

SG13: Future networks, with focus on IMT-2020, cloud computing and trusted network infrastructures

*All about
networks*

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Chairman SG13

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Vice Chairman SG13



Study Group 13 Mandate

Per Res.2:

Future networks, with focus on IMT-2020, cloud computing and trusted network infrastructures

Mission:

- ❑ studies relating to the requirements, architectures, capabilities, and APIs as well as softwarization and orchestration aspects of converged future networks (FN), specifically focusing on IMT-2020 non-radio related parts.
- ❑ studies relating to cloud-computing technologies, big data, virtualization, resource management, reliability and security aspects of the considered network architectures.
- ❑ studies relating to standardization of information centric trusted network infrastructures and trusted cloud solutions

Responsibility:

- ❑ Developing of recommendations for network requirements and architecture, network softwarization, network slicing, network capability openness, network management and orchestration, fixed-mobile convergence and emerging network technologies
- ❑ Developing recommendations for requirements, functional architectures and their capabilities, mechanisms and deployment models of cloud computing, covering inter- and intra-cloud computing as well as distributed cloud aspects.
- ❑ Developing recommendations for high-level big data requirements and general capabilities, including cloud computing based big data, big data exchange framework.

Perspectives of SG13

- ❑ SG13 has pioneered to investigate new technologies and incorporate them into new networks in terms of functional requirements, architectures and mechanisms
- ❑ Major study topics are IMT2020 softwarized network aspects (non radio related), eNGN including NFV and SDN, Cloud Computing, trusted network infrastructures
- ❑ Collaboration with other SDO's that have worked with ITU-T in the development of network standards should be strengthened for future study
- ❑ Study of potential utilization and guide of open-source software activities related to the scope of Study Group 13

SG13 Overview

Lead Study Group on:

- ❑ Future networks such as IMT-2020 networks (non-radio related parts)
- ❑ Mobility management
- ❑ Cloud computing
- ❑ Trusted network infrastructures

Participants: in general about 190 delegates from more than 35 countries with more than 200 contributions (based on figures of former study period)



SG13 Vice-Chairs

SG13 Vice-Chairs	Country	1 st or 2 nd Term
Mohammed AL TAMIMI	KSA	1 st
Rim BELHASSINE-CHERIF	Tunisia	2 nd
Ahmed EL-RAGHY	Egypt	2 nd
Yoshinori GOTO	Japan	2 nd
Hyung-Soo (Hans) KIM	Republic of Korea	1 st
Scott MANSFIELD	Canada	1 st
Juan Carlos MINUTO	Argentina	1 st
Brice MURARA	Rwanda	1 st
Fidelis ONAH	Nigeria	1 st
Heyuan XU	China	2 nd

□ 10 Vice-chairs elected during WTSA-16

□ 5 Vice-chairs from Africa and the Arab region

SG13 Working Parties

WP	Title	Questions
1	IMT-2020 Networks & Systems	Q.6: Quality of service (QoS) aspects including IMT-2020 networks
		Q.20: IMT-2020: Network requirements and functional architecture
		Q.21: Network softwarization including software-defined networking, network slicing and orchestration
		Q.22: Upcoming network technologies for IMT-2020 and future networks
		Q.23: Fixed-mobile convergence including IMT-2020
2	Cloud Computing & Big Data	Q.7: Big data driven networking (bDDN) and deep packet inspection (DPI)
		Q.17: Requirements, ecosystem, and general capabilities for cloud computing and big data
		Q.18: Functional architecture for cloud computing and big data
		Q.19: End-to-end cloud computing management, cloud security and big data governance
3	Network Evolution & Trust	Q.1: Innovative services scenarios, deployment models and migration issues based on future networks
		Q.2: Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV)
		Q.5: Applying networks of future and innovation in developing countries
		Q.16: Knowledge-centric trustworthy networking and services

