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## CONTRIBUTION

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| **Source:** | Huawei Technologies Co. Ltd. (China), China Mobile Communications Corporation, China Unicom, Ministry of Industry and Information Technology (MIIT) |
| **Title:** | "New IP, Shaping Future Network": Propose to initiate the discussion of strategy transformation for ITU-T |
| **Purpose:** | Proposal |

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| **Keywords:** | New IP; Future Network; Network Protocol; Network Security; |

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| **Abstract:** | This contribution proposes a number of important strategic opportunities for ITU-T in the next study period and gives a suggestion to make a strategic transformation responding to the challenges faced. An ad-hoc meeting is suggested so that a tutorial can be given. |

New IP TSAG v2.pptx

## 1. Introduction

This contribution proposes a number of important strategic opportunities for ITU-T now and in the next study period, and gives a suggestion to make a strategic transformation responding to the challenges. An ad-hoc meeting is suggested during this TSAG meeting so that a tutorial could be given. We would like to analyse the current challenges and provide a development path for the future network for the next decade.

In the past 40 years, the telecommunication system has made great progress and become one of the basic foundations of human society. The significance of the telecommunication system not only provides a channel for people to "TALK remotely" but also a possibility for the world to "CONNECT widely". Meanwhile, TCP/IP and related technology has grown quickly with its scalability and universality in the past few decades. The wide availability of this technology has allowed the creation of a broad range of applications including e-Meeting, e-Education, e-Payment and e-Surgery, which have unquestionably improved production efficiency and changed the lives of people across the world. Furthermore, this success has attracted a lot of attention from all walks of life. In recent years, the vertical industries have ridden a wave of ALL-IP transition. The IoT and industrial internet are two typical cases. The combination of datamation and manufacturing industries, or "Internet+", will bring a great deal of benefit to human society.

There has been an obvious trend in the past decades that the telecommunication system and the TCP/IP protocol system have become deeply coupled into a whole. A massive amount of telecommunication devices have employed TCP/IP protocol and thus become "IPed". In modern telecommunication systems, it is very difficult, and indeed of no great importance, to distinguish between telecommunication devices and TCP/IP devices. Nowadays, we prefer to call them "Network System" as a general term rather than telecommunication system or Internet. It can be foreseen that this trend will continue and lead to a more thorough integration in the future.

The development of technologies is a continuous and iterative process. The network technology is no exception. NETWORK 2030 Focus Group has researched on the future network requirements and scenarios. Various of emerging applications and services, such as holographic communication, deterministic services, ManyNets connecting and etc., has been discussed and researched. In a word, the current network system is facing a number of challenges.

Firstly, due to historical reasons, the current network is designed for only two kinds of devices: telephones and computers. As mentioned above, the development of IoT and the industrial internet will introduce more types of devices into the future network. In fact, this process has already begun. The connections and relationships in the network system will be extremely complex. However, the current design, especially in performance and structure, will struggle to meet the future requirements. In addition, we are in the era of exploring and developing space resources. More and more companies and people are moving into space communication. The ManyNets, connecting space-terrestrial network, IoT network, industrial network etc., is the network form of the future. The current designs are obviously vastly insufficient. The diversity of network requires new ways of thinking.

Secondly, the current network system risks becoming "islands", which should be avoided. More and more unilateral and temporary technologies are being deployed. If all technologies use their own protocols as language to communicate internally, complex "translators" must be employed for communication between islands. The whole network could potentially become thousands of independent islands (a process which has quietly happened in the past years). It will increase the difficulty of global standardization and increase the total cost to society. We should not indulge this trend. Mutual improvement and universal communication should be the goal. A ubiquitous, universal and better protocolled system should be expected.

Thirdly, security and trust still needs to be enhanced. We should recognize that the current network has achieved relatively good security but is still far away from what we actually require in the future. As universal connectivity develops, a better security and trust model need to be designed and deployed to provide a stable, trustworthy and long-term environment for people to use. At the same time, we should promote secure and reliable data sharing schemes, thereby serving AI, Big Data and all kinds of other applications better.

## 2. Proposal

As the WTSA-20 is approaching, it is the right time for ITU-T to consider designing a new information and communications network with new protocol system that satisfies and serves for the future. There are great opportunities for ITU-T to play a leading role in a strategic transformation and pay more attention to the new future network research with New IP protocol system. As the international technology and standard organization, ITU-T is suggested to take a long-term view and shoulder the responsibility of a top-down design for the future network. Instead of one or two groups, the long-term work requires to have overall planning especially in the high-level planning. Therefore, the significant work in ITU-T would guide the global research and industrial development in future decades.

The purpose of this contribution is to suggest ITU-T to start a further long-term research now and in the next study period, which will include but is not limited to:

1. Arrange an ad-hoc meeting or a special session in TSAG. We would like to provide a tutorial for sharing our research and views as the background and basic document for ITU-T experts to analyse the possible ways and thoughts on the challenges which ITU-T is facing

2. Making global and strategic plans in the next study period, which focus on future network development. Besides the current work, ITU-T should engage in high-level strategic planning to explore the global developing framework for the future network.

3. The related Study Groups of ITU-T, such as SG13, SG17, SG11 and SG20, are suggested to set up new Questions (Q) to discuss the future-oriented technologies, which push the current research further.

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