The next-generation network seamlessly integrate the public switched telephone network (PSTN) and the data networks, creating a single multi-service network. Rather than large, centralized, proprietary switch infrastructures, this next-generation architecture pushes central-office (CO) functionality to the edge of the network.

Service providers, whether incumbent or competitive carriers, large or small, are faced with similar issues:

- How do we address the significant opportunities, as well as the increased competition, opened up by technology and regulation?
- How to ensure a smooth migration from the legacy TDM world to VoIP and next generation networks?
- How to introduce revenue-generating applications while cutting costs - without compromising existing levels of service?

This seminar will give an introduction to the NGN architecture and services, with a brief description of the protocols involved in it.

**Target Audience**

Managers, Sales and Marketing

**Prerequisites**

Technical background

**Course Benefit**

Upon completion of this course, the student will be able to:

- Be able to describe the NGN architecture
- Be able to describe NGN services
- To understand terms and definitions in the NGN network

**Topics**

- The NGN architecture and network strategy
- The NGN network structure
- The NGN services
- NGN pricing
- Market status and future trends
The NGN Architecture and network strategy
- Motivation for migrating to the Next Generation Networks
  - PSTN and the data networks
  - Local loop shortening
- The Next-Generation Network – a distributed computing utility
- Regulations, operational and investments costs
- Network architecture – the customer edge, the access/aggregation, the intelligent IP edge and the multi-service IP core
- Service structure – The network layer, the Service layer and the Application layer
- Server farms, Softswitches, Mega-POPs and service areas

The NGN network structure
- Technologies
  - The access network – CaTV, xDSL, Optical technologies and the Metro Ethernet
  - The Backbone network – SDH, WDM and optical networks, Ethernet as a backbone architecture
  - The Switching networks and multi-service switching
  - MSAG (Multi Service Access Gateway), MSAN (Multi Service Access Network) and automated MDFs
  - Multimedia protocols, SIP, SIP-T, MGCP and others
  - IMS – IP Multimedia Subsystem
  - (A/E/G) xPON and FTTx (C/H/B)
- Open issues
  - The last mile – distances, technologies, competitors
  - Migration model - business as usual, overlay or convergence?
  - The smart edge – how smart? How many?

The NGN Services
- The open application environment
- Voice based services and IN, Softswitches and application services
- Call centers and CTI
- Internet based services
- HDTV/IPTV, multicast and VOD

The NGN Pricing
- Investment issues
- Pricing models

Market status and future trends
- Market status
- Future trends and technologies
**Instructor**

**Yoram Orzach** have gained his B.Sc. from the Technion in Haifa, and from 1991 to 1995 worked in Bezeq as system engineer in the fields of transmission and access networks. In 1995 he joined Netplus (Leadcom group) as technical manager, and since 1999 he work as the CTO of NDI Communications, and involved in the design and implementation of data communications projects worldwide. Yoram's training experience is with high-tech companies and service providers, in the fields of data communications, network design and troubleshooting, IP Telephony and Cellular networks.