Working Party Co-Chairs & Vice Chairs

WP	Title	Questions	WP (Co-) Chairmen
			WP-Vice Chairmen
1	IMT-2020 Networks & Systems	6, 20, 21, 22, 23	Hans KIM, Luca PESANDO
			Yachen WANG, Brice MURARA
2	Cloud Computing & Big Data	7, 17, 18, 19	Yoshinori GOTO, Fidelis ONAH
			Ahmed Al RAGHY, Juan Carlos MINUTO
3	Network Evolution & Trust	1, 2, 5, 16	Gyu Myoung LEE, Heyuan XU
			Mohammed AL TAMIMI, Maurice GHAZAL

SG13 related JCA's

❑ JCA-IMT2020

WTSA16 Resolution 92

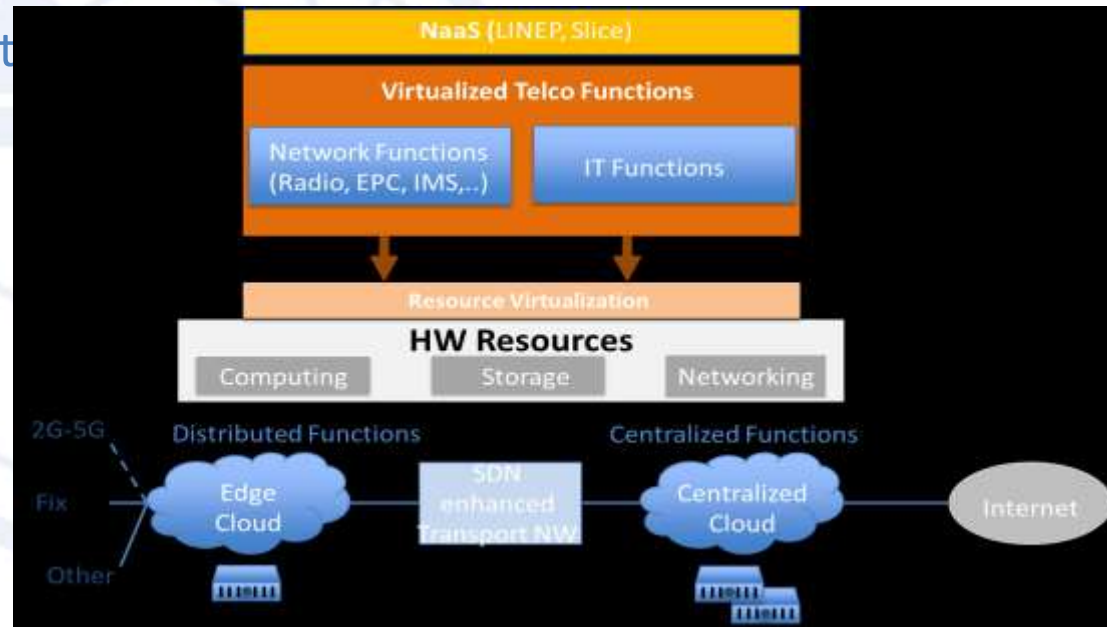
❑ JCA-SDN

WTSA16 Resolution 77

JCA: A joint coordination activity (JCA) is a tool for management of the work programme of ITU-T when there is a need to address a broad subject covering the area of competence of more than one study group

IMT2020 wireline

- ❑ Definition of IMT-2020 Delivery Packages (February 2017)
- ❑ First IMT-2020 related recommendations in summer 2017 intended:
 - IMT-2020 Network Requirements
 - IMT-2020 Network Architecture
 - Softwarization General Requirements
 - FMC

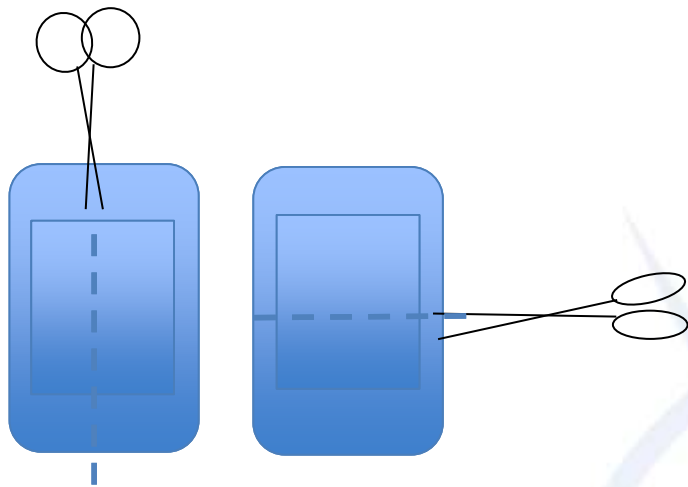


NOTE Q.174X series development in coordination with ITU-R WP5D and collaboration with 3GPP and 3GPP2

