ITU Workshop on "Standardization on IMT, M2M, IoT, Cloud Computing and SDN"

(Algiers, Algeria, 8 September 2013)

Overview of ITU-T Study Group 13
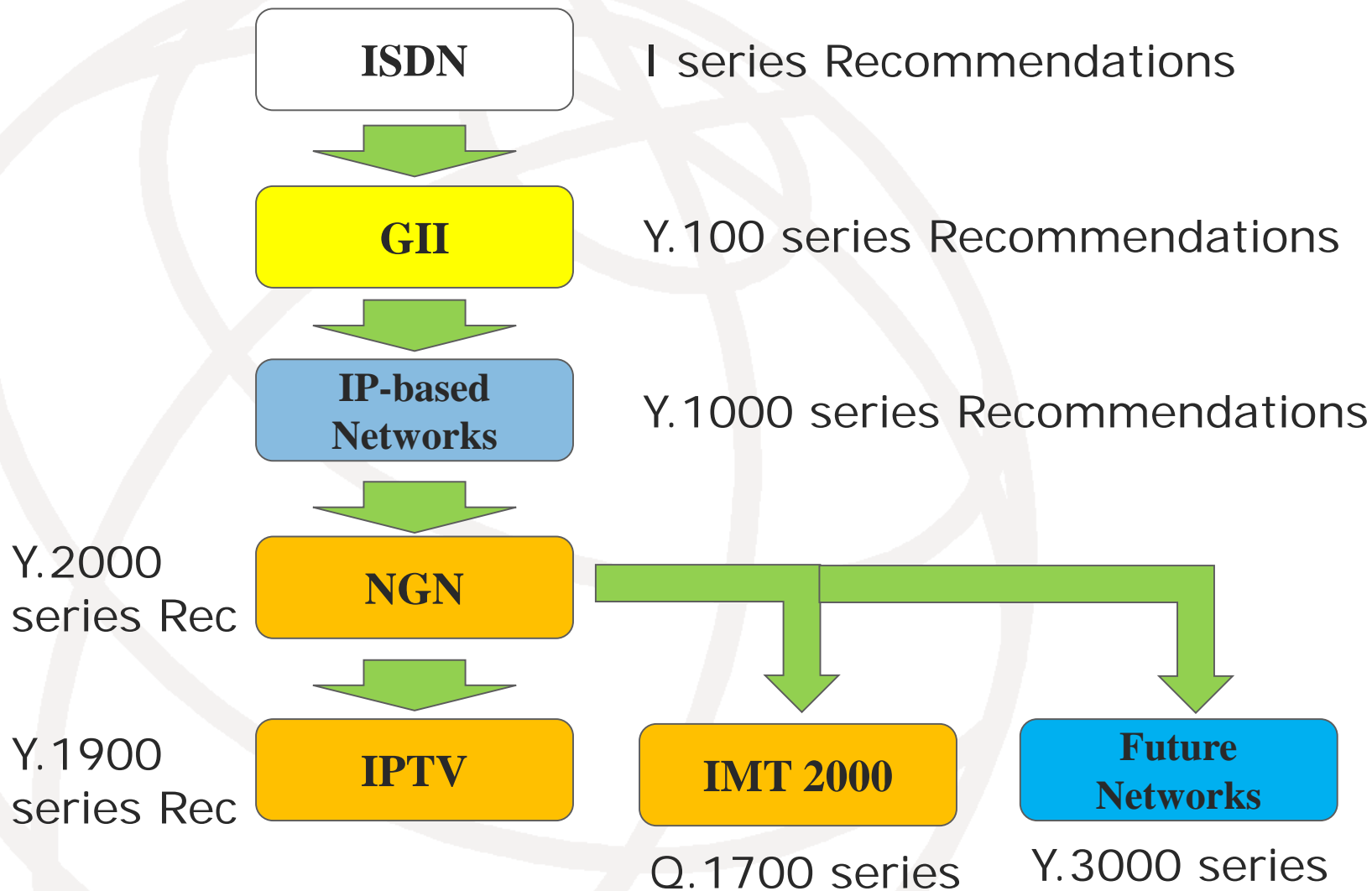
Chairman: Chaesub Lee

