Question 7/13 – Future Networks: Deep packet inspection and network intelligence

(Continuation of Question 7/13)

1 Motivation

Deep packet inspection (DPI) is beneficial to network operators in many areas such as service/application awareness, quality of service (QoS) assurance, network management and so on.

In order to provide better service and make full use of the network resources, network operators and service providers need to sense the network timely and accurately. By combination with big data, artificial intelligence and machine learning related technologies, network awareness can be further enhanced.

Based on deep packet inspection and intelligent network-awareness, operators can improve QoS and quality of experience (QoE) of the network, they can also make efficient use of network resource, reduce costs and capital investment.

Deep packet inspection and intelligent network-awareness can also be the generic core technologies and common building blocks for some application technologies which depend on deep packet inspection and intelligent network awareness tightly such as big data driven networking (bDDN).

It should be emphasized that studies on big data and machine learning related technologies are out of scope for this Question.

The following major Recommendations, in force at the time of approval of this Question, fall under its responsibility:

– ITU-T Y.2770, Y.2771, Y.2772, Y.2773, Y.2774, Y.2775;

– ITU-T Y.3650, Y.3651, Y.3652.

2 Question

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

– What enhancements to existing Recommendations are needed to enable services/applications identification/awareness/visibility, to enable traffic and resource optimization based on deep packet inspection in future networks?

– What new Recommendations are needed to provide new mechanism, architecture for deep packet inspection in future networks from the perspective of emerging application context?

– What new Recommendations are needed to support functional requirements, functional architecture, mechanism and application scenarios of intelligent network-awareness in future networks from the perspective of emerging application context?

– What new Recommendations are needed to provide functional architecture, requirements and mechanism for big data driven networking?

– What new Recommendations are needed to provide framework, requirements and architecture for networking scenarios which use deep packet inspection and intelligent network-awareness in order to support capabilities like environment awareness, self-awareness, self-learning and thinking, self-decision, self-operation, self-restructuring, self-optimization and self-protection?

– What new Recommendations are needed for other application based on deep packet inspection and intelligent network-awareness?

3 Tasks

Tasks include, but are not limited to:

– Enhancements of ITU-T Y.2770, Y.2771, Y.2772, Y.2773, Y.2774, Y.2775 in future networks.

– Development of new Recommendations on new DPI requirements, architecture, mechanism and methods for future networks in the emerging application context.
– Development of new Recommendations on requirements, architecture, mechanism and method related to intelligent network-awareness for future networks in the emerging application context.
– Development of new Recommendations on functional architecture, requirements and new mechanism of big data driven networking.
– Development of new Recommendations on framework, architecture and requirements for networking scenarios which use deep packet inspection and intelligent network-awareness in order to support capabilities like environment awareness, self-awareness, self-learning and thinking, self-decision, self-operation, self-restructuring, self-optimization and self-protection.
– Development of new Recommendations on other application based on deep packet inspection and intelligent network awareness.

An up-to-date status of work under this Question is contained in the SG13 work programme: https://www.itu.int/ITU-T/workprog/wp_search.aspx?sp=17&q=7/13.

4 Relationships

Questions:

– All big data related Questions.
– All artificial intelligent and machine learning related Questions.
– All future networks related Questions.
– All OAM related Questions

Study groups:

– All big data related study groups.
– All artificial intelligence and machine learning related study groups
– All future networks related study groups.
– All OAM related study groups

Other bodies:

– IETF
– ISO
– 3GPP
– ETSI NFV
– IEC
– IEEE
– ONF

WSIS Action Lines

– C2, C3

Sustainable Development Goals

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