Baseline: Focus Group IMT2020 Deliveries

- O-040** TR: Terms and definitions for IMT-2020 in ITU-T
- O-041** TR: Application of network softwarization to IMT-2020
- O-042** Requirements of IMT-2020 from network perspective
- O-043** Framework for IMT-2020 network architecture
- O-044** Requirements of IMT-2020 fixed mobile convergence
- O-045** TR: Unified network integrated cloud for fixed mobile convergence
- O-046** IMT-2020 network management requirements
- O-047** Network management framework for IMT-2020
- O-048** TR: Application of information centric networking to IMT-2020

Slices

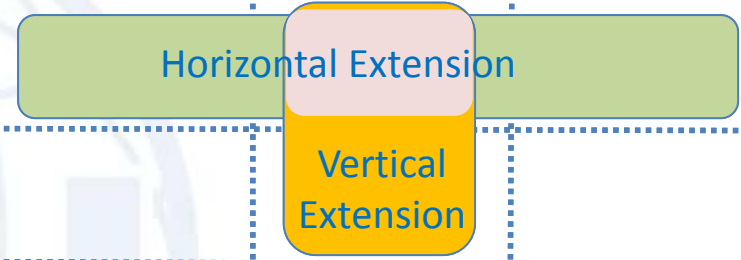


UE-Slicing
Horizontal or
Vertical

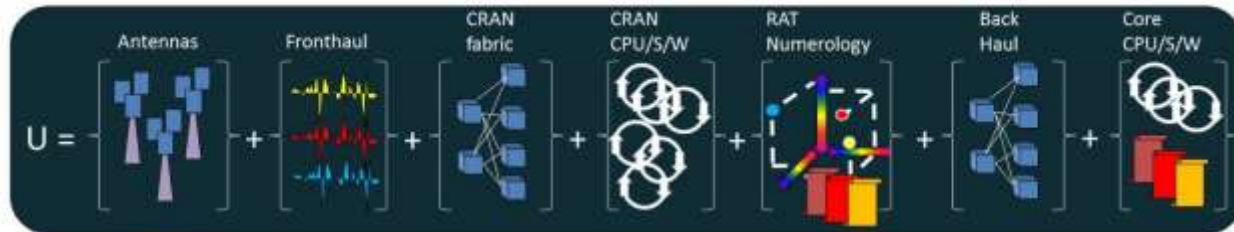
Platform/
Applications

Slice

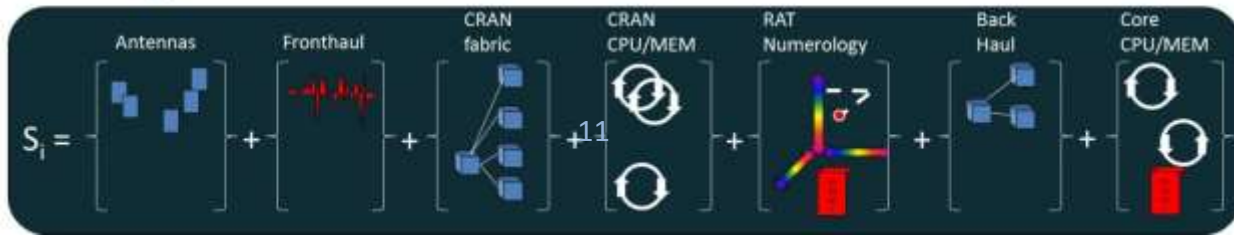
Infrastructure



Example: 5G concept of end to end slice



If U is the set of all resource sets { Antennas, Fronthaul, .. } then
Slice S_i is a set of resource subsets taken from resource sets { Antennas, Fronthaul .. }



