



AFRICAN ADVANCED LEVEL TELECOMMUNICATIONS INSTITUTE (AFRALTI)

## TRAINING WORKSHOP OUTLINE

**Title:** NGN, Future Networks and Cloud Computing

**Dates:** 1st - 5th Feb 2016

**Duration:** 5 Days

**Venue:** AFRALTI, Nairobi, Kenya

**Tuition Fee:** AFRALTI Member States US\$1,200; Non-Members US\$1,440

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**Course Overview:** This course will focus on NGN, Future Networks and Cloud Computing from technology, regulation and business aspects. It will cover the NGN standardization by ITU, including fixed and mobile broadband as basis for NGN, as well as NGN architectures. Further, the course will cover NGN services, including QoS (Quality of Service) and IMS (IP Multimedia Subsystem) for NGN deployments. Also, it will include VoIP (Voice over IP) and IPTV services over NGN, Internet of Everything (including Web of Things and Internet of Things), VPN (Virtual Private Networks) in NGN, IPv6-based NGN, migration scenarios from legacy networks to NGN, as well as business approaches and regulation for NGN. Further, the course will cover Future Networks as defined by ITU, including network virtualization, Software Defined Networking (SDN), and smart ubiquitous networks. Also, it will include Big Data issues, OTT (Over The Top) service providers (Skype, Viber, WhatsApp, Facebook, Twitter, YouTube) vs. Telco service models, impact of M2M in the future, as well as convergence of regulation towards Future Networks. Finally, the course will incorporate Cloud Computing, including ITU's framework, cloud ecosystem, architectures and cloud service models (Infrastructure as a Service - IaaS, Platform as a Service - PaaS, Software as a Service - SaaS), cloud security, OTT cloud services, Telco cloud implementations, Mobile Cloud Computing (MCC) services and applications, as well as business and regulation aspects for Cloud Computing.

**Target Audience:** This course is targeted at managers, engineers and employees from regulators, government organisations, telecommunication companies and academia, who are interested in understanding, implementation and regulation of NGN, Future Networks and Cloud Computing, including technologies, standardization, regulation and content. Other institutions

and individuals that are dedicated in building their capacity related to NGN, Future Networks and Cloud Computing are also welcome to participate.

**Pre-requisite/s:** A good understanding of Telecommunications networks and IP networking is essential.

**Pain Points:** Technology is evolving at an unprecedented pace which provides an opportunity to offer an abundant array of applications and services to the consumers. Operators are faced with increasing competition to offer the best services at an affordable rate. The challenge for the operators is how to benefit from these technologies and increase their revenue ba

**Methodology:** Instructor-led with presentations, interactive discussions, quizzes, and Case Studies.

**Workshop Objectives:** Upon completion of this course, participants will be able to:

- Understand Next Generation Networks (NGN), including NGN network architectures, broadband Internet access as well as mobile broadband and NGN synergy;
- Understand NGN services, including Quality of Service (QoS), IP Multimedia Subsystem (IMS), VoIP and IPTV over NGN, as well as Internet of Everything (Internet of Things, Web of Things);
- Understand IPv6-based NGN and migration from legacy networks to NGN;
- Perform technical, business and regulation analysis for Next Generation Broadband Networks and NGN services;
- Understand Future Networks as defined by ITU, including network virtualization, Software Defined Networking (SDN), Big Data, as well as Over The Top (OTT) and Telecom service models;
- Understand Cloud Computing framework set by ITU, including Cloud ecosystem, Cloud Computing service models (IaaS, PaaS, SaaS) as well as Mobile Cloud Computing (MCC) services and applications;
- Perform technical, business and regulation analysis for Future Networks and Cloud Computing.

### **Workshop Contents/Topics:**

#### **1 Module 1: *Next Generation Networks (NGN) - State of the Art***

- Convergence of telecommunications to all-IP world
- Legacy telecommunications vs. Internet
- NGN standardization by ITU
- Transport and service stratum of NGN
- NGN architectures
- Broadband Internet access - the basis for NGN
- Mobile broadband and NGN
- Funding and pricing of Next Generation Broadband

#### **2 Module 2: *NGN Services***

- NGN and Quality of Service (QoS)
- IP Multimedia Subsystem (IMS)
- VoIP over NGN
- IPTV over NGN
- Internet of Everything (Internet/Web of Things)
- VPN in NGN
- IPv6-based NGN
- Migration scenarios from legacy networks to NGN
- Business approaches and regulation for NGN service

### **3      *Module 3: Future Networks***

- Future Networks definition by ITU - beyond NGN
- Network virtualization for Future Networks
- Software Defined Networking (SDN)
- Identification framework in Future Networks
- Smart ubiquitous networks
- Big Data - opportunities and challenges
- Over The Top (OTT) vs. Telco service models
- Impact of M2M communication
- Convergence of regulation in Future Network

### **4      *Module 4: Cloud Computing***

- ITU's framework for Cloud Computing
- Cloud ecosystem and architectures
- Cloud Computing service models (IaaS, PaaS, SaaS)
- Cloud security and privacy
- Over The Top (OTT) cloud services
- Telco Cloud implementations
- Mobile Cloud Computing (MCC)
- Mobile Cloud services and applications
- Business and regulation aspects for Cloud Computing

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