Counsellor: Tatiana Kurakova

Contents

1. Key Issues until 2012
2. Questions and Structures
3. Future Plans

Issue flows in SG13

ISDN	I series Recommendations
GII	Y.100 series Recommendations
IP-based Networks	Y.1000 series Recommendations
NGN	
IPTV	**IMT 2000**

Y.2000 series Rec

Y.1900 series Rec

Future Networks

Q.1700 series

Y.3000 series

3

Key Results: 2009 ~ 2012

- **NGN developments**
- **Continue collaboration on IMT**
- **Developments on IPTV**
- **Open gates for Future Networks**
- **Activate Cloud Computing**
- **Initiate IoT (Internet of Things)**
- **Others**

Examined **2,588 Cs** (1477 for SG13, 1111 for NGN-GSI)
Produced **89** new & revised Recommendations
Produced **13** Supplements and **2** Handbooks

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Union

NGN Developments (1)
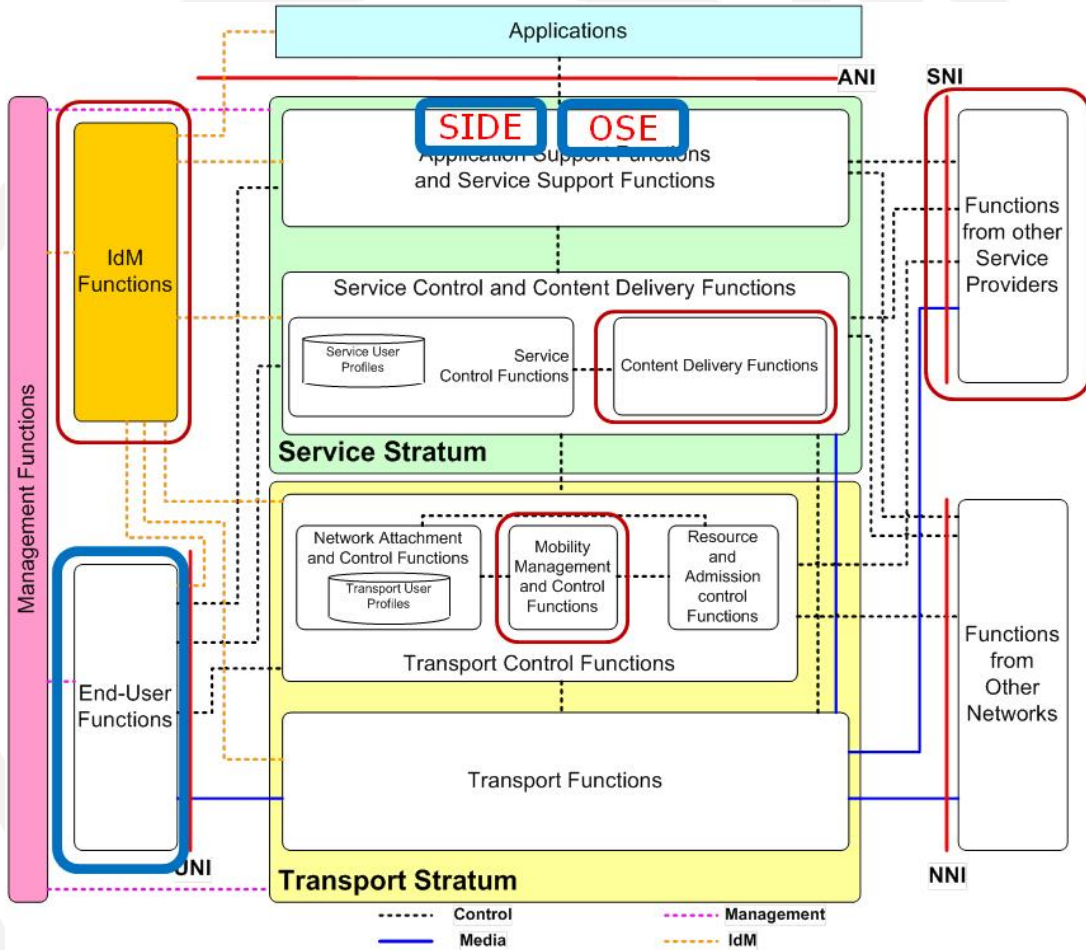
Develop New Functions:
- **Content Delivery Func**
- **Mobility Mngt & Ctl Func**
- **IdM Function**
- **End-User Function**
- **Service Provider**
- **Open Service: OSE & SIDE**