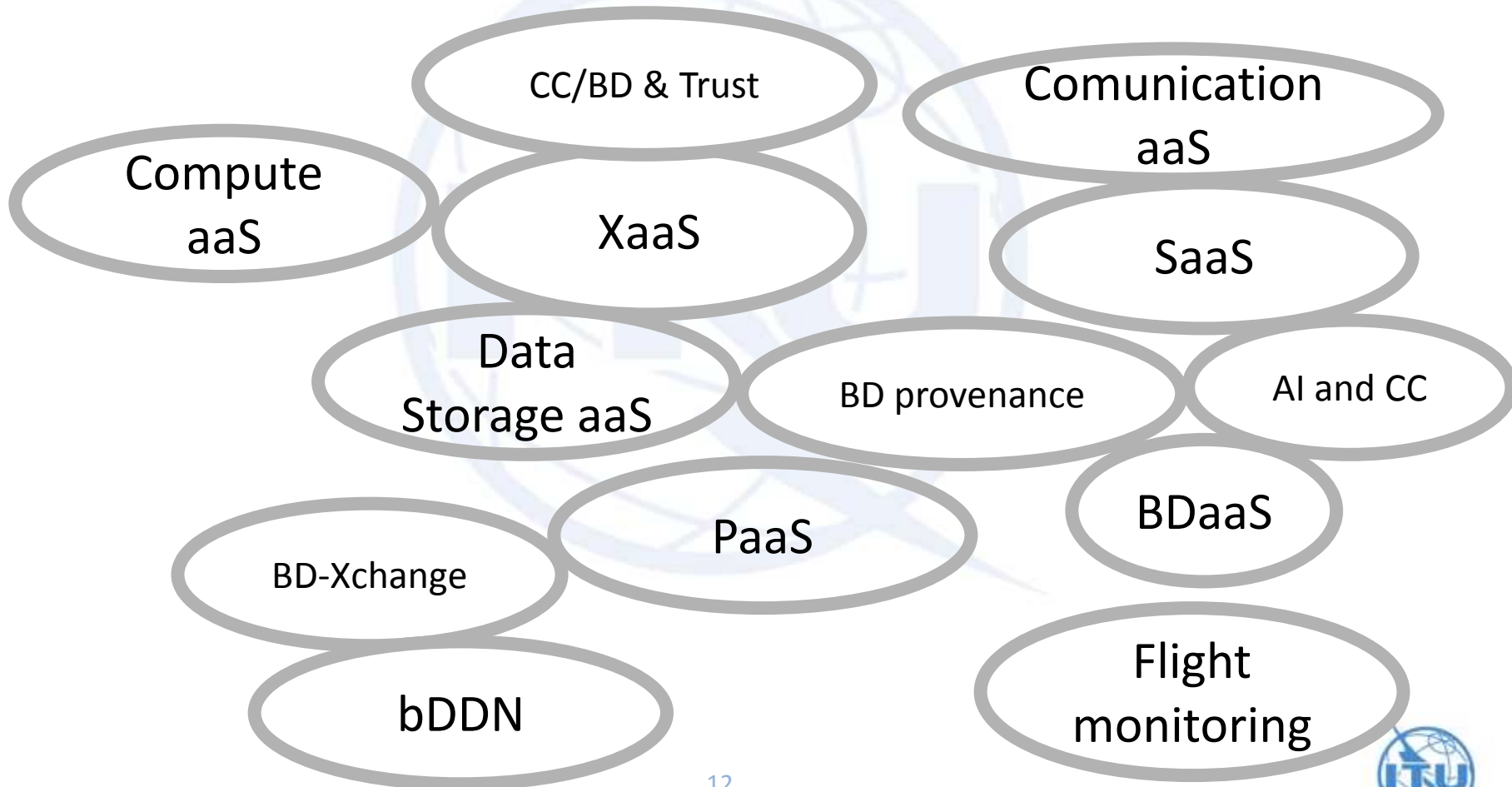
Cloud computing/Big Data – what's next

Capability types

