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| ITU Member States, Members of the RCC |
| Draft New Resolution [RCC-5] - Interconnection of 4G, 5G/IMT‑2020 networks and beyond |
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| **Abstract:** | This contribution proposes a draft new WTSA-16 Resolution on interconnection of 4G, 5G/IMT-2020 networks and beyond.  |

Introduction

The current state of development of ICTs requires active development of ITU-T Recommendations in the area of network architecture, principles of roaming, issues of numbering, security and charging mechanisms, as well as compatibility and conformance with test standards for inter‑operator connectivity of 4G, 5G/IMT-2020 networks and beyond.

Implementing these proposals could also entail corresponding amendments to the International Telecommunication Regulations (ITR).

Proposal

It is proposed to adopt a new WTSA Resolution on “Interconnection of 4G, 5G/IMT-2020 networks and beyond”, as set out in the text that follows.

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DRAFT NEW RESOLUTION [RCC-5]

Interconnection of 4G, 5G/IMT-2020 networks and beyond

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

*a)* that currently most of the telecom operators in the world are migrating from circuit switching networks to the packet switching networks and most of them have already established IP‑based networks for delivering most of their services using a new concept "all over IP";

*b)* that currently Long-Term Evolution (LTE) is used on the access stratum of operators networks as one of the technologies for delivering voice over IP services (VoLTE);

*c)* that network architectures, roaming principles, numbering issues, charging and security mechanisms, which are being used in the circuit switching networks, in most cases are not appropriate for interconnection of IP-based networks (e.g. 4G, 5G/IMT2020 and beyond) to be used for providing voice and video services;

*d)* that interconnection of the IP-based networks needs to be agreed among all Member States in order to prevent the appearance of new issues related to the numbering, roaming, charging, security, to name a few;

*e)* that VoLTE interconnection as well as other types of interconnection of packet-based networks will require translation from ITU‑T E.164 number format to the Universal Resource Identifier (URI) which may be considered as a common identifier of IP-based networks to be used for voice and video communications;

*f)* that ENUM is one of the possible solutions to be used for E.164/URI translation for such interconnections;

*g)* that Resolution 49 of the WTSA‑12 (Rev. Dubai, 2012) instructs ITU‑T SG2 to study how ITU could have administrative control over changes that could relate to the international telecommunication resources (including naming, numbering, addressing, and routing) used for ENUM;

*h)* that Resolution 133 of the Plenipotentiary Conference (Rev. Busan, 2014) instructs the Secretary-General and the Directors of the Bureaux to take any necessary action to ensure the sovereignty of ITU Member States with regard to Recommendation ITU‑T E.164 numbering plans, whatever the application in which they are used;

*j)* that Resolution 76 of the WTSA‑12 (Rev. Dubai, 2012) instructs the Director of the Telecommunication Standardization Bureau to continue to conduct as necessary exploratory activities in each region in order to identify and prioritize the problems faced by developing countries related to achieving interoperability of telecommunication/ICT equipment and service;

*k)* that WCIT-12 adopted Resolution 4 (Dubai, 2012) – Periodic review of the International Telecommunication Regulations, *recognizing e)* of which states that "the International Telecommunication Regulations consist of high-level guiding principles that should not require frequent amendment, but in the fast moving sector of telecommunications/ICTs may need to be periodically reviewed";

*l)* that ITU Plenipotentiary Conference 2014 in Busan (PP-14), taking into account proposals from the ITU Member States and Resolution 4 (Dubai, 2012), adopted Resolution 146 (Rev. Busan, 2014) that prescribed some steps for preparation of a possible revision of ITRs,

considering

*a)* that ENUM is not commonly used over the globe for E.164/URI transfer and some operators have their private solutions;

*b)* that some alliances of operators are developing guidelines for interconnection of VoLTE-based networks but still there is no agreed option to be used for such interconnection;

*c)* that development of interconnection procedures for IP-based networks to be used for providing voice and video services needs to be done on an international basis;

*d)* that development of the conformance and interoperability requirements to support testing of protocols and technologies used for such interconnection are essential components for developing interoperable equipment that is based on ITU‑T Recommendations,

taking into account

*a)* that according to the Communiqué of the CTO Meeting, which ITU‑T conducted in Budapest (October 2015), "*CTOs encouraged ITU‑T to initiate studies – including studies on accessibility, data formats, and control and management aspects – with the goal of enabling the global interoperability of such high-quality services, inviting contributions to these studies from operators and related industry experts as well as relevant SDOs*";

*b)* that according to the summary report of the ITU Workshop on "Voice and Video Services Interoperability Over Fixed-Mobile Hybrid Environments, Including IMT-Advanced (LTE)" (December 2015, Geneva) "*further ITU standardization activities should focus on the deployment of signaling protocols for VoLTE interconnection, emergency calls on VoLTE-based networks and numbering issues*";

*c)* that ITU‑T SG11 started work item "*Framework of interconnection of VoLTE/ViLTE-based networks*" which aims to specify common requirements regarding interconnection of VoLTE/ViLTE-based networks;

*d)* that the development of standards which are related to a framework of an interconnection among VoLTE/ViLTE-based networks is one of the subjects of the established collaboration agreement between ITU‑T SG11 and ETSI TC INT;

*e)* that ITU‑T started focus group on IMT-2020,

resolves

1 that ITU‑T Recommendations to address network architectures, roaming principles, numbering issues, charging and security mechanisms as well as interoperability and conformance testing for such interconnection shall be progressed as quickly as possible;

2 that the International Telecommunication Regulations may require relevant modifications,

instructs the Director of the Telecommunication Standardization Bureau

1 to continue to conduct as necessary exploratory activities among telecom operators in order to identify and prioritize the problems related to achieving interconnection of IP-based networks such as 4G, 5G/IMT2020 and beyond;

2 to contribute to the work of the Expert Group on the International Telecommunication Regulations (EG-ITR) providing the results of the sector on studies related to interconnection of 4G, 5G/IMT-2020 networks and beyond;

3 to submit the results of these activities to the ITU Council for its consideration and required actions,

instructs the study groups

1 that SG11 should develop ITU‑T Recommendations which specify the framework and signalling architectures to be used for establishing interconnection among 4G, 5G/IMT-2020 networks and beyond to achieve interoperability worldwide;

2 ITU‑T SG2 should develop ITU‑T Recommendations which specify the ENUM architecture to be used for interconnection of 4G, 5G/IMT-2020 networks and beyond, including administrative control that could relate to the international telecommunication resources (including naming, numbering, addressing, and routing);

3 to identify as soon as possible future ITU‑T Recommendations that need to be developed in terms of interconnection of 4G, 5G/IMT-2020 networks and beyond which should cover the following issues: numbering, roaming procedures, tariffs, policy and regulatory issues, signalling, QoS/QoE, codecs, security and conformance and interoperability testing;

4 to cooperate, as appropriate, with interested stakeholders and alliances to optimize studies on this particular subject,

invites the Council

to consider the Director's report referred to in *instructs the Director of the Telecommunication Standardization Bureau* 3 above,

invites Member States and Sector Members

to contribute to the implementation of this Resolution,

invites Member States

to encourage telecom operators to assist ITU‑T in implementing this Resolution.

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