

Next Generation Networks

7 - 11 September 2009
Maputo, Mozambique



COMMONWEALTH
TELECOMMUNICATIONS
ORGANISATION

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Overview

This 5-day course is designed to present the basic concepts of next generation networks (NGNs) to telco staff from varying backgrounds including those from an incumbent operator.

It is designed to provide sufficient knowledge to begin to address issues related to the place and timing for introduction of NGN in the current context of telecommunications.

The course will cover the fundamental concepts of all important areas of NGNs, including:

- Network evolution
- Convergence
- Fixed-mobile convergence
- NGN definition, characteristics, and architecture
- Migration
- Regulation
- NGN Standards

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Course programme may change due to unforeseen circumstances

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Learning outcomes

At course completion, participants would have:

- Developed a keen understanding of the key drivers of NGN
- Learned to describe the structure of an NGN
- Identified services provided by NGNs
- Gained an understanding of the process of migration to NGNs
- Built appreciation of the role of regulation
- Identified the importance and role of standards in NGN development
- Developed a better understanding and appreciation of NGNs to be able to see its place in the immediate and future overall development of telecommunications in their country

Key objectives

- Examine past and current state of networks in order to understand the keys drivers of and motivation for the development of NGNs
- Introduce concepts of next generation networks
- Examine underlying key technologies that form the building blocks of NGNs
- Explore structure of NGNs
- Discuss services provided by NGNs
- Discuss the process of migration to NGN
- Examine the place of regulation in NGN
- Motivate participants to discuss the relevance of NGN to the immediate telecommunications sector in their country considering the rate of use of existing telecommunications services. In view of such usage, delegates should be able to reasonably address issues related to the timing of the introduction of NGN

Who should attend

- Technicians, engineers, maintenance and operational staff, and senior managers from an operator background
- Regulatory staff who are interested to understand the role of effective regulation in migration to NGNs
- Anyone keen on the learning about NGN

Learning environment

Interactive discussions supported by presentations of NGN activities in the countries of delegates.

Field trip to an NGN installation, to be confirmed.

Pre-requisites

- Exposure to basic concepts in telecommunications at a technician or bachelor's degree level.
- Knowledge of networks though helpful is not absolutely required

Course content

Historical background of networks evolution, key drivers of NGN

- Telecommunication and computing network structure
- Merger of telecommunications and computing
- Types of networks: IP, ATM, Frame Relay

Convergence

- Definition
- Types of convergence: network, service, business, etc.
- Drivers of convergence:
- Technological drivers: digitalisation, computing, broadband
- Market drivers: competition
- Consequences of convergence: dual play, triple play, quad play, bundling
- Fixed-mobile convergence

Next generation networks

- Definition and characteristics Key market and technological drivers: competition, digitalisation, computing power
- Consequences: mobility, convergence, regulatory demands
- Enabling technologies: Internet Protocol, wireless, optical fibre/fibre optics
- Internet Protocol: examination of the key factors that have made IP the underlying packet technology for NGNs
- Wireless: access the place of wireless technology in meeting some of the requirements of NGNs, such as mobility
- Optics: discussion of the role of optical fibre as a broadband transport technology in the evolving NGN
- Basic NGN functional structure: overview of the functioning of an NGN arising from its definition by separating services-related functions from access or transport functions
- Examples of NGNs.- BT 21st Century Network

Course content

Introduction to migration to NGN

- Current situation of networks- existing technologies
- Reasons for and drivers of migration
- Economic and business drivers
- Technological drivers
- Progressive versus revolutionary migration
- Migration issues for developing countries - current rate of use and applications of existing networks, need for leapfrogging and proactivity

Introduction to regulatory issues of NGNs

- Regulatory issues and challenges
- Competition and economic bottlenecks
- Interconnection and access
- Ex ante and ex poste regulations
- Role of regulator
- Independence of regulator

Standardisation

- Role of standards: examination of the place of open standards and interfaces in the evolution of NGNs
- Standards development organisations (SDO): discussion of the activities of SDOs such as the ITU in the development of NGN standards with reference to their past, current and future activities.
- Other standard development organisations - fs24 ETSI, IETF, ATIS

Course leader



Dr. Ndeh Ningo

Dr Ndeh Ningo is a highly qualified computer and systems engineering specialist with over 20 years of teaching and consultancy experience. Dr Ningo is currently Senior Lecturer at the Department of Electrical Engineering, Ecole Nationale Supérieure Polytechnique, Yaoundé. Among other assignments, Dr Ningo has been a consultant to the World Bank, World Health

Organisation, Ministry of Public Health of Yaoundé and University Centre for Health Sciences, University of Yaoundé.

Dr Ningo's current research interests include the design and analysis of optimum and suboptimum receivers for signal detection in non-Gaussian noise, application of self-critical statistical methods to signal detection, cyber security and e-governance. Dr Ningo holds a Bsc in electrical engineering, a M.Eng in electrical engineering and a Ph.D in computer and systems engineering.

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About the CTO

The Commonwealth Telecommunications Organisation (CTO) is an international development partnership between Commonwealth and non-Commonwealth governments, business and civil society organisations.

It provides the international community with effective means to help bridge the digital divide and achieve social and economic development through the use of Information and Communication Technologies (ICT) in the specific areas of Telecommunications, IT, Broadcasting and the Internet.

About the programme for development and training (PDT)

Managed by the CTO, the PDT is a unique low-cost membership programme providing needs-based professional training and capacity building courses on telecommunications policy, regulation, technologies and telecoms business management.

The PDT has delivered over 3600 bilateral training and consultancy projects, covering every aspect of the telecommunications industry, training over 35,000 professionals in 33 countries of the Commonwealth.

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