4th SG13 Regional Workshop for Africa on
"Future Networks for a better Africa: IMT-2020, Trust, Cloud Computing and Big Data"
(Accra, Ghana, 14-15 March 2016)

ITU-T Study Group 13 Overview

Leo Lehmann (Dr. Leo)
Chairman SG13

1956 2016
CCITT / ITU-T

Study Group 13 Mandate

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

Mission:

•studies relating to the requirements, architectures, capabilities and mechanisms of future networks;

•studies relating to service awareness, data awareness, environmental awareness and socio-economic awareness of future networks.

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

•SDN study by Resolution 77

Perspectives of SG13

- SG13 has pioneered to investigate new technologies and incorporate them into new networks in terms of functional requirements, architectures and mechanisms
- As NGN is almost done, SG13 is undergoing a transition to new study topics as IMT2020 softwareized network aspects (non radio related) and vertical subjects like eNGN, Cloud Computing, SDN
- Collaboration with other SDO's that have worked with ITU-T in the development of network standards should be strengthened for future study

SG13 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 (request approved by TSAG meeting of June 2013)
- Prepared to become also lead study group on IMT2020/ 5G (non radio aspects)

Participants: in general about 190 delegates from more then 35 countries with more than 200 contributions

1956 2016
CCITT / ITU-T

SG13 Working Parties

WP	Title	Questions	WP-Chairmen WP-Vicechairmen
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, 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	Hyoung Jun KIM and Gyu Myoung LEE Alojz HUDOBIVNIK/Maurice GHAZAL

SG13 Questions under Study

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 software-defined networking **Note: All IoT related studies are now moved to SG20**
3/13	Functional architecture for NGN evolution (NGN-e) including support of IoT and use of software-defined networking **Note: All IoT related studies are now moved to SG20**
4/13	Identification of evolving IMT systems and beyond
5/13	Applying IMS, IMT and other new technologies in developing country mobile telecom networks
6/13	Requirements and mechanisms for network QoS enablement (including support for software-defined networking)
7/13	Deep packet inspection in support of service/application awareness in evolving networks
8/13	MERGED/ REMOVED
9/13	Mobility management (including support for software-defined networking)
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 Software-Defined Networking
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	Requirements, ecosystem, and general capabilities for cloud computing and big data
18/13	Cloud functional architecture, infrastructure and networking
19/13	End-to-end Cloud computing management and security

Focus Group IMT2020

- Established by ITU-T Study Group 13 in May 2015
- Identification of network standardization requirements for the '5G' development (non-radio network perspective)
- Delivery of gap analysis of IMT2020 in December 2015, in order to identify the relevant scope of ITU-T Recommendations on the fixed network of IMT-2020.
- December 2015: Extension of life time by SG13 until end of 2016 with new ToR

Recommendations/Supplements

Approved since beginning of current Study Period: 69 Recs and 6 Supplements

- Big Data: 1
- Cloud Computing: 9
- DPI: 3
- DSN: 3
- Emergency Communications: 3; security: 3
- FMC/Mobile: 10
- IoT: 13
- IPTV: 1
- NGN ,e-NGN/NICE: 7
- PTDN: 2SDN: 2
- SUN/ FN: 13

Collaboration with other groups

- Cloud Computing
  - 2 collaborative teams for common text with ISO/IEC/JTC1/SC38 (completed July 2014)
  - Joint Rapporteur Group with SG2 on Cloud Computing Management
  - JCA Cloud, CC-Roadmap
  - SG13RG-AFR has cloud computing (beside FN) as part of its mandate
- Software Defined Networking
  - JCA SDN, SDN-Roadmap
- Internet of Things (IoT)
  - All IoT related activities transferred to new SG20 at December 2015
- Mobile
  - Q.174X series development in coordination with ITU-R WP5D and collaboration with 3GPP and 3GPP2

Continuation in Connecting clouds

Cloud traffic one-third of total data center traffic by 2015 (Cisco)

ITU-T approved 10 Recommendations covering

- Requirements (Y.3501, Y.3503, …)
- Vocabulary (Y.3500) & reference architecture (Y.3502), both developed in collaboration with ISO/IEC JTC1
- Inter-cloud (Y.3511)
- Management (Y.3520)
- Security (X.1601)

New WI's related to aviation cloud and big data in preparation

1956 2016
CCITT / ITU-T

Push Big Data

Because of the v's characteristics, big data technologies and services allow to resolve many new challenges, and also create new opportunities, than ever before:

➢Heterogeneity and incompleteness

•Data processed using big data technologies can miss some attributes or introduce noise in data transmission. Even after data cleaning and error correction, some incompleteness and some errors in data are likely to remain.