Based on existing architecture developed since 2004 including FG-NGN

NGN Developments (2)

Add new service features:

- IPv6 based NGN
- ID/Loc separation
- DSN and Multi-connection
- USN and Networked Vehicle
- Web of Objects and Object-Object
- Emergency Telecom. Services
- VPN and Multicast
- QoS enabled VoIP
- Mobile Remote Financial Transac.
- Accounting and Charging
- NGN Security and Others

Going to completion phase →
Finished NGN-GSI & JCA
(agreed TSAG at July. 2012)
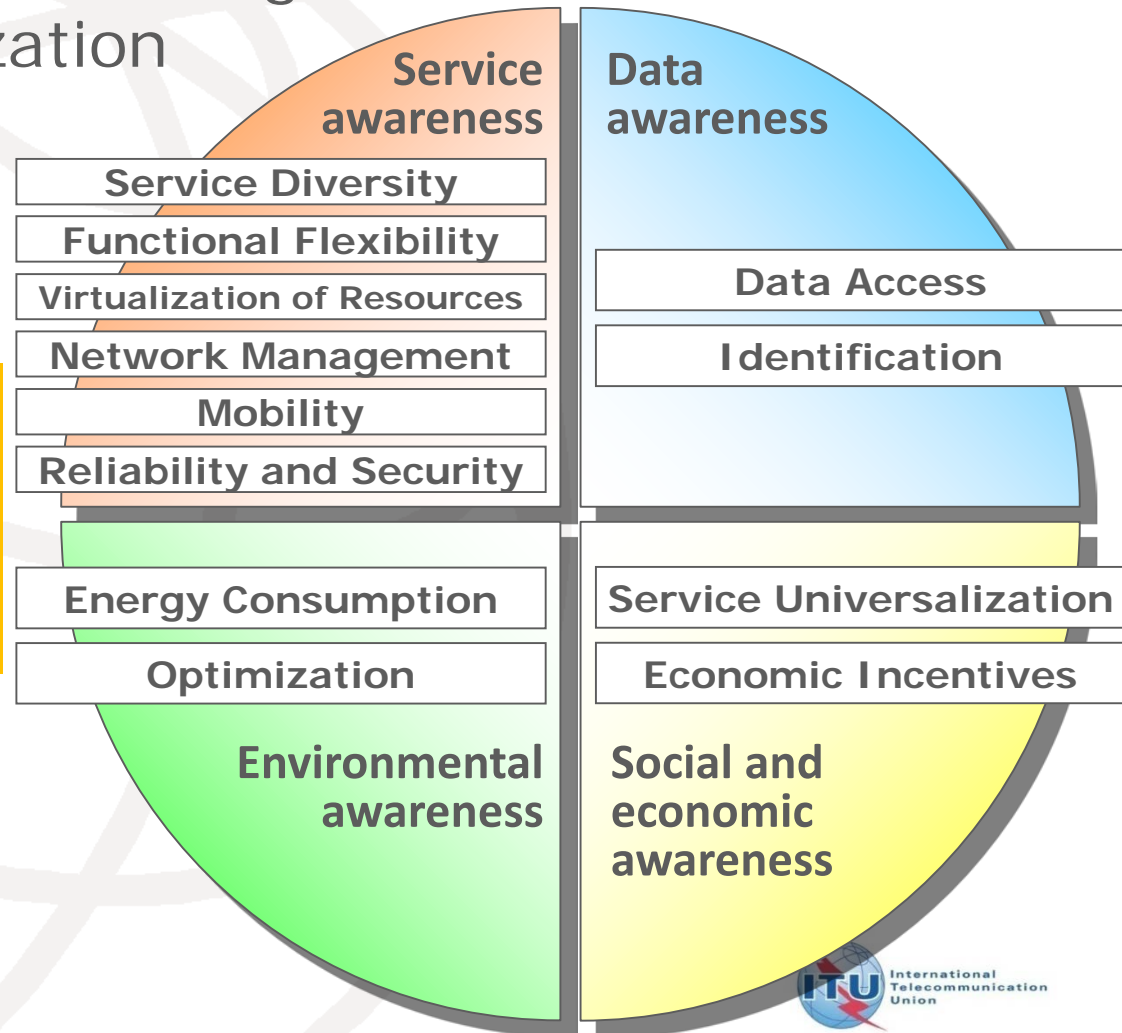
IMT 2000 and IPTV

