ITU-T SG 11

ACTVITIES OF ITU-T SG11 ON C&I

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Activities of the ITU-T SG11 on C&I

Martin Brand

Vice Chairman of SG11, Chairman of WP 4/11

Content

1. **General info about SG11**

2. **Key activities on C&I**
   - **SIP-IMS work plan**
   - **Benchmarking**
   - **Interconnection**
   - **Internet speed measurement**
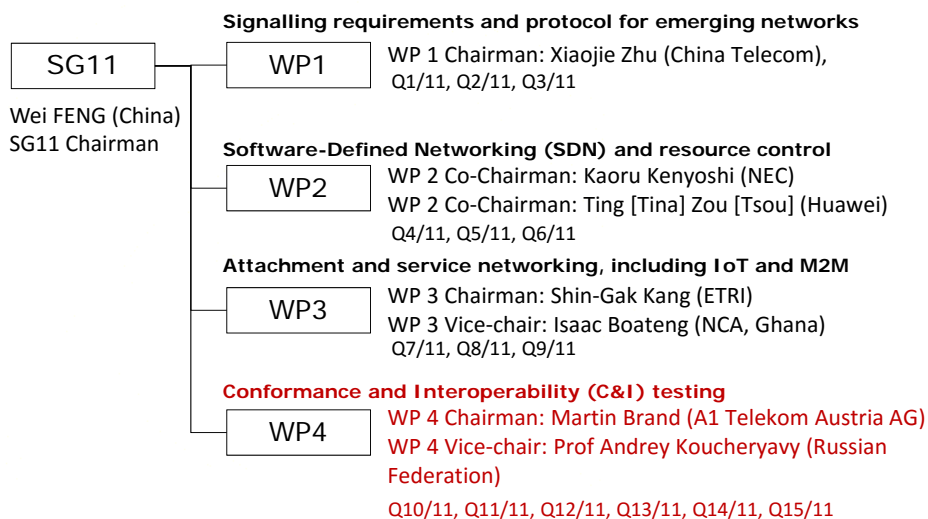   - **Conformance of MNP**
   - **ITU-T CASC**

Responsibility of ITU-T SG11

Responsible for studies relating to signalling requirements and protocols, including those for IP-based network technologies, NGN, M2M, IoT, FNs, Cloud Computing, mobility, some multimedia related signalling aspects, ad hoc networks (sensor networks, RFID, etc.), QoS, and internetwork signalling for legacy networks ATM, N-ISDN and PSTN networks. In addition, studies relating to reference signalling architectures and test specifications for NGN and emerging network technologies (e.g., IoT etc)

- Lead study group on signalling and protocols
- Lead study group on machine-to-machine (M2M)
- Lead study group on test specifications, conformance and interoperability testing

SG Structure

SG11
Wei FENG (China)
SG11 Chairman

WP1
Signalling requirements and protocol for emerging networks
WP 1 Chairman: Xiaojie Zhu (China Telecom),
Q1/11, Q2/11, Q3/11

WP2
Software-Defined Networking (SDN) and resource control
WP 2 Co-Chairman: Kaoru Kenyoshi (NEC)
WP 2 Co-Chairman: Ting [Tina] Zou [Tsou] (Huawei)
Q4/11, Q5/11, Q6/11

WP3
Attachment and service networking, including IoT and M2M
WP 3 Chairman: Shin-Gak Kang (ETRI)
WP 3 Vice-chair: Isaac Boateng (NCA, Ghana)
Q7/11, Q8/11, Q9/11

WP4
Conformance and Interoperability (C&I) testing
WP 4 Chairman: Martin Brand (A1 Telekom Austria AG)
WP 4 Vice-chair: Prof Andrey Koucheryavy (Russian Federation)
Q10/11, Q11/11, Q12/11, Q13/11, Q14/11, Q15/11

Study Group Structure - Study Period (2013-2016)

