

# IMS Fundamentals

27th - 31st October 2014  
Gaborone, Botswana



COMMONWEALTH  
TELECOMMUNICATIONS  
ORGANISATION

## Overview

The IP Multi-media Subsystem (IMS) as defined by the 3GPP, is an architecture that enables network operators to offer their subscribers multimedia services consisting of applications, services and protocols over a Next Generation Network.

This one-week course provides participants with an understanding of how an NGN IP Multimedia Subsystem (IMS) enables the network to carry triple play and quad-play multi-media services and how to plan for its introduction. Covers IMS architecture and how it interacts with the NGN network, including Quality of Service Policies and Management.

For more information  
about this course, or to  
register, contact us on:  
**Tel:** +44 (0) 208 600 3800  
**Fax:** +44 (0) 208 600 3819  
**Email:** [programmes@cto.int](mailto:programmes@cto.int)

## OBJECTIVES

- Review the application and promise of IMS in the telecommunications market
- Investigate the technology platforms that enable IMS
  - NGN
  - Session-oriented Architecture (SOA)
  - Streaming media and System Delivery Platforms (SDP)
  - Session Initiation Protocol (SIP)
  - Broadband Wireless Access (WiMAX)
- Examine the importance of Quality of Service (QoS) and resource allocation optimization in IMS
  - Identify Management Issues for IMS
  - Service Configuration Management (SCM) as an essential element in the IMS framework
  - Logical staged introduction of IMS functionality across the Transport, Access, Control, and Services planes
  - Advent and evolution of the Virtual Network Operator (VNO), positioned to capitalize in IMS
  - Application partnering for success in IMS services development and deployment
- Summarize predictions for near-term, intermediate, and long-term introduction of IMS-based applications

## TARGET AUDIENCE

Telecom engineers, senior technicians & technicians, technical staff involved in core and access network planning, management and maintenance, as well as in NGN service planning and introduction

## EXPECTED OUTCOMES

At the conclusion of this workshop, Participants will be able to:

- 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, 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 which 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 Software-Defined Networks (SDN), Network Functions Virtualisation (NFV) and Cloud

## COURSE OUTLINE

The following topics will be covered:

### Module 1: Review of NGN

- NGN Network Description
- Core network
- Voice
- Data
- Multi-media
- Transport network
- Packet switched versus circuit switched
- Access network
- Tele-density planning
- Service repertoire delivery
- Wireline, wireless or mobile access
- Service planning and assessment of NGN capability requirements to accommodate new services
- Voice
- Data
- Multi-media
- Triple play packaging
- Quad-play repertoire
- Impairments
- Latency
- Jitter
- Echo
- User tolerance models
- Voice over IP (VoIP)
- H.323
- SIP (Session Initiation Protocol)

## Module 2: IMS Overview

- What is IMS?
- Business Drivers for IMS
- Fixed-Wireline carriers and applicable platforms
- Wireless Carriers
- Changing roles for both with 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 Layers
- The Network (Transport and Access) Layer
- The Control Layer
- The Service Layer
- 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
- Registration
- Set-up
- 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
- IMS offline charging
- IMS online charging
- Wireless Data
- Mobile Positioning and LBS

### IMS Policy, Quality of Service and KPI

- Policy
- Policy vs. QoS
- Policy in IMS
- QoS
- Methods for managing QoS
- QoS and on-demand services
- QoS and KPI's for Voice Services and Interactive Multimedia Services

## Module 4: IMS Applications

- Framework for Applications
- IMS Applications for the Consumer
- IMS Applications for the Enterprise and Vertical markets
- 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

## 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
- Who owns the customer?
- Handset features and distribution
- Service Rollout Challenges
- Dealing with HSS
- Dealing with QoS
- No standard SCM
- Content management and regulation
- What are the roles?
- Network management challenges
- Service configuration issues
- Revenue distribution
- Who gets what?

## Module 6: Technology Evolutions impacting IMS

- SDN – Software Defined Networks
- NFV – Network Function Virtualization
- CSP – Cloud Service Provisioning
- Course Review



# COURSE TRAINER

## **Karl Hentschel, MBA, B Eng**

Karl Hentschel carries a BEng (Bachelor in Electronic Engineering) obtained in 1956 at the Ingenieur Hochschule, Karl-Marx Stadt, Sachsen-Anhalt, DDR Germany and an MBA (Betriebswirtschafts Verwaltung) in 1966 from the Bundeswehrfachschule, Nienburg/Weser, BRD Germany. The accumulated knowledge was augmented with deep dive training in project management, risk mitigation, business continuity, marketing concepts and other relevant topics throughout his career.

From 1968 to 1990 Karl held a number of 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 wire and wireless network environments in several Commonwealth countries. His courses on risk mitigation and business continuity are especially well received. Karl brings actual carrier experience to his training and workshops. His training evaluation forms score consistently in the high range.

Please fill in this application form and fax it back to +44 20 8600 3819 or return it to the CTO at the e-mail address below. Please use CAPITAL LETTERS.

### Personal details

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Job title .....

Organisation .....

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### Payment options

1) Select Delegate Rate (Please Refer to the list of CTO/PDT Partners provided overleaf)

	Standard Rate	Early Registration by: 26 September 2014
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Card number

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### Additional information

To help us improve our services to you and your organisation, please tell us more about yourself and your organisation.

#### Your role in the organisation

<input type="checkbox"/> Strategic / executive	<input type="checkbox"/> Business development	<input type="checkbox"/> Marketing and sales
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<input type="checkbox"/> Control	<input type="checkbox"/> Customer service and care	<input type="checkbox"/> Regulatory and legal affairs
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#### Your organisation type

<input type="checkbox"/> Government	<input type="checkbox"/> Fixed network / services	<input type="checkbox"/> Broadcasting
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<input type="checkbox"/> Manufacturer	<input type="checkbox"/> Internet	<input type="checkbox"/> Other services
<input type="checkbox"/> Other		

### REGISTRATION DEADLINE

Prior to course start.

### 3 SIMPLE WAYS TO REGISTER

-  Fill in and fax this form back to +44 20 8600 3819
-  Call the programme team at +44 20 8600 3800
-  E-mail the programme team at programmes@cto.int, quoting the course title.

### NEED HELP?

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### Summary Terms and Conditions

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### Cancellations / Refunds

For delegate cancellations/withdrawals, the following refund rules apply:

- 31 days or more prior to event: the full amount less a handling charge of 10% or a minimum of £55, whichever applies
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For CTO cancellations/withdrawals, delegates are entitled to a 100% refund within 60 days of the withdrawal/cancellation. Refunds will be made by bank transfer only.

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