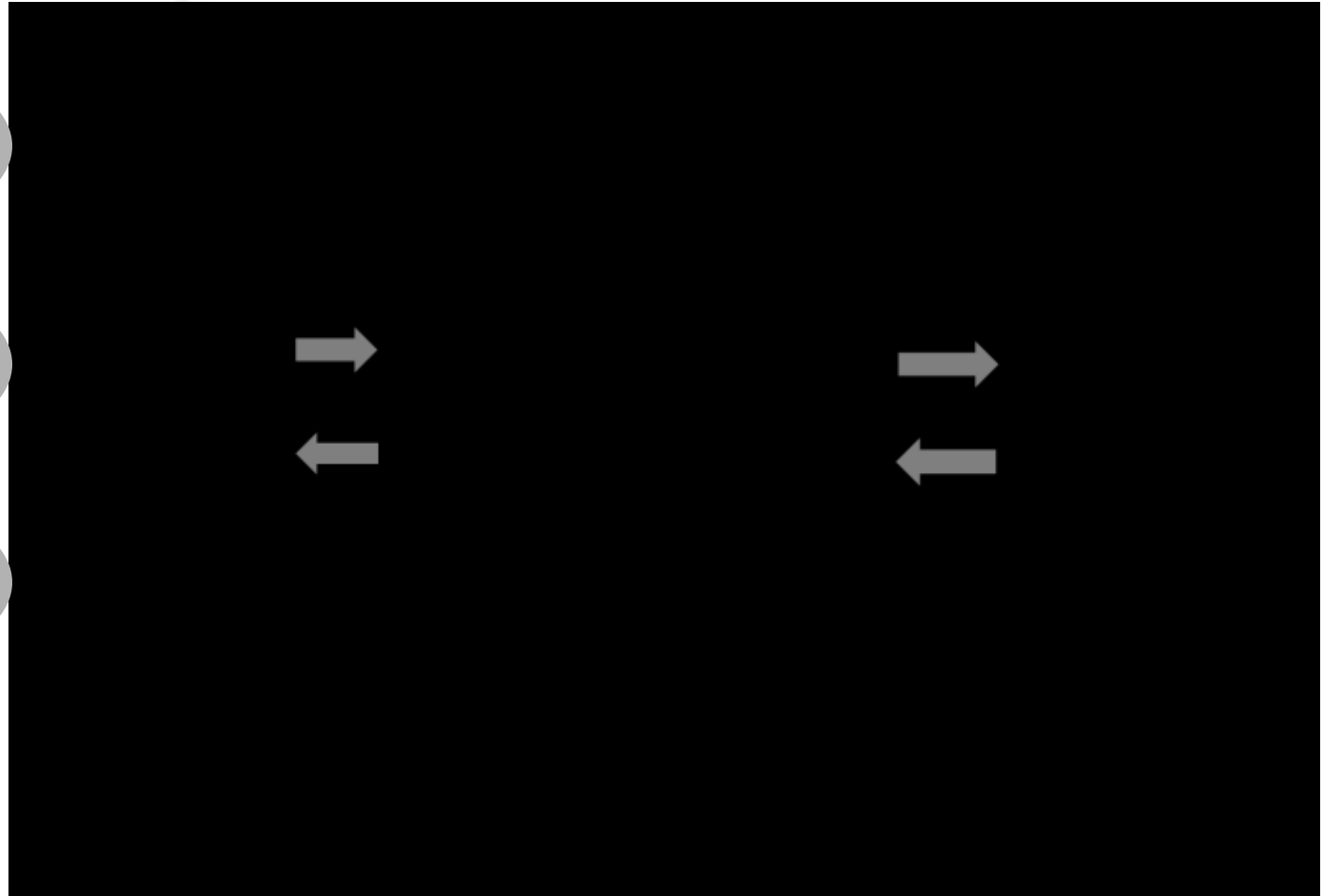
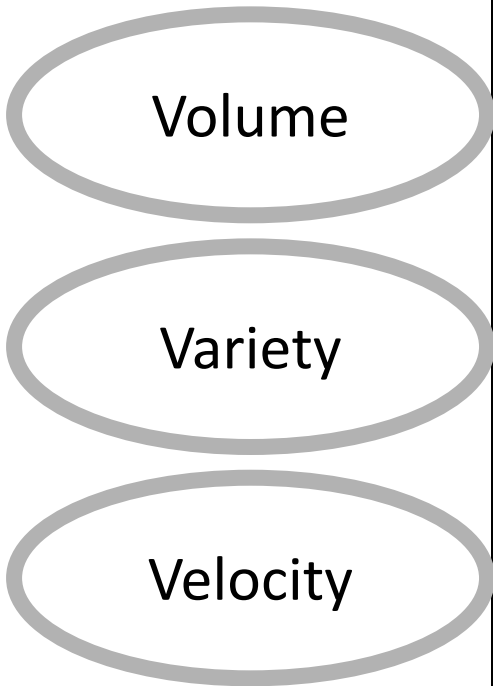
Infrastructure