	TITLE
WP1/11	Signalling requirements and protocol for emerging networks
Q1/11	Signalling and protocol architectures in emerging telecommunication environments
Q2/11	Signalling requirements and protocols for service and application in emerging telecommunication environments
Q3/11	Signalling Requirements and Protocol for Emergency Telecommunications
WP2/11	Software-Defined Networking (SDN) and resource control
Q4/11	Signalling requirements and protocols for Bearer and Resource control in emerging telecommunication environments
Q5/11	Protocol procedures relating to services provided by Broadband Network Gateways
Q6/11	Protocol procedures relating to specific services over IPv6
WP3/11	Attachment and service networking, including IoT and M2M
Q7/11	Signalling and control requirements and protocols for network attachment supporting multi-screen service, future networks, and M2M
Q8/11	Guidelines for implementations of signalling requirements and protocols
Q9/11	Protocols supporting distributed, smart service networking and end-to-end multicast
WP4/11	Conformance and Interoperability (C&I) testing
Q10/11	Service and networks benchmarking measurements
Q11/11	Protocols and networks test specifications; frameworks and methodologies
Q12/11	Internet of things test specifications
Q13/11	Monitoring parameters for protocols and emerging networks
Q14/11	Cloud interoperability testing
Q15/11	Testing as a service (TAAS)

Lead in ITU-T's test specifications, conformance and interoperability testing

- Conformance with international standards is one of the core principles underlying the global interoperability of ICT networks and devices

- SG11/WP4 leads ITU's work on conformance and interoperability (C&I) testing and is responsible for coordinating the implementation of the ITU C&I programme (decision of WTSA-12), which was started at the request of ITU's membership in light of the challenges faced by developing countries in improving interoperability

- The ITU C&I programme is based on four pillars:

  Pillar 1   Conformity assessment

  Pillar 2   Interoperability events

  Pillar 3   Capacity building

  Pillar 4   Assistance in the establishment of test centres and C&I programmes in developing countries

- SG11 is also investigating whether the ITU C&I programme could play a role in battling counterfeit goods

Research area of WP4/11

The work of SG11/WP4 - Conformance and interoperability testing focuses on global interoperability testing and covers following testing

- ➢ Signalling protocols (e.g. UNI, NNI)
- ➢ Technical means (equipment)
- ➢ Telecom services
- ➢ Network performance
- ➢ Benchmarking

Activities encompass establishing testing procedures for NGN, IMS, IoT, MNP, VoIP, etc.

Conformance and Interoperability Testing Joint Coordination Activity (JCA-CIT)

- ▪ ITU-T SG11 is a parent group of JCA-CIT since WTSA-12

- ▪ JCA-CIT coordinates work undertaken by ITU-T Study Groups in driving ITU's Conformance and Interoperability (C&I) Programme, ensuring that these expert groups collaborate efficiently within ITU and with other standards development organizations (SDOs)

- ▪ JCA-CIT also supports ITU-T Study Groups' identification of technologies suited to C&I testing, and acts as the first point of contact for organizations interested in contributing to ITU's C&I Programme

Web page: *http://www.itu.int/en/ITU-T/jca/cit/Pages/default.aspx*

Next meeting: 7 December 2015

ITU-T SG11 C&I outcomes

- Established the **Conformity Assessment Steering Committee (ITU-T CASC).** ITU-T CASC will work under the auspices of SG11, according to the SG11 guidelines *"Testing laboratories recognition procedure"* (Q.TL-rec-pro)

- **A living list of ITU-T Recommendations** on key technologies suitable for C&I testing (http://itu.int/go/key-technologies)

- **A reference table of ITU-T Recs and corresponding test specification** under C&I testing (http://itu.int/go/reference-table)

- **Pilot projects** (http://itu.int/go/pilot-projects) of conformity assessment against ITU-T Recs in collaboration with SG2
    - M.3170-series
    - Mobile Number Portability (new)

