Question 13/11 – Monitoring parameters for protocols used in emerging networks, including cloud/edge computing and software-defined networking/network function virtualization (SDN/NFV)

(Continuation of Question 13/11)

1 Motivation

The following emerging networks have been identified and developed: future networks (FNs), Internet of things (IoT), VoLTE/ViLTE-based networks, IMT-2020, etc. In order to reduce investment and operating costs, software defined networking (SDN) as well as network function virtualization (NFV) have been deployed in emerging networks to achieve the separation of control and service, control and bearer, hardware and software.

Cloud computing and edge computing is also becoming the infrastructure of the cyber world. In this new emerging environment, operators and end-users should have capabilities in place to monitor whether the infrastructure they are using can support applications and services.

As AI technology becomes more and more mature, it is applied to the network, such as intelligent decision-making and intelligent prediction for operators and Internet enterprises. The selection of monitoring parameters in intelligent decision-making model or intelligent prediction model has great influence on the efficiency of the network and users' experience lastly.

Standardization of monitoring system parameters for emerging networks, including cloud computing, will give operators, administrations and end-users monitoring information that is compatible and comparable across network operators, service providers and end-users. Moreover, it could be useful to help resolve points of disagreement.

2 Question

Study items to be considered include, but are not limited to:

– What is the minimum parameter set, which need to be used to assess network performance?

– What is the minimum parameter set, which need to be used for monitoring cloud computing and edge computing?

– What is the minimum parameter set, which need to be used for monitoring NFV and SDN?

– What is the minimum parameter set, which need to be used for monitoring emerging networks, applications and services?

– What kind of parameters need to be used for monitoring security issues?

– What kind of parameters need to be used for AI technology in emerging networks, applications and services?

– What is the minimum parameter set, which need to be used for monitoring intelligent networks, applications and services?

3 Tasks

Tasks include, but are not limited to:

– develop a minimum parameter set and a methodology for its measurement, which need to be used to assess network performance;

– develop a minimum parameter set and a methodology for its measurement, which need to be used to assess cloud computing and edge computing;

– develop a minimum parameter set and a methodology for its measurement, which need to be used to assess NFV and SDN;

- develop a minimum parameter set and a methodology for its measurement, which need to be used to assess emerging networks, applications and services;
- study what kind of parameters need to be used for monitoring security issues;
- study what kind of parameters need to be used for AI technology in emerging networks, applications and services;
- study what kind of parameters need to be used intelligent networks, applications and services.

An up-to-date status of work under Q13/11 is contained in the SG11 work programme (https://www.itu.int/ITU-T/workprog/wp_search.aspx?sp=17&q=13/11).

4 Relationships

Recommendations:
- ITU-T Q, Y, H, I, M, F and P-series

Questions:
- 1/11, 2/11, 4/11, 7/11, 12/11, 14/11, and 16/11

Study Groups:
- ITU-T SG3 on policy and regulatory issues
- ITU-T SG12 on QoS/QoE issues
- ITU-T SG13 on FNs, SDN/NFV, cloud computing and emerging networks architecture
- ITU-T SG16 on multimedia services and applications
- ITU-T SG17 on security issues
- ITU-T SG20 on IoT and its applications

Other bodies:
- ETSI
- IEEE
- IETF

WSIS action lines:
- C2, C5

Sustainable Development Goals:
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