Platform

Application



Context Cloud Computing - Big Data



Trust in ICT

Achievements

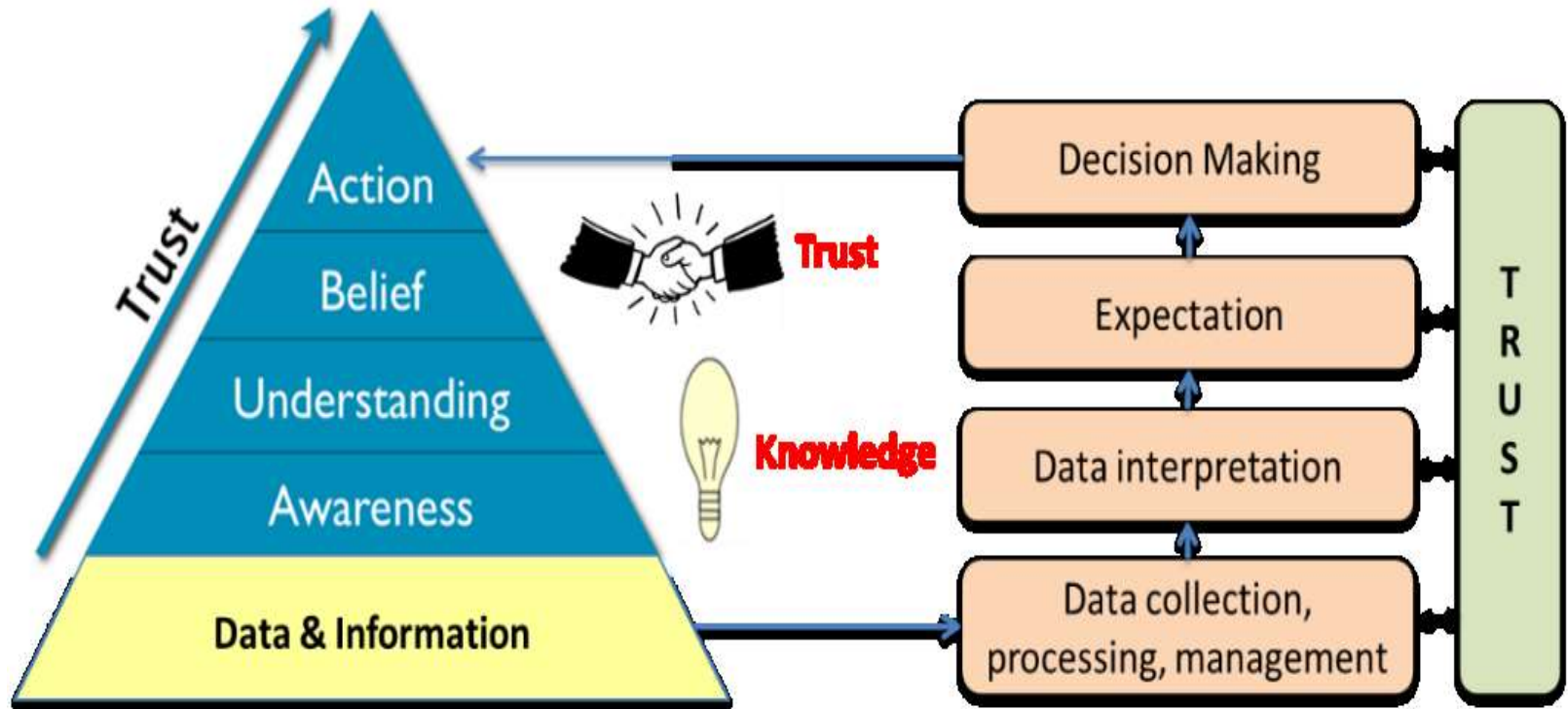
- ❑ Technical Report “Trust provisioning for future ICT infrastructures and services” (accomplished)
- ❑ Rec Y.3051 by Q16/13 on basic principles of trusted environment creation
- ❑ Draft Rec Y.3514 by Q19/13 on concepts for trusted inter-cloud