- **New work items**
    - **SIP-IMS conformity assessment**. Work plan (C-218, SG11). Around 20 new work items started in April 2015
    - "Unified methodology of **Internet speed quality measurement** usable by end-users on the fixed and mobile networks" (ITU website)
    - "Conformance **test plan for Number Portability** requirements defined by ITU-T Q.Suppl.4" (C-240, SG11)
    - **Benchmarking of IMS platform**. Work plan (C-220, SG11)

SIP-IMS conformance testing
under Q11/11 "Protocols and networks test specifications; frameworks and methodologies"

http://www.itu.int/en/ITU-T/C-I/Pages/SIP/IMS.aspx

Background

- Most telecom operators have already implemented the IMS platform, connecting their customer's Terminal Equipment (TE) through SIP-IMS protocol

- Different implementation of SIP-IMS protocols can require additional operator's efforts (budgets) to adapt TE to the installed IMS platform

- The roaming services will be not available among operators due to an incompliance of protocol's realization

- Most telecom operators refer to ITU-T Recommendations in case of debatable issues with partner
(operator – issues with interconnection, vendor – issues with equipment)

Objectives of SIP-IMS conformance testing

- Collect all standards on SIP-IMS profile in ITU-T and amend it with missing standards *(e.g. requirements, test specifications, use cases, etc.)*

- Establish the conformity assessment of SIP-IMS profile which may be used by all fixed telecom operators in the world for testing equipment based on SIP-IMS profile

- Start ITU pilot project for conformity assessment of the equipment which is based on SIP-IMS profile *(Testing Laboratory and other interested parties are invited)*

- Create a list of TEs based on SIP-IMS profile which comply with ITU-T Recommendations *(e.g. signalling protocol, voice QoS/QoE)*

- Collaboration with ETSI TC INT *(joint meeting in Vienna, September 2015)*

Resources:

Web page

Presentation of SIP-IMS standardization plan (TD219);
Work plan (TD218)

Work plan on SIP-IMS standardization
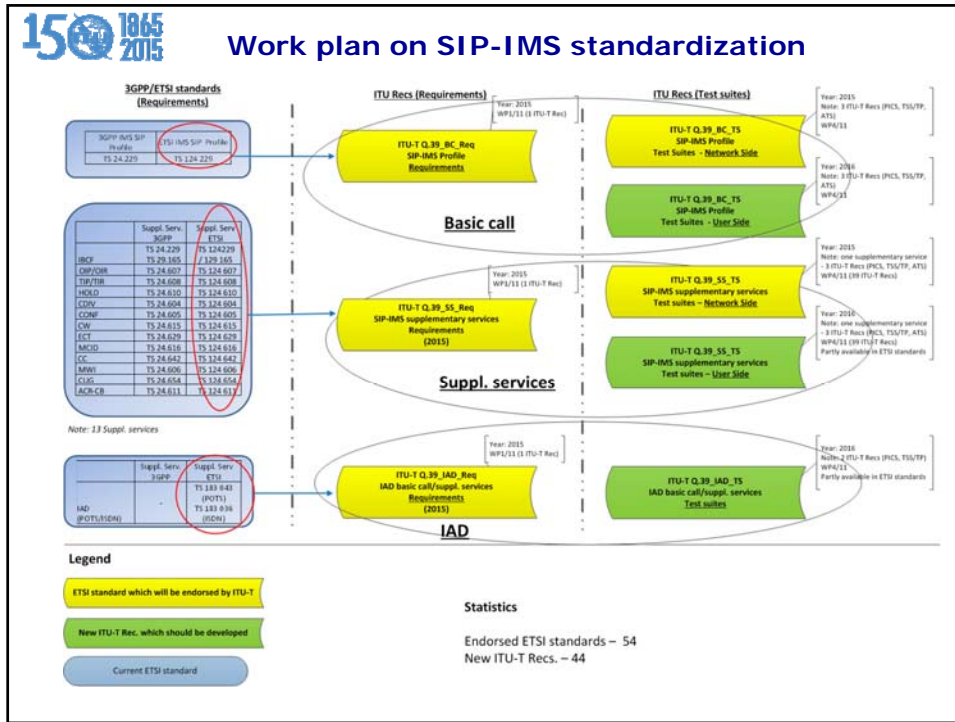
Benchmarking
under Q10/11 "Service and networks benchmarking measurements"