- Continue collaboration on IMT 2000
  - Producing 4 Recommendations: Q.1700 series
  - Continue collaboration with 3GPP/3GPP2
  - Close collaboration with relevant SDOs

- Developments on IPTV: Y.1900 series
  - Terms and definitions
  - IPTV Requirements and Architecture
  - Multicast based contents delivery
  - IPTV service and normadism
  - Collaboration with relevant Study Groups and SDOs through IPTV-GSI and JCA (handed over IPTV-JCA to SG16: agreed at TSAG 07.2012)

Future networks developments

- Open gates for Future Networks: Y.3000 series
  - 4 Objectives and 12 Design Goals
  - Network Virtualization
  - Energy Saving
  - Identification

- Activated with FG-FN (2009~2010)
- Collaboration with FN communities (GENI, FP)
- Continue collaboration

Service awareness

Data awareness

| Service Diversity |
| Functional Flexibility |
| Virtualization of Resources |
| Network Management |
| Mobility |
| Reliability and Security |

| Data Access |
| Identification |

Environmental awareness

Social and economic awareness

| Energy Consumption |
| Optimization |

| Service Universalization |
| Economic Incentives |

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Cloud Computing and IoT

- Activate Cloud Computing
  - Triggered by FG-Cloud Computing
  - New Lead Study Group role
  - 3 New Questions forming new dedicated WP6
  - Initiate collaboration team with JTC1 SC38 WG3
  - Since creation of 3 Qs at 2.2012,
    3 times of meetings (4, 6, and 10.2012)
  - Establish JCA-CC & platform for collaboration with SGs and other SDOs (develop roadmap)

- Initiate IoT
  - 2 New Recs on IoT and 1 Rec on Web-Things
  - Actively participate IoT-GSI and JCA
  - Related subjects: Object-Object, Machine-Comm.

Others

- Activities on GSIs and JCAs
  - Lead NGN-GSI and JCA since 2006
  - Lead IPTV-GSI and JCA during this study period
  - Lead JCA-Cloud Computing
  - Active participation on: IdM-GSI and JCA, IoT-GSI and JCA, JCA-SG&HN
  - Collaboration with other relevant JCAs

- Focus Group on Future Networks
  - Set up by SG13 at 2009 (until 12.2010)
  - Developed 6 Output documents contributing for SG13 study on FNs
  - Collaboration with FN communities and mobilize ITU-T

Perspectives of SG13

- For the next several years, network study would be diverged to research many various ways for better efficiency, effectiveness and flexibility not only for services but also provision & operations

