Introduction to Cellular IoT Training

Duration: **1.5 Day**

BILGINÇ IT Academy
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Overview

With so much interest in the Internet of Things, it is not surprising that both equipment vendors and mobile service providers are turning towards 2G, 3G, 4G and 5G cellular technologies to provide a means of connecting the billions of devices we are anticipating will come to market in the next few years. This course therefore introduces this growing opportunity and in so doing, explains how the existing 3GPP technologies have been enhanced to support IoT operation. This includes discussion on EC-GSM-IoT, LTE-M and NB-IoT not to mention the support for Non IP Data Delivery.

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Outline

Introduction to Cellular IoT

Topic areas covered include:

- What is the Internet of Things?
  - Markets and Verticals.
  - The IoT Ecosystem.
  - LPWA (Low Power Wide Area) Technologies:
    - 2G, 3G, 4G and 5G.
    - LoRaWAN, Sigfox.
  - Short Range IoT Technologies:
    - Bluetooth Low Energy and ZigBee.
- Cellular IoT Architecture:
  - Device:
    - Radio Module.
    - SIM, eSIM and Remote SIM Provisioning.
  - Radio Access Network:
    - 2G, 3G, 4G and 5G.
  - Core Network:
    - 2G, 3G, 4G and 5G.
    - Machine Type Communication Enhancements.
    - SCEF, SCS, MTC-IWF, NEF.
- Radio Access Network Enhancements:
  - EC-GSM-IoT.
  - LTE-M.
  - NB-IoT.
- Cellular IoT Operation:
  - Initial Procedures:
    - Cell Selection.
    - Registration.
  - IP Data Transfer:
    - 2G / 3G Packet Data Transfer.
    - 4G Packet Data Transfer.
  - Cellular IoT Optimization:
    - Control Plane Cellular IoT EPS Optimization.
    - User Plane Cellular IoT EPS Optimization.
  - Non IP Data Delivery:
    - Gi / SGi Based Delivery.
    - SCEF Based Delivery.
  - Device Triggering.
- Cellular IoT Connection Efficiencies:
  - Power Save Mode.
  - Extended Discontinuous Reception.
  - GSMA Guidelines.
- Cellular IoT Security Considerations:
  - IoT Security Challenges.