



## ***The Evolution of Wireless Service Provision***

*Duration - Full day*

### *Synopsis:*

This seminar session provides a detailed description of the emerging techniques defined by 3GPP for the provision, management and charging of services using a policy controlled Evolved Packet Core network in conjunction with enhanced RAN architectures, protocols and procedures.

In the core, network features have been introduced to more easily manage network capacity, differentiate subscribers and dynamically manage services. In the access domain, a variety of advanced techniques can be deployed to boost user throughput, increase cell capacity, reduce signalling delays and optimize cell edge performance. Understanding these enhanced systems is essential to successfully deploying and managing profitable services in today's evolving wireless networks and optimizing the use of valuable network resources.

The use of Traffic Detection in conjunction with Service Data Flow management to dynamically authorize, control and successfully charge for multi-bearer services is another key component in evolved service provision and are key principles discussed in this seminar along with the de-centralization of service provision functions.

Using coordinated transmission from multiple sites to improve network capacity, improving data rates for users at the cell-edge via remote radio-heads and C-RAN architectures, and techniques such as 'cell virtualization' are also presented.

### *Seminar content*

#### Introduction

##### Evolved Packet System (EPS)

- General architecture
- IP Connectivity Access Networks
- Bearers and QoS explained

##### Policy and Charging Control (PCC)

- Logical architecture
- Service-provisioning protocols and procedures
- Rule definitions
- Policy provision and enforcement options
- Application level interaction
- Traffic Detection and Service Data Flows
- Online and Offline charging

##### IP Multimedia Core Network (IM CN)

- IMS architecture and principles
- Server roles and responsibilities
- Deployment options
- Session-management protocols and procedures

##### Network Function Virtualisation

##### Control and User Plane Separation

##### RAN evolution principles

- IP optimization



- QoS support enhancements

LTE Enhanced features

- Carrier Aggregation Enhancements
- Enhanced Inter Cell Interference Coordination
- Coordinated Multi-point
- Proximity Services
- Mission critical PTT
- Device to device
- Joint TDD-FDD operation
- Integration of WiFi
- e-MBMS
- SC-PTM
- MTC
- Licensed-Assisted Access