

***ITU-T SG15 activities on
the NGN and its Transport
Networks***

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SG15 responsibility and mandates

- o **Focal point** in ITU-T for **optical and other transport network infrastructures**, systems, equipment, optical fibers, and the corresponding control plane technologies to enable the evolution toward intelligent transport networks.
Development of related standards for the **customer premises, access, metropolitan and long haul sections**.

- o **Lead SG** for:
 - Access Network Transport (ANT)
 - Optical Technologies



Study Group Structure

ITU-T

- **WP1/15 Optical and metallic access network**
 - Lead study group on Access Network Transport standards including home network issues
 - Access network related standards. (PON and xDSL)
- **WP2/15 Optical transport network technology**
 - Optical transport network Layer 1 related standards. (Optical fibres and cables, components and subsystems, CWDM and DWDM systems, terrestrial and submarine applications)
- **WP3/15 Optical transport network structure**
 - Lead study group on optical technology standards
 - Optical transport network structure related standards. (Network architecture, network protection & restoration, interworking, synchronization, signal & frame structure, network management and control)



Highlights of achievements in WP1/15

ITU-T

- Network Access systems
 - Broadband passive optical network (**BPON**) access operating at 155M/622Mbit/s with interoperability
 - Gigabit capable passive optical network (**GPON**) operating up to 2.5 Gbit/s
 - **Enhanced DSL** multi-Mbit/s network access over ordinary telephone subscriber lines;
 - ADSL1, ADSL2, ADSL2plus
 - SHDSL
 - VDSL1, VDSL2 (G.993.2)
 - Bonding
 - Phoneline networking (HomePNA)



Highlights of achievements in WP2/15

ITU-T

o OTN Technologies

- **New fibre specification** widens operating wavelength band to 1470-1625 nm
- **New interface specification** quadruples capacity to 40 Gbit/s
- **Coarse and Dense Wavelength Division Multiplexing (C/DWDM)** allows carriers to cost-optimize use of fiber optics in metropolitan and long haul applications
- **Forward error correction (FEC)**, high bit rate DWDM submarine systems
- **Free Space Optical (FSO)** transmission systems



Highlights of achievements in WP3/15

ITU-T

- o OTN structure
 - Efficient **carriage of Ethernet** in **SDH** and **OTN** networks and evolution of **Ethernet networking** with enhanced **Ethernet OAM**
 - **Generic Frame Procedures (GFP)** for encapsulation of various packet data types
 - **Scalable transport 'pipes'** through Virtual Concatenation and Link Capacity Adjustment Scheme (LCAS)
 - **Transport MPLS (T-MPLS)** to support packet transport applications
 - **Timing and synchronization** of packet networks
 - **Automatically Switched Optical Network (ASON)** control and management to enable intelligent transport networks



SG15 Public relations coordination

ITU-T

- **Standards collaboration**
 - IEC, IEEE, IETF, MEF, OIF, TMF, ATIS
 - SG4(Management), SG6(Outside plant), SG13(NGN)
- **Workshop on 'All Star Network Access'**
 - 2-4 June 2004, Geneva; The first BPON Interoperability test was successfully held.
- **Interoperability event of B/GPON**
 - 7-9 June 2005, Chicago, Supercomm05
- **Workshops on 'Home Networking'**
 - ITU-T workshop; 13-14 October 2005, Geneva
 - WSC(IEC/ISO/ITU-T) workshop; 2-3 February, 2006, Geneva



Definition of NGN and relation with SG15

ITU-T Rec.Y.2001 defines NGN as “A **packet-based network** able to provide telecommunication services and able to make use of **multiple broadband, QoS-enabled transport technologies**, and in which service-related functions are **independent from underlying transport-related technologies**. It enables **unfettered access** for users to networks and to competing service providers and/or services of their choice. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.”

- ★ **Broadband Access solutions to support NGN services**
HomePNA, ADSL, VDSL, B-PON, G-PON
- ★ **Transport networks to support Packet-based network**
MPLS, Ethernet networking, SDH, OTN, GFP



Workshop on NGN and its Transport Networks

ITU-T

o Objectives;

Following the success of the NGN Focus Group and the establishment of the NGN Global Standards Initiative (NGN-SGI), this workshop will be an opportunity to review the status of the work, especially of SG13 and SG15. Particular emphasis is given to architecture, performance and transport aspects of NGN as well as the market drivers and challenges.

o Key topics;

- Market opportunities and challenges on NGN
- NGN architecture and requirements
- Network QoS and control
- Broadband access
- Data over transport networks
- Transport network control and management

Thank you for your attention.

Let's have a coffee break!

***The next session starts
at 11:00.***



***The beckoning cat, Maneki Neko,
brings you Good Luck.***