➢Scale

•Managing large and rapidly increasing volumes of data is a challenging issue for data processing. In the past, the data scale challenge was mitigated by evolution of processing and storage resources. But now data volumes are scaling faster than resources evolve.

➢Timeliness

•The acquisition rate and timeliness, to effectively find elements in limited time that meet a specified criterion in a large dataset, are new challenges faced by data processing

➢Privacy

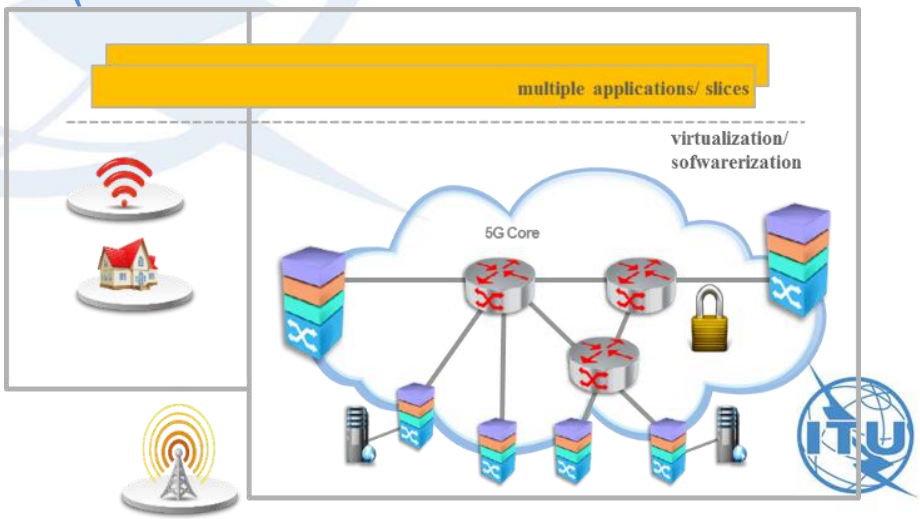
•Data about human individuals, such as demographic information, internet activities, commutation patterns, social interactions, energy or water consumption, are being collected and analysed for different purposes. Big data technologies and services are challenged to protect personal identities and sensitive attributes of data throughout the whole data processing.

Amplify Future Networks by specific focus on IMT2020

- Future Networks (FN) – definition, vision, goals, requirements and capabilities, identification schemes, service universalization (Y.3000-series) already applicable on 5G
- Establishment of FG IMT2020 for identification of non radio related standardization work for 5G/IMT2020

In addition:

- SDN – definition, framework, requirements, capabilities, high-level architecture and functional architecture (the latter under development) (Y.3300-series)
- Virtualization
- Softwarization

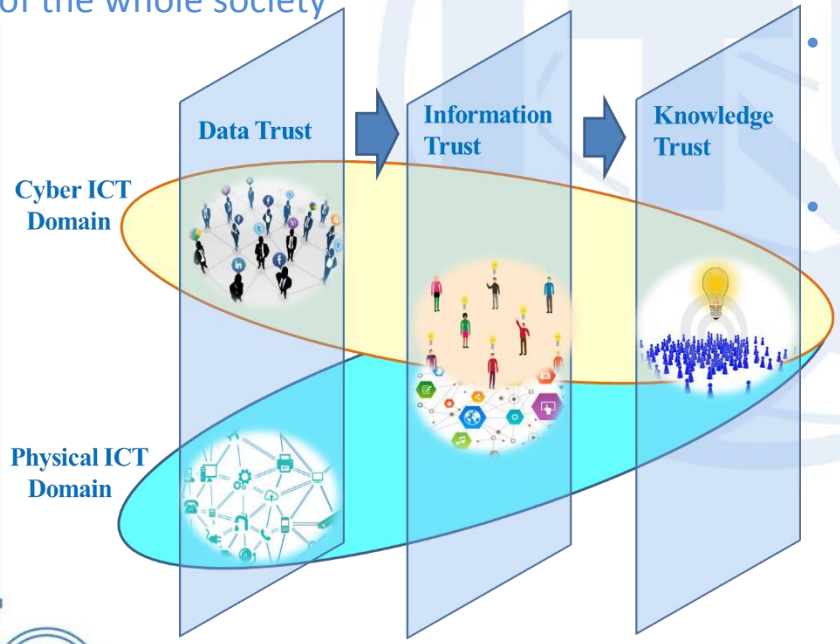


1956 2016
CCITT / ITU-T

Ramp up Trust in ICT

- Social profile of the modern society has changed
- Social life, ICT technologies and physical world are interrelated now
- Trust facilitates the development of knowledge that contributes to the well-being of the whole society