- Study Group 13 has pioneered investigate new technologies and incorporate them into new networks in terms of functional requirements, architectures and mechanisms

- Collaboration with other SDOs who have worked with the ITU-T in the development of networks standards should be strengthened for future study

Study Group 13 Overview

SG13 - Future networks including cloud computing, mobile and next-generation networks

- Lead SG on:
  - ➢ future networks
  - ➢ mobility management and NGN
  - ➢ cloud computing
  - ➢ SDN (Software Defined Networking)
- 5 times meetings in every two years
- Participants: around 200 delegates from over 35 countries per meeting
- 200~250 contributions per meeting

Study Group 13 Mandate

- **Per Res.2: Future networks including CC, mobile and NGNs**

- **Mission**:
  - ✓ <u>studies relating to the requirements, architectures, capabilities and mechanisms of **future networks**</u>;
  - ✓ <u>studies relating to service awareness, data awareness, environmental awareness and socio-economic awareness of **future networks**</u>.

- **Responsibility:**
  - ✓ studies relating to cloud computing technologies such as virtualization, resource management, reliability and security
  - ✓ studies relating to network aspects of Internet of things (IoT) and network aspects of mobile telecommunication networks, including IMT and IMT-Advanced, wireless Internet, mobility management, mobile multimedia network functions, internetworking and enhancements to existing ITU-T Recommendations on IMT
  - ✓ studies relating to NGN/IPTV enhancements, including requirements, capabilities, architectures and implementation scenarios, deployment models, and coordination across study groups.

➔ **WTSA 2012 add a mission for SDN by Resolution 77**

Questions: total 19 Qs

Q #	Question title
1/13	Service scenarios, deployment models and migration issues based on convergence services
2/13	Requirements for NGN evolution (NGN-e) and its capabilities including support of IoT and use of SDN
3/13	Functional architecture for NGN evolution (NGN-e) including support of IoT and use of SDN
4/13	Identification of evolving IMT systems and beyond
5/13	Applying IMS and IMT in developing country mobile telecom networks
6/13	Requirements and mechanisms for network QoS enablement (including support for SDN)
7/13	Deep packet inspection in support of service/application awareness in evolving networks
8/13	Security and identity management in evolving managed networks (including support for SDN)
9/13	Mobility management (including support for SDN)
10/13	Coordination and management for multiple access technologies (Multi-connection)
11/13	Evolution of user-centric networking, services, and interworking with networks of the future including SDN
12/13	Distributed service networking
13/13	Requirements, mechanisms and frameworks for packet data network evolution
14/13	Software Defined-Networking and Service-aware networking of future networks
15/13	Data-aware networking in future networks
16/13	Environmental and socio-economic sustainability in future networks and early realization of FN
17/13	Cloud computing ecosystem, general requirements, and capabilities
18/13	Cloud functional architecture, infrastructure and networking
19/13	End-to-end Cloud computing service and resource management

Working Parties and Leadership

WP	Title	Questions	Chairman
			Vice-Chairman
1	**NGN-e and IMT**	1, 2, 3, 4, 5	Yoshinori GOTO and Heyuan XU
			Simon BUGABA/ Konstantin TROFIMOV
2	**Cloud Computing and Common Capabilities (C^4)**	6, 7, 8, 9, 10, 17, 18, 19	Huilan LU and Jamil CHAWKI
			Ahmed Al RAGHY/ Mohammed AL RAMSI
3	**SDN and Networks of Future**	11, 12, 13, 14, 15, 16	Leo LEHMANN and Hyoung Jun KIM
			Alojz HUDOBIVNIK/Maurice GHAZAL

A special group: SG13 Africa Regional Group

WP1

NGN-e and IMT

➢ Q1: Service scenarios, deployment models and migration issues based on convergence services

➢ Q2: Requirements for NGN evolution (NGN-e) and its capabilities including support of IoT and use of SDN