What's Next

- ❑ Requirements, capabilities and service scenarios for trust provisioning
- ❑ Architectural framework for trustworthy telecommunication networks
- ❑ Technical solutions for trust provisioning
- ❑ Trust provisioning in Big Data analytics
- ❑ Inter Cloud Trust Management



Knowledge and trust



SG13 Work on BSG

Question 5/13:

Applying networks of future and innovation in developing countries

Main Tasks:

- ❑ Prepare documents summarizing the findings of a gap analysis on the current status and trends of IMT, future networks, NGN evolution implementation, CC, trust in ICT, big data, SDN and other new technologies, from a view point of developing country telecom networks.
- ❑ Develop scenarios in terms of services and deployments for applying IMT, future networks, NGN, CC, Trust, big data, SDN and other new technologies in Developing Country telecom networks.
- ❑ Examine possibility of evolution of existing equipment and other new technologies.
- ❑ Develop requirements in terms of services and deployments for applying IMT, future networks, NGN, CC, Trust, big data, SDN and other new technologies in Developing Country telecom networks.
- ❑ Provide guidance on how best developing countries can implement emerging technologies



SG13 Work on BSG : SG13RG-AFR

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 in particular in line with SG 13 mandate

Main Tasks:

Encourage active participation of African administrations, regulators and operators in the work of ITU-T SG 13

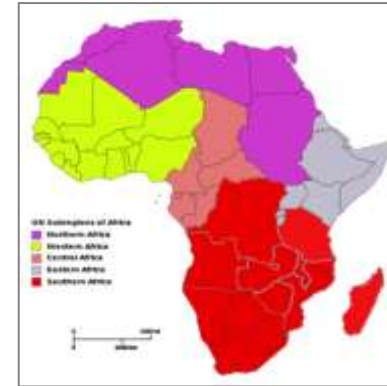
Encourage participation of African countries in workshops, Rapporteur meetings and other ITU-T SG13 events

Encourage African countries to contribute to the development of new/revised ITU-T Recommendations on cloud computing and future networks

Act as a liaison body between administrations, operators, regulators and ITU-T in matters relating to cloud computing and future networks

Reflect the relevant priorities of the continent as per ITU-T SG 13 mandate

Establish training needs on CC and future networks and coordinate the organization of technical tutorials in the region on such topics with ITU-T SG 13



SG13 Work on BSG : SG13 Regional Workshops for Africa

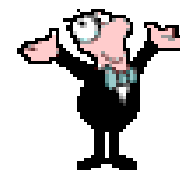


	Theme	Place	Date	Host
1	Standardization on IMT, M2M, IoT, Cloud Computing and SDN	Algiers, Algeria	8 September 2013	ARPT
2	Future Networks: Cloud Computing, Energy Saving, Security & Virtualization	Tunis, Tunisia	28 April 2014	Tunisie Telecom
3	ITU-T Standardization Challenges for Developing Countries Working for a Connected Africa	Livingstone, Zambia	23-24 February 2015	ZICTA
4	Future Networks for a better Africa: IMT-2020, Trust, Cloud Computing and Big Data	Accra, Republic of Ghana	14-15 March 2016	NCA
5	ITU-T Standardization Work on Future Networks: Towards a Better Future for Africa	Cairo, Egypt	2-3 April 2017	NTRA

Welcome to SG13



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