Key outcomes

Benchmarking work plan WD2/10 *(Joint meeting ETSI TC INT – ITU-T Q10/11, Sept 2015)*

Approved ITU-T Recs:
- Basic concept of benchmarking *(ITU-T Q.3930)*
- Benchmarking of PSTN/ISDN emulation *(Series ITU-T Q.3931.1-Q.3931.4)*
- Benchmarking of IMS/NGN *(Series ITU-T Q.3932.1-Q.3932.3)*
- Reference benchmarking *(ITU-T Q.3933)*

Draft Recs:
- *ITU-T Q.3932.4 "IMS/NGN Performance Benchmark - Part 4: Subsystem Reference Load network quality parameters" (Dec.15)*

- *ITU-T Q.Ref&Bachgr "Basic requirements on characteristics measurements of Powerfulness, Efficiency, and Reliability" (Dec.15)*
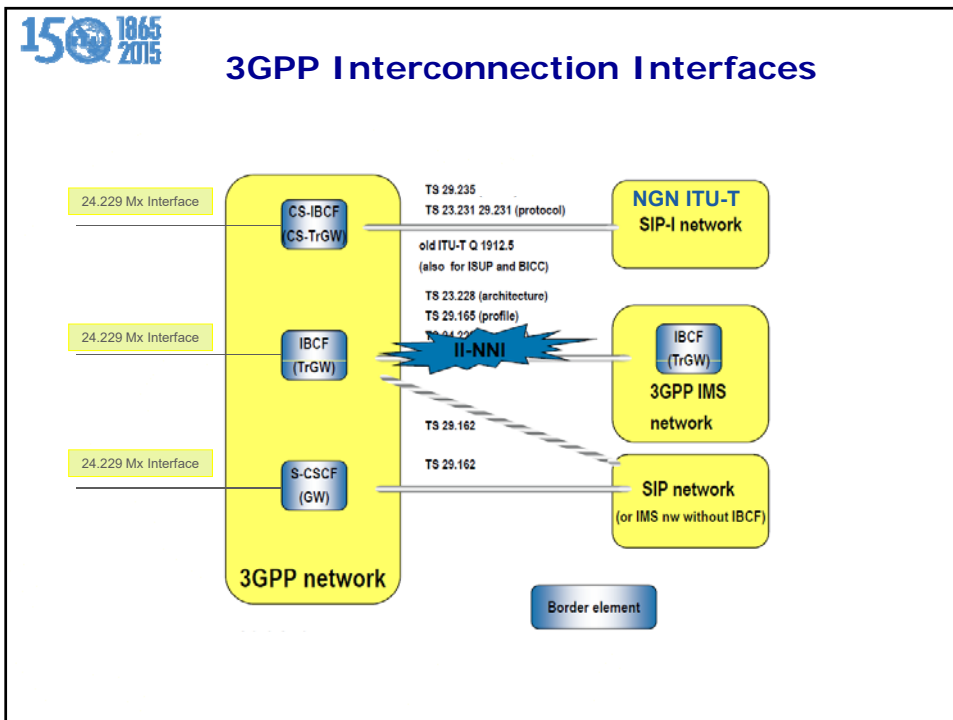
Interconnection
under Q11/11 "Protocols and networks test specifications; frameworks and methodologies"
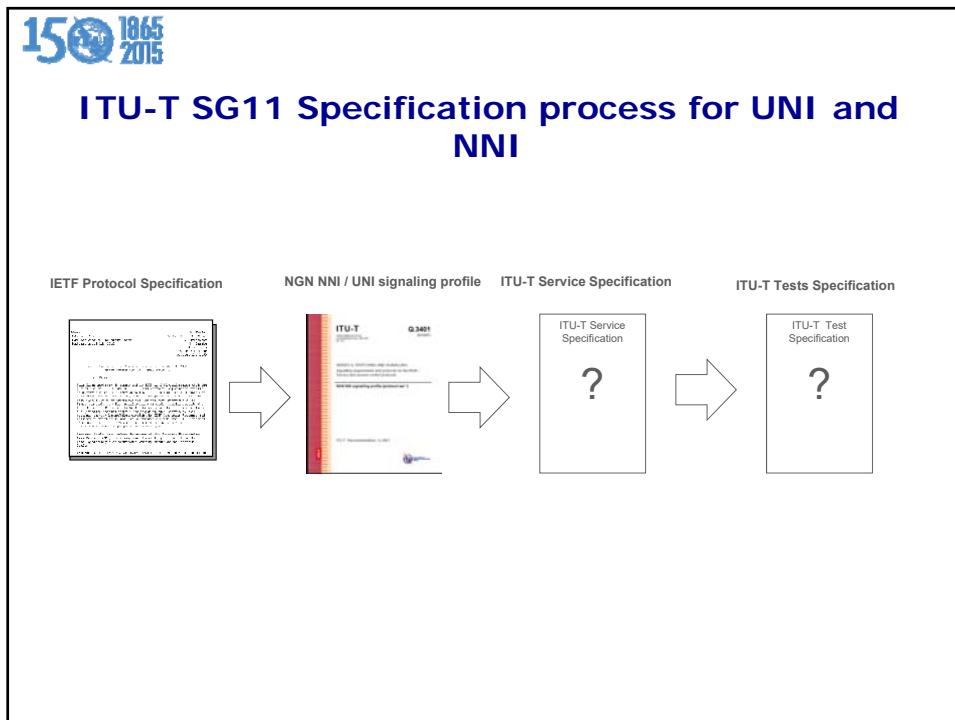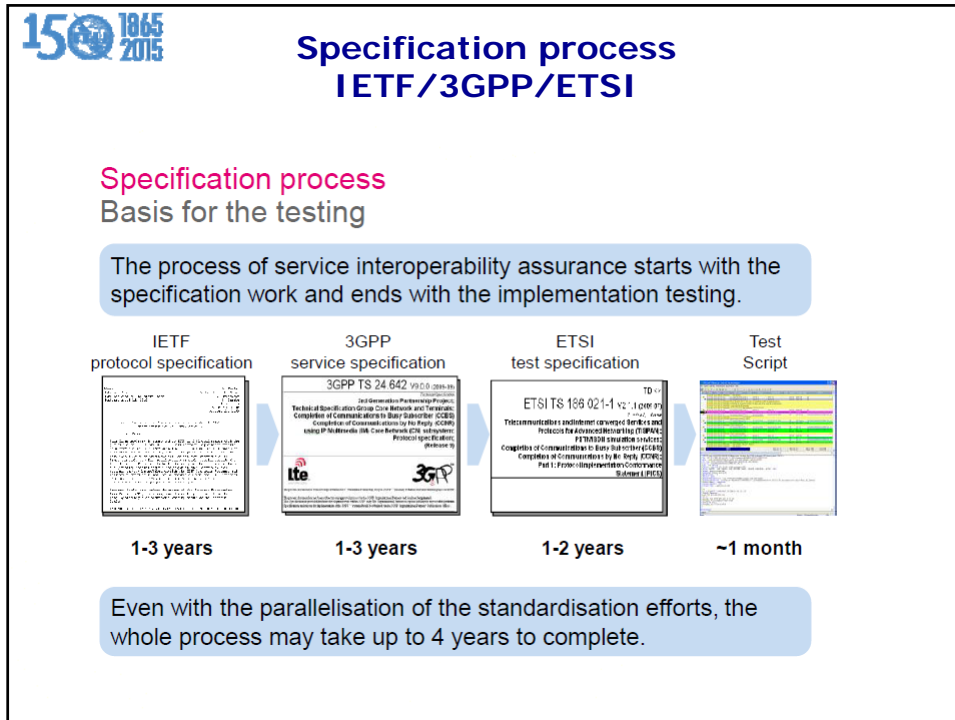
Key outcomes

