT) as specified by 3GPP for 4G and 5G networks. It briefly describes selected enhancements for the radio and core network, new radio technologies like LTE-M and NB-IoT, and other related topics. The focus is on Massive IoT features. This overview focuses on technical aspects of IoT communication enhancements in 3GPP networks.

PREREQUISITES

Understanding the technical enhancements for Cellular IoT requires general understanding of 4G and 5G network architecture and procedures. Attending Apis "LTE System Overview" and "5G System Overview" courses will allow the participants to fully benefit from this course.

NOTE: This course is not delivered with the FoldOut methodology.

Introduction

- Humans vs devices: comparison of requirements and IoT specific aspect
- IoT technology landscape: local and wide-area networks
- 3GPP mobile IoT landscape: LPWA technologies in 3GPP networks

Selected 3GPP MTC Enhancements

- Overview of power consuming activities in UE
- 4G PSM and 5G MICO
- eDRX and WUS
- Control Plane CIoT EPS and 5GS Optimisation
- User Plane CIoT EPS and 5GS Optimisation
- Overview of Unified Access Control in 4G and 5G
- Coverage Enhancements: levels, modes, parameters
- PUR – Preconfigured Uplink Resources for periodic UE communication
- NB-IoT operation modes and multi-carrier NB-IoT
- NB-IoT low-cost features and unsupported services
- Functionality of Exposure Functions in EPC and 5GC
- High-level overview of configuration of monitoring events
- Data Transport Options – EPC and 5GC
- Non-IP Data Delivery without User Plane nodes
- Concept of High-Latency Communication
- Overview of Dedicated Core Networks in 4G and Network Slicing in 5G
- List of UE authentication and authorisation options in 4G and 5G