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| PROPOSED MODIFICATION TO RESOLUTION 77 |
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| **Abstract:** | This document contains the proposal for modification of WTSA Resolution 77, “Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking”. |
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Introduction

Over the last twelve years, SDN (Software-Defined Networking) related technologies have been witnessing many profound changes. Relevant to SDN, other programming network technologies, including, but not limited to, network function virtualization (NFV), intent-based networking, network slicing, service function chaining (SFC), service aware network, network virtualization, network resource and service modelling language, big data driven networking and operation, and AI-assisted networking and operation, are emerging and becoming mature. In Recommendation ITU-T Y.3100, network softwarization, as a standardized term, is defined as “an overall approach for designing, implementing, deploying, managing and maintaining network equipment and/or network components by software programming”. Therefore, the above-mentioned programmable network technologies can be collectively regarded as network softwarization technologies.

As the significant component of global digital transformation, the combination and inter-working of SDN and other network softwarization technologies are becoming more and more influential on various aspects of ICT industry, e.g. industrial control, self-automated driving, time critical and high reliability communications, and other network and/or computing based services. We have reasons to envisage SDN and other network softwarization technologies as a long-term technical trend that is fundamentally reshaping the ICT industry in the decades to come.

ITU-T SDN and other network softwarization technologies achieved some gratifying successes. SG13, SG11, SG15, SG2, SG16, SG17 have been advancing the functional requirements and architectures standards, implementation related standards, transport network standards, operation related standards, multimedia related standards, and security standards in this area, respectively.

It is necessary for ITU-T to extend SDN related study to SDN and other network softwarization technologies as a cluster of network technologies in this Resolution after being updated and reinforced in its long-term strategies towards ICT convergence and global digital transformation to provide constant guidance to specific work in ITU-T’s various SGs and FGs, etc.

Proposal

APT Member Administrations propose to modify Resolution 77, Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking.

MOD APT/37A23/1

RESOLUTION 77 (Rev. New Delhi, 2024)

Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking and other network softwarization technologies

(Dubai, 2012; Hammamet, 2016; New Delhi, 2024)

The World Telecommunication Standardization Assembly (New Delhi, 2024),

considering

*a)* that, with the development and trend towards maturity of software-defined networking (SDN) and other network softwarization[[1]](#footnote-1) technologies, major organizations are involved in these technologies’ standardization, as well as those developing related open-source projects as implementation solutions;

*b)* the fact that SDN and other network softwarization technologies are profoundly changing the telecommunication and information and communication technology (ICT) industry's landscape and will continue to do so in the decades to come, and may bring multiple benefits to the telecommunication/ICT industry;

*c)* the rapidly growing interest of a significant number of ITU members in the application of SDN and other network softwarization technologies in the telecommunication/ICT industry to promote inclusive and sustainable development;

*d)* that, the behaviour of the traffic that is generated by emerging network and computing services enabled by SDN and other network softwarization technologies may be different from the traffic generated by the traditional NGN services;

*e)* that network automation and intelligence, as one of the major network development trends, which seeks to promote the network configuration and deployment agility, and make the whole network more predictable and uniform, could be implemented based on SDN and other network softwarization technologies;

*f)* that the orchestrator for SDN and other network softwarization technologies provides the important bond between a wide range of technologies that enable cloud-based network and telecommunication services, at the same time recognizing the work of other organizations such as the European Telecommunications Standards Institute (ETSI) Network Functions Virtualisation Industry Specification Group (NFV ISG), and the Open Network Automation Platform (ONAP);

*g)* that several ITU‑T study groups including SG2, SG11, SG13, SG15, SG16, SG17 have made significant standardization achievements on SDN and other network softwarization technologies and still have many standardization issues to deal with;

*h)* Resolution 139 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on use of telecommunications/ICT to bridge the digital divide and build an inclusive information society;

*i)* UN Sustainable Development Goal (SDG) 9 on building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation,

noting

*a)* that ITU‑T should play an important role in the development of implementable and deployable SDN and other network softwarization technologies standards in collaboration with other standards development organizations (SDOs);

*b)* that a standards ecosystem of SDN and other network softwarization technologies should be well coordinated, with ITU‑T at its centre,

recognizing

*a)* that ITU‑T has unmatched advantages when it comes to requirements and architecture standards;

*b)* that a solid foundation is required to continue developing and enhancing SDN and other network softwarization technologies requirements and architecture standards, so that the whole set of standards may be built through an industry-wide synergy,

resolves to instruct study groups of the ITU Telecommunication Standardization Sector

1 to continue and enhance collaboration and cooperation with different standards development organizations (SDOs), industry forums, and open-source software projects on SDN and other network softwarization technologies, as appropriate, taking into account the outcome of TSAG work on open source;

2 to continue to expand and accelerate the work on SDN and other network softwarization technologies standardization, especially carrier SDN;

3 to develop non-normative deliverables for implementation and deployment guidance (e.g. best practice related Supplements, implementers' guides, and handbooks) of existing and emerging SDN and other network softwarization technologies to the production networks and future networks by reconciling with existing efforts, including those by relevant SDOs, for standardization and technological advancements, including those that are beneficial to developing countries;

4 to promote standardization work on network and computing services enabled by SDN and other network softwarization technologies in partnership with other SDOs;

5 to consider the potential implications of the SDN and other network softwarization technologies orchestrator layer for ITU‑T operation supporting system (OSS) related work;

6 to take into account open source projects in developing SDN and other network softwarization technologies related standards,

instructs the Telecommunication Standardization Advisory Group

to examine the matter, consider the input of study groups and take the necessary actions, as appropriate, with a view to deciding on the necessary SDN and other network softwarization technologies standardization activities in ITU‑T, with the following actions:

• to continue coordination and assistance in SDN and other network softwarization technologies standardization across different ITU‑T study groups effectively and efficiently;

• to continue collaboration with other SDN and other network softwarization technologies-related standards bodies and forums;

• to coordinate the work on technical issues of SDN and other network softwarization technologies across the study groups according to their areas of expertise;

• to define a clear strategic vision for SDN and other network softwarization technologies standardization and an important active role that ITU‑T should play,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide the necessary assistance with a view to expediting such efforts, in particular using any opportunity within the allocated budget to exchange opinions with the telecommunication/ICT industry, including through the chief technology officer (CTO) meetings under Resolution 68 (Rev. Hammamet, 2016) of WTSA, and in particular to promote participation of the industry in SDN and other network softwarization technologies standardization work in ITU‑T;

2 to conduct workshops, with other relevant organizations, for capacity building on SDN and other network softwarization technologies, so that the gap in technology adoption in developing countries may be bridged at the early stages of implementation of SDN and other network softwarization technologies-based networks, and to organize the SDN and other network softwarization technologies workshop with open-source solutions representation to share the progress in SDN and other network softwarization technologies standards and real experience in the current carrier network;

3 to promote the implementation and deployment of network and computing services enabled by standardized SDN and other network softwarization technologies in developing countries in collaboration with Telecommunication Development Bureau,

invites Member States, Sector Members, Associates and academia

to submit contributions for developing SDN and other network softwarization technologies standardization in ITU‑T.

1. The term “network softwarization” is defined in Recommendation ITU-T Y.3100 (2017). [↑](#footnote-ref-1)