ATIS-1000090

National Security Emergency Preparedness Next Generation Network Priority Service (NS/EP NGN-PS): Transport Level Packet Marking and Packet Scheduling in 5GS

TECHNICAL REPORT

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ATIS Technical Report on

National Security Emergency Preparedness Next Generation Network Priority Service (NS/EP NGN-PS): Transport Level Packet Marking and Packet Scheduling in 5GS

Alliance for Telecommunications Industry Solutions

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Abstract

This Technical Report provides guidance on how the 5G parameters (e.g., 5QI) are used for transport level packet marking and packet scheduling in support of National Security Emergency Preparedness Next Generation Priority Service (NS/EP NGN-PS).

Foreword

The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Packet Technologies and Systems Committee (PTSC) develops and recommends standards and technical reports related to services, architectures, and signaling, in addition to related subjects under consideration in other North American and international standards bodies. PTSC coordinates and develops standards and technical reports relevant to telecommunications networks in the U.S., reviews and prepares contributions on such matters for submission to U.S. International Telecommunication Union Telecommunication Sector (ITU-T) and U.S. ITU Radiocommunication Sector (ITU-R) Study Groups or other standards organizations, and reviews for acceptability or per contra the positions of other countries in related standards development and takes or recommends appropriate actions.

The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word *may* denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, PTSC, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, PTSC, which was responsible for its development, had the following leadership:

M. Dolly, PTSC Chair (AT&T)

V. Shaikh, PTSC Vice-Chair (Perspecta Labs Inc.)

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1 Scope, Purpose, & Application

This Technical Report (TR) describes support of National Security/Emergency Preparedness Next Generation Network Priority Services (NS/EP NGN-PS) based on the 3GPP Release 15 5GS QoS model and associated parameters for 5GS standalone architecture option 2, and includes:

1. Transport Level Packet Marking (e.g., to set a DiffServ Code Point value for priority traffic), and

2. Packet Scheduling (e.g., to determine the relative priority of QoS Flows and which packet(s) to serve when the 5QI Packet Delay Budget (PDB) can no longer be met for one or more QoS aggregates across all UEs).

While parts of this report may be applicable to architecture options other than architecture option 2, all aspects of the other architecture options are outside the scope of this document.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

3GPP

[Ref 1] 3GPP TS 23.501	System Architecture for the 5G System; Stage 2 (Release 15)
[Ref 2] 3GPP TS 23.502	Procedures for the 5G System; Stage 2 (Release 15)
[Ref 3] 3GPP TS 23.503	Policy and charging Control Framework for the 5G System; Stage 2 (Release 15)
[Ref 4] 3GPP TS 24.501	Non-Access Stratum (NAS) protocol for 5G System (5GS); Stage 3 (Release 15)
[Ref 5] 3GPP TS 29.244	Interface between the Control Plane and the User Plane Nodes; Stage 3 (Release 15)
[Ref 6] 3GPP TS 29.514	Policy Authorization Service; Stage 3 (Release 15)
[Ref 7] 3GPP TS 38.300	NR; NR and NG-RAN Overall Description; Stage 2 (Release 15)
[Ref 8] 3GPP TS 38.413	NG-RAN; NG Application Protocol (NGAP) (Release 15)

ATIS

[Ref 9] ATIS-1000057	Service Requirements for Emergency Telecommunications Service (ETS) in Next Generation Network
[Ref 10] ATIS-1000065	Emergency Telecommunications Service (ETS) Evolved Packet Core (EPC) Network Element Requirements
[Ref 11] ATIS-1000066	Emergency Telecommunications Service (ETS) Network Element Requirements for IMS-based Next Generation Network (NGN) Phase 2