This three-day course will prepare participants with an understanding of how to plan for next-generation-networks (NGN) IP Multimedia Subsystem (IMS) and how it enables the network to carry triple play and quad-play multi-media services. Covers IMS architecture and how it interacts with the NGN network.
Overview

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Objectives

To be delivered over five days in Botswana, the course aims to:

- Review the application and promise of IMS in the telecommunications market
- Investigate the technology platforms that enable IMS
  1. NGN
  2. Session-oriented architecture (SOA)
  3. Streaming media and system delivery platforms (SDP)
  4. Session initiation protocol (SIP)
  5. Broadband wireless access (WiMAX)
- Examine the importance of quality of service (QoS) and resource allocation optimization in IMS
- Identify management issues for IMS
  6. Service configuration management (SCM) as an essential element in the IMS framework
  7. Logical staged introduction of IMS functionality across the transport, access, control, and services planes
  8. Advent and evolution of the virtual network operator (VNO), positioned to capitalize in IMS
  9. Application partnering for success in IMS services development and deployment
  10. Summarize predictions for near-term, intermediate, and long-term introduction of IMS based applications

Learning Outcomes

- Explain IP multimedia subsystem (IMS) as an agent of change toward more competition for more services, greater mobility, and, more specialized services and content.
- Investigate the drivers behind this which have derived from large and permanent shifts in the economics of today’s telecom market and more subtle shifts in our information age lifestyle that fuels greater demand for value-added services.
- Identify the dynamic new technologies that offer more capabilities and have resulted in technology platforms which have broadened the scope of services that could be offered by telecom operators.
- Compare service applications including broadcasting
- Identify additional convergence in technologies, networks, access, services, content, revenue, and control at degrees heretofore thought impractical
- Describe how business models will change for carriers as well as content providers due to the enhanced access that IMS platforms will provide for directly reaching end-users across a variety of applications and networks.
- Describe the impact of IMS on service creation and delivery with an emphasis on the evolving needs of users and the resulting impact to wireless platform and fixed network operators.
- Determine technology changes which make IMS possible.
- Describe the NGN network architecture, wire line and wireless access networks
- Explore technology evolutions which are impacted by IMS such as SDN, NFV and Cloud.

Course outline

1. Module 1: Review of NGN
   - NGN network description
   - Core network
   - Transport network
   - Access network
   - Service planning and assessment of NGN capability requirements to accommodate new services
   - Quad-play repertoire
   - Impairments
   - Voice over IP (VoIP)

2. Modules 2 to 6: IMS (IP Multimedia Subsystem over NGN)

   Module 2: IMS Overview
   - What is IMS?
   - Business drivers for IMS
   - IMS benefits and technical advantages of IMS
   - Feature development process
   - Technological and business advantages of IMS
   - Operational impact on carriers and service providers
   - Convergence between all networks

   Module 3: IMS Concepts and Architecture
   - The three architectural planes
   - NGN platform
   - SIP concepts and processes
   - SIP protocol dynamics
   - SIP components
   - SIP request and response
   - HSS (home subscriber server) and its place in the network
   - Different types of CSCF’s (call session control)
functions)

- Three types of application servers
- Media resource function (MRF)
- Border gateway control function (BGCF)
- Session control in IMS
- IMS protocols

IMS in the mobile network

- 3GPP IMS architecture
- Major IMS functional elements in a mobile application
- Providing services: application server
- Inter-working between fixed-wireline and wireless networks
- Session flow and charging
- Wireless data
- Mobile positioning and LBS

IMS policy, quality of service and KPI

- Policy
- QoS
- QoS and KPI's for voice services and interactive multimedia services

3. Module 4: IMS applications

- Framework for applications
- Push to talk over cellular (PoC)
- FMC-UMA and VCC
- Advertising
- IMS and WiMAX
- Digital broadcasting
- VAS applications
- Why is VAS Important?
- Service delivery platforms (SDP)
- Location and presence
- Identity management

4. Module 5: Challenges in Transitioning to an IMS Network

- Convergence Issues
  - Standards Issues
  - Who are the players in the IMS Market
  - IMS and VNO’s
  - Service provider challenges
  - Wireless and fixed-wireline carriers vis-a-vis content providers
  - Handset features and distribution
  - Service rollout challenges

- Dealing with HSS
- Dealing with QoS
- No standard SCM
- Content management and regulation
- Network management challenges
- Service configuration issues
- Revenue distribution

5. Module 6: Technology evolutions impacting IMS

- SDN – Software defined networks
- NFV – Network function virtualization
- CSP – Cloud service provisioning

Trainer profile

Karl Hentschel, MBA, BEng

Karl Hentschel carries a Bachelors in electronic engineering and an MBA (Betriebs-wirtschaftsverwaltung) obtained in Germany. In addition, he participated in deep dive training throughout his career, specifically in project management, risk mitigation, business continuity, marketing concepts and other topics relevant to his responsibilities.

From 1968 to 1990 Karl held senior line and staff positions in the areas of regulatory relations, network operations, planning and expansion, customer service, marketing, training and product development at AT&T Canada.

He was a senior member of the team supporting long distance competition in Canada, responsible for developing the operational plan and the underlying budgets. He worked closely with regulatory staff at the CRTC in Canada and with the FCC in the US on cross border services and facilities.

In his consulting practice, Karl conducts training courses and workshops globally ranging from competitive marketing strategies in Saudi Arabia to detailed technology topics in both fixed wireline and wireless network environments in several Commonwealth countries. He conducted courses covering a similar topic in Botswana, Mozambique and Mauritius.
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Refunds will be made by bank transfer only.

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