LTE Technical Overview

LTE deployments in Australia and worldwide will change the mobile landscape. This two day course outlines the technical details behind this change.

Who would benefit from this course?

Those in technical roles associated with the LTE rollouts. Course participants may include network operators, vendors, service providers, application developers, management staff and engineers.

Outline

Mobile networks are undergoing fundamental change. While current HSPA+ services have greatly increased mobile wireless performance expectations, Long Term Evolution LTE will re-shape wireless services over the next decade. This two day course provides a detailed technical overview of LTE, LTE-Advanced and the markets they will operate in.

The course begins with a review of current HSPA developments. LTE development, performance goals and radio interfaces are then considered, followed by a detailed examination of the LTE architecture, its key components, and its interfaces.

The second day outlines the standards framework behind the initial LTE Advanced standard, 3GPP Release 10. Three key LTE Advanced capacity improvement mechanisms are then outlined, Carrier Aggregation, MIMO and Collaborative Multipoint. The key Heterogeneous Network (HetNet) features enabled by LTE Advanced are then examined The LTE IMS based service creation architecture is then outlined, along LTE voice service mechanisms. The course concludes with an LTE security overview.

Course Objectives

Participants completing this course should be able to:

- Describe the technical details and evolution of HSPA+, and current 3G mobile performance
- Outline the LTE standards development and performance goals
- List the key features of the LTE radio interface, and describe how it differs from WCDMA
- Describe the LTE architecture, the role of the SGW, PGW, MME, PCRF and key interfaces
- Understand the principle of Self Organising Networks (SON) in LTE Network deployment
- Describe the key LTE protocols and QOS mechanisms
- Describe the standards process leading to LTE Advanced
- Outline the Carrier Aggregation techniques which underpin LTE Advanced capacity increases
- List new MIMO techniques enabled by LTE Advanced, and outlined the capacity increases they provide
- Describe the Collaborative Multipoint concept, and outline the different modes employed
- Understand the key Heterogeneous Network principles, components and engineering issues
- Outline the IMS architecture and the service creation platform that it will enable
- Describe the key LTE security mechanisms