➢ Q3: Functional architecture for NGN evolution (NGN-e) including support of IoT and use of SDN

➢ Q4: Identification of evolving IMT systems and beyond

➢ Q5: Applying IMS and IMT in developing country mobile telecom networks

WP2

Cloud Computing and Common Capabilities

- ➢ Q6: Requirements and mechanisms for network QoS enablement (including support for SDN)

- ➢ Q7: Deep packet inspection in support of service/application awareness in evolving networks

- ➢ Q8: Security and identity management in evolving managed networks (including support for SDN)

- ➢ Q9: Mobility management (including support for SDN)

2. Questions and Structures

WP2

Cloud Computing and Common Capabilities

➢ Q10: Coordination and management for multiple access technologies (Multi-connection)

➢ Q17: Cloud computing ecosystem, general requirements, and capabilities

➢ Q18: Cloud functional architecture, infrastructure and networking

➢ Q19: End-to-end Cloud computing service and resource management

WP3

SDN and networks of future

➢ Q11: Evolution of user centric networking, services, and interworking with networks of the future including SDN

➢ Q12: Distributed service networking

➢ Q13: Requirements, mechanisms and frameworks for packet data network evolution

➢ Q14: Software Defined-networking and Service-aware networking of future networks

➢ Q15: Data-aware networking in future networks

➢ Q16: Environmental and socio-economic sustainability in future networks and early realization of FN

SG13 Africa Regional Group

Chairman	Simon BUGABA
Vice-Chairman	Ahmed Al RAGHY

The main objective: encourage national authorities and operators from countries in Africa to work together and better contribute to ITU-T SG 13 activities in general and to **Cloud Computing (CC)** in particular **in line with SG 13 mandate**.

Terms of Reference:

a) To encourage participation in the SG 13 and to report SG 13's outcomes and deliverables.

b) To establish an electronic forum on CC implementation challenges incl. regulatory issues.

c) To establish training needs on CC and future networks in Africa and coordinate the organization of technical tutorials in the region on such topics with SG 13.

f) To encourage African countries to the development of new/revised ITU-T Recommendations on CC and future networks.

g) To disseminate relevant information provided by ITU-T on CC and future networks standards and document relevant use cases of CC architectures and services including emerging mobile services.

h, i) To provide the focal points identified on CC issues and future networks in African countries and to collaborate with African Telecommunication Union (ATU).

j) Act as a liaison body between administrations, operators, regulators and ITU-T in matters relating to CC and future networks.

SG13 Mentor

The main role of the mentor (as was outlined in the TSAG Meeting):
co-ordinate with representatives from developing countries in the SG with the objective of sharing information and best practices with regards to the application/implementation of ITU-T Recommendations to enhance the standardization activities in developing countries and in the regional groups
when a new Recommendation is finalized and announced, there could also be information for developing countries how they could adopt/implement this Recommendation.
Through interaction with members from developing countries, the mentor could also identify capacity building programmes for ITU-T Recommendations which could be implemented by TSB in developing countries thereafter under bridging the standardization gap.
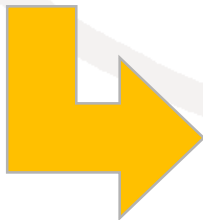
Mr. Naotaka Morita

3. Future Plans

- 1st SG13 meeting: 18. 02 - 01. 03 2013 (Geneva, Swiss)

- 1st Joint Co-located Rapporteur Group meeting: 17 – 28 June 2013 (Geneva, Swiss)

- 1st SG13 Africa Regional Group meeting: 10 – 12 September 2013 (Algiers, Algeria)

- 2nd SG 13 meeting: 4 – 15 November 2013 (Kampala, Uganda)

- 2nd Joint Co-located Rapporteur Group meeting: 17 – 28 February 2014 (Geneva, Swiss)

- 3rd SG13 meeting: 7 – 18 July 2014 (Geneva, Swiss)

Welcome to SG13!

Thank you for your attention !!!