Generic ICT trust conseptual model



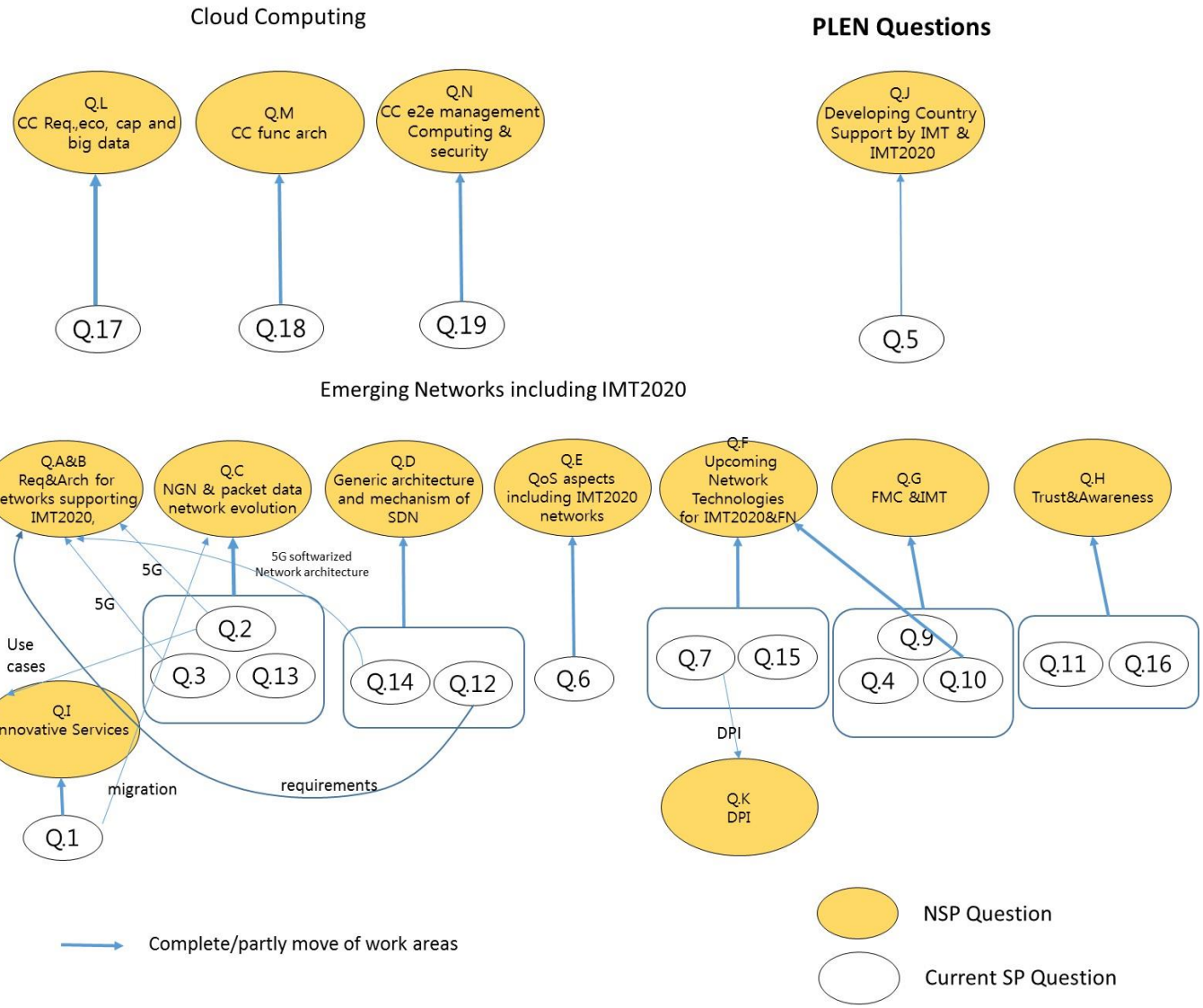
Work in progress in

- SG13 correspondence group on trust (CG-Trust): draft Technical Report and
- Draft Recommendation Y.trusted-env by Q16/13 on basic principles of trusted environment creation. It also attempted to deliver a definition of trusted environment in ICT.

1956 2016 CCITT / ITU-T

ITU

SG13 chairman's view on new study group structure for next study period



Upcoming Events 2016

- SG13 rapporteur group meeting, 18 April – 28 April 2016, Geneva
- SG13 meeting, 29 April 2016, Geneva
- SG13 meeting, 27 June – 8 July 2016, Geneva
- Focus Group IMT2020 meeting 17 May – 20 May 2016, Beijing

Contact: Dr. Leo Lehmann (Chairman SG13)
Leo.Lehmann@ties.itu.int
Tatiana Kurakova (Counceller SG13)
Tatiana.Kurakova@itu.int

1956 2016 CCITT / ITU-T

Welcome to the 4th SG13 Regional Workshop for Africa

Thank you for your attention !!!

1956 2016

CCITT / ITU-T