Approved ITU-T Recs:

- NGN/IMS interconnection tests between network operators at the IMS 'Ic' interface and NGN NNI / SIP-I
  (ITU-T Q.3940)

- Network integration testing between SIP and ISDN/PSTN network signalling protocols
  (Series ITU-T Q.3941.1-Q.3941.4)

3GPP Interconnection Interfaces

Specification process IETF/3GPP/ETSI

Specification process
Basis for the testing

The process of service interoperability assurance starts with the specification work and ends with the implementation testing.

IETF protocol specification	3GPP service specification	ETSI test specification	Test Script
1-3 years	1-3 years	1-2 years	~1 month

Even with the parallelisation of the standardisation efforts, the whole process may take up to 4 years to complete.

ITU-T SG11 Specification process for UNI and NNI

IETF Protocol Specification → NGN NNI / UNI signaling profile → ITU-T Service Specification → ITU-T Tests Specification

ITU actions on Interoperability of SIP-IMS equipment

To ensure the interoperability with 3GPP implementations SG11 must define:

- The extension/adaptation of the Q.1912.5 interworking and the applicability of SIP header fields

- Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) the services needed for interconnection

- Service requirements for the IP multimedia core network subsystem

- Telecommunication management and charging management

- SBC functionalities and Security requirements

- ENUM procedures and functionalities in the NGN

- The endorsement of requirements and the development of Diameter Tests

Internet speed measurement
under Q15/11 "Testing as a service (TAAS)"

http://www.itu.int/en/ITU-T/C-I/Pages/IM/Internet-speed.aspx

Background

1. **Framework of Internet speed measurement**
2. **Testing methodology which is based on two types of measurements:**
   - Internet access speed
   - Internet resources access speed

In progress:

Draft Recommendation ITU-T Q.Int_speed_test "Unified methodology of Internet speed quality measurement usable by end-users on the fixed and mobile networks"

Conformance testing of the Mobile Number Portability
under Q11/11 "Protocols and networks test specifications; frameworks and methodologies"

Key outcomes

Requirements:

- Q.suppl.4 "Number portability – Capability set 1 requirements for service provider portability (All call query and Onward routing)"

Draft test specification:

- Q.MNP_TS "Conformance test plan for Number Portability requirements defined by ITU-T Q.Suppl.4"

Pilot project:

- SG11 started pilot project which aims to perform testing of MNP implementation against ITU-T Recs.
  (web page http://itu.int/go/pilot-projects)

Conformity Assessment Steering Committee (ITU-T CASC)

https://www.itu.int/en/ITU-T/studygroups/2013-2016/11/Pages/CASC.aspx

ITU-T recognition procedure of testing laboratories

Background:

- Russian Contribution to SG11 meeting (November 2013) and corresponding group was created
- The corresponding group concluded in July 2014 and the work transferred to Q11/11

Recent developments:

- New guideline "Testing laboratories recognition procedure" (Q.TL-rec-pro) was approved in April 2015
- ITU-T Conformity Assessment Steering Committee (CASC) was established under SG11 in April 2015
- Mr Isaac Boateng (NCA, Ghana) was appointed Chair of CASC
- ITU-T CASC will adopt the working methods of a Working Party
- First meeting of the ITU-T CASC planned in 9 December 2015. All ITU-T SGs are invited to appoint a representative to the CASC [see TD 245 (TSAG)]

TL recognition procedure work flow

Detailed procedures will be developed by ITU-T CASC.
The general work flow will be as follows:

- The candidate TL shall submit to the ITU-T CASC an application for recognition
- The ITU-T CASC will provide to the relevant committee of IEC and ILAC the necessary documentation and the list of ITU-T technical experts
- Based on the decisions of IEC and ILAC, ITU-T CASC will recognize a TL
- The TL is notified and added to the list of ITU-T recognized TL

